

**The development of fair resource allocation: Social norms  
and group processes**

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## Declaration of Authorship

I, Luke McGuire, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

Signed: \_\_\_\_\_

Date:

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## **Abstract**

Resource allocation is an important context in which children and adolescents learn about moral issues of equality, equity and fair exchange. Recent research has examined resource allocation in an intergroup context in an attempt to understand how group processes exert an influence upon the propensity to share fairly. This thesis extends existing knowledge by providing an in-depth examination of a key element of the intergroup world; namely, social norms. Specifically, how the ability to coordinate multiple social norms when allocating resources in a challenging intergroup context develops between middle childhood and adolescence. Chapter One provides an overview of literature regarding resource allocation in an intergroup context, as well as relevant theory. In Chapter Two when ingroup and outgroup norms of competition and cooperation were manipulated, participants coordinated multiple norms at the peer level when allocating resources. In Chapter Three, adolescents and young adults coordinated peer group and generic societal norms, whereas children relied predominantly on ingroup norms to guide their allocation. Chapter Four demonstrated age-related differences between children and young adults in understanding of group processes when evaluating ingroup members who deviated from a resource allocation norm. In Chapter Five children coordinated generic norms at the classroom level with ingroup norms in their allocation decisions. Finally, Chapter Six examined the influence of peer norms in a situation of intergroup inequality. Adolescents coordinated their understanding of relative advantage and group processes, whilst children allocated equally. Overall these studies demonstrate the development of resource allocation strategies that simultaneously coordinate peer level norms, generic societal norms, and contextual

information. In Chapter Seven, the findings are discussed in the context of theory and potential explanatory mechanisms are explored.

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## CHAPTER ONE

### *Introduction & Literature Review*

Resource allocation involves fundamental moral considerations including the fair treatment of others, and has subsequently long been a central component of research concerning the development of morality (Damon, 1977). Resource allocation has been studied from diverse perspectives including psychology, neuroscience, and moral philosophy (Rawls, 1971). Fair resource allocation is an important context in which children begin to appreciate moral concepts that are applied more broadly throughout the developmental lifespan. Meritocracy, need, equality and the rights of others are important ideas that emerge through the lens of resource allocation. Historically, developmental research has predominantly examined resource allocation as an interpersonal process (Hamann, Warneken, Greenberg, & Tomasello, 2011). However, a burgeoning line of research from developmental intergroup theoretical perspectives has begun to explore how group processes play a central role in guiding the development of fair resource allocation (Rutland & Killen, 2017). The present work adopts this perspective to examine how a specific element of group processes influences the development of fair resource allocation and social reasoning; namely, social norms.

Across five empirical chapters this thesis explores how social norms influence children, adolescents' and adults' allocation of communal resources in complex intergroup contexts, as well as their social reasoning regarding these decisions. In order to do so, we first explore what is already known about children and adolescents' resource allocation decisions in both interpersonal and intergroup settings. This is followed by an examination of the theoretical perspectives that this

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work draws upon. Finally, the central aims and common methodology of the studies that follow are outlined.

Understanding the development of fair resource allocation is a central aim of moral philosophy and developmental psychology. Biased allocation of resources has broad consequences at a societal level, particularly when resources are unfairly distributed based on intergroup characteristics. Examining the developmental roots of this behavior, and pinpointing the factors that can influence biased behavior along with the ages at which these factors are important is essential in order to develop educational practices that promote egalitarian resource allocation. The present work seeks to extend the field by providing the first systematic examination of how peer group and generic societal norms directly influence the allocation of resources, how such norms are considered when evaluating group members who deviate from said norms, and finally how norms can be used to challenge unfair resource allocation.

### **1.1. A Concern For Fairness**

A core focus of developmental moral psychology is to establish what is considered fair by whom and when. Much of the existing work on resource allocation that explores these boundaries of fairness comes from either an interpersonal perspective (Warneken, Lohse, Melis, & Tomasello, 2011; Wittig, Jensen, & Tomasello, 2013) , or examines resource allocation in infancy and young childhood (Geraci & Surian, 2011; Schmidt & Sommerville, 2011). Less is known about how fair resource allocation emerges in an intergroup setting and extends from middle childhood into adolescence. Interpersonal work in infancy has, however, been extremely important in elucidating how children think resources ought to be allocated when the identity of the individuals involved is not central to the procedure of the study (i.e. their group memberships are not made salient).

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Researchers have traditionally used decision-making games in order to examine resource allocation behavior. These games were first developed to explore bargaining behaviour and early studies utilising them revealed the importance of one resource allocation style. Specifically, participants consistently demonstrate a tendency to allocate resources equally in order for individuals to receive a roughly fair share. In Güth, Schmittberger, and Schwarze's (1982) Ultimatum Game (UG) participants are asked to distribute a set of resources (e.g. money) between themselves and an anonymous other in a one-shot dyadic exchange where the 'receiver' must accept the individual's offer in order for either player to receive their share. This requires participants to take the perspective of their sharing partner in order to make an offer that they believe will be accepted.

In Güth and colleague's original sample participants generally offered between 40 and 50% of their allotted resources, and only two participants were willing to accept a 10% share of the resources. The fact that conflict arose when participants were offered this small share, but not for a 40% share suggests that participants were more concerned with achieving relative equality than they were with maximising their own resources (i.e. they weren't looking to "beat" the decision maker). In other words, it matters how much someone else is going to receive in an exchange situation, and decision makers are not singularly focused on their own gains and losses. In particular, it matters if someone else is going to benefit above an equal share of resources. As a result of this, adults are willing to forgo an offer they might otherwise find attractive if someone else is set to do better than they are.

Kahneman, Knetsch, and Thaler (1986) further probed this concern for equal allocation using their Dictator Game (DG), which forced participants to respond to unfair allocations. Kahneman argued that participants in the UG might have chosen

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equal allocations due to concerns for reciprocity from their sharing partner in future iterations. The DG was designed such that participants' believed their sharing partner could not retaliate or reciprocate their chosen allocation style. Participants were asked to distribute \$20 between themselves and an anonymous 'receiver' who would have no choice but to accept their offer. Individuals could choose between two allocations; either taking \$18 for themselves whilst giving their partner \$2, or an equal split of \$10 for each player. The rational economic choice, with no risk that the receiver could retaliate, would be to maximise and select the \$18 share.

However, the results of this study replicated and emphasised the equality concern shown by Guth et al., as 76% of participants selected the equal allocation strategy. This is particularly remarkable given that participants were not provided with any information regarding their partner (i.e. their group or personal affiliations), and were aware of the one-shot nature of the decision. With retaliation not possible and consequences for maximisation non-existent, an equal allocation strategy can only be accounted for by a concern for equal allocation and fairness. This fair allocation of resources has been consistently replicated in adult samples (see Roth, 1995 for a review). Similar dyadic exchange studies have been conducted with child samples and reveal a similar picture of the ontogeny of interpersonal resource allocation in childhood.

### **1.2. Development of Equality Concern**

Using similar resource allocation games within developmental samples, results appear largely consistent with the idea that children too allocate resources equally in interpersonal settings. Benenson, Pascoe, and Radmore (2007) asked participants between 4 and 9-years-old to distribute resources in the DG with an anonymous partner. From 4 years old, participants allocated up to 30% of their

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resources to a partner, approaching the values seen in comparable adult work (Henrich et al., 2005; Kahneman et al., 1986). 9-year-old children allocated a greater share of the resources to their partner. In situations of interpersonal dyadic exchange where group identity information is not made salient, children prefer to allocate resources equally between individuals. These findings speak to a fundamental preference for fairness not just amongst adults, but so too in childhood.

A number of recent studies using various adaptations of the DG with developmental samples have revealed similar results to Benenson and colleagues (Blake, Corbit, Callaghan, & Warneken, 2016; Blake & Rand, 2010; Cowell et al., 2017; Gummerum, Hanoch, Keller, Parsons, & Hummel, 2010; Smith, Blake, & Harris, 2013). Broadly, these studies suggest that with age (i.e. between young and middle childhood), children make more equitable offers to their sharing partners. However, they rarely offer more than half of the resources to their partner. Interestingly, these findings vary across cultures. For example, expectations for generosity had a larger impact on the allocation decisions of children in India than they did on children in the US (Blake et al., 2016). Such variation across cultures speaks to the importance that normative information may hold for children when allocating resources.

When allocating resources in value-neutral interpersonal contexts where they are not aware of the group membership of sharing partners, children, adolescents and adults alike do not capitalize upon opportunities to maximise their share of resources. Instead they show a consistent desire to allocate resources equally. However, we know that in reality resource allocation decisions rarely occur in the dyadic interpersonal vacuum in which they are most often studied. Instead, we have access to important information about our sharing partners regarding their group

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memberships. Which groups individuals affiliate with and are members of, what values these groups might hold (particularly in reference to allocation of resources) and how likely groups may be to reciprocate an equal share of resources are important factors in deciding upon a resource allocation strategy. Importantly, children have been shown to utilise salient intergroup information to guide their resource allocation decisions.

### **1.3. Intergroup Resource Allocation**

A number of studies have moved beyond the use of interpersonal decision-making games by examining how children and adolescents allocate resources in situations where group membership is made salient. Fehr, Bernhard and Rockenbach (2008) asked participants aged between 3 and 8-years-old to choose a preferred strategy for allocating resources between themselves and a partner. In the 'sharing' condition, participants could select an equal split where both participants received one resource, or an unequal allocation where they would receive two resources at the cost of their partner receiving none. In order to sustain equality between parties in this condition, children had to accept a cost to the self. Crucially, Fehr et al. manipulated the group membership of the sharing partner. Participants were told that their partner was either a member of their own school (i.e. an ingroup member) or another school (i.e. an outgroup member).

Results demonstrated a developmental trend in the concern for equality in line with the interpersonal decision-making game literature. With age, participants moved closer to equality in their decision-making. Less than 10% of 4-year-olds were willing to accept a cost to the self in order to share, with the majority of participants taking two resources for themselves and leaving their partner with nothing. By 5 to 6 years, 22% selected the equal option and accepted the cost of

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losing out on an extra resource to ensure their partner received one. By comparison, 45% of 7-year-old participants opted for the even split at a cost to the self. With age, a relatively greater proportion of children are willing to accept a cost in order to achieve equality. This finding fits with research using interpersonal allocation games (Blake et al., 2016; Blake & Rand, 2010; Cowell et al., 2017; Gummerum et al., 2010; Smith et al., 2013).

Most importantly, the propensity to choose the sharing option varied as a function of the partner's group identity. Across the age groups, children were 15 - 20% more likely to select the egalitarian option and share the resources equally if their partner was an ingroup member. Ingroup membership motivated greater equal allocation tendencies. Whether this is due to awareness of group conventions or a concern for reciprocity is unclear from these results, but this is indicative of an influence of group membership from middle childhood. Interestingly, it was not only in-group membership that influenced allocation decisions. By 8 years only 12% of participants were willing to share with an outgroup member. Young children are not only concerned with equality for ingroup members but also acutely aware of conventions that dictate ensuring distinction from the outgroup via the medium of resource allocation.

Similarly, Moore (2009) asked 4 to 6-year-old participants to distribute resources between themselves and an individual who was ostensibly a friend, a non-friend or a stranger. Again, this provides a test of whether group membership or concerns for equal allocation provide a more pressing influence in middle childhood. Participants could either give their partner one sticker and accept a short wait for their own sticker, or take two stickers for themselves up front and enforce the wait on their partner. Consistent with the findings of Fehr et al., children were more likely

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to choose the equal option and accept a cost to the self when their partner was a friend than they were when the receiver was a non-friend. Interestingly, participants did not discriminate against strangers by enforcing a wait upon them, suggesting that children prefer the egalitarian option until they encounter a conflict between their moral concerns and the outgroup membership of the recipient.

Both Fehr et al. and Moore utilised pre-existing groups (i.e. school membership, peer group friendships) in order to examine the relative influence of group membership versus moral concern. Gummerum, Takezawa, & Keller (2009) extended this work by *manipulating* group membership, thus minimising the potential confound of pre-existing group culture and the varying strength of ingroup identification amongst participants. Group membership was manipulated using a minimal group paradigm. Participants were inducted into groups ostensibly based upon their response in a dot estimation task. Participants aged between 7 and 11-years-old played the DG with the recipient's identity varying by group (ingroup versus outgroup). Counter to Fehr et al. and Moore's findings, 7-year-olds' allocations did not differ depending on whether the recipient was an ingroup or outgroup member. In middle childhood, participants were still concerned with equal allocation. By comparison, 11-year-olds gave €1 less on average to outgroup members compared with ingroup and control recipients. This study demonstrated that children willingly share with a partner whose group membership is not made salient. However, they also favour their ingroup by altering their allocations according to group membership. Whilst concerned about equality, children also understand the importance of group membership and how this plays a role in allocation decisions.

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When asked to allocate resources in a situation where group membership is not made salient, children, adolescents and adults allocate resources equally between individuals (Benenson et al., 2007; Hamann et al., 2011; Roth, 1995; Warneken et al., 2011). However, when they are asked to allocate resources with friends (Moore, 2009), existing group members (Fehr et al., 2008) or minimal group members (Gummerum et al., 2009), children favour their ingroup peers. Less is known regarding the development of this intergroup resource allocation behavior into adolescence. Similarly, it is not entirely clear what is guiding this ingroup biased resource allocation. The present thesis explores one possible explanatory factor by experimentally manipulating group norms. Before discussing the aims and shared methodology of the thesis it is important to outline the theoretical approaches from which the present work draws.

### **1.4. Developmental Intergroup Perspective**

The present work adopts a developmental intergroup perspective that aims to incorporate ideas from developmental theories concerned with social identity and moral development. These theories play a key role in guiding the hypotheses of the empirical chapters and contextualising the findings in the final chapter.

**1.4.1. Social Domain Theory.** Classic thinking regarding moral development draws predominantly from the work of Kohlberg's stage theory of moral development (Kohlberg, Levine, & Hower, 1983). Kohlberg, in the tradition of Piaget, argued that children's moral thinking developed in stages. Initially, children's conventional moral thought was seen as being bound by rules and punishment. Kohlberg argued that children's moral decisions were driven by adult-endorsed rules and concern for the consequences of not following such rules. In Kohlberg's theory, this conventional focus on rules develops with age to a post-conventional stage that

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focuses on rights, justice and more abstract moral ideas. This domain-general approach argues that children use a central cognitive resource to move from basic to more complex multi-faceted moral thinking. However, evidence suggests that Kohlberg underestimated the abilities of young children when it comes to moral thought (Conroy & Burton, 1980; Locke, 1979).

Social Domain Theory (SDT; Turiel, 1983) is a domain-specific model developed in contrast to domain-general theories of moral development (Kohlberg et al., 1983; Piaget, 1952). Kohlberg's theory of moral development argued that children move through stages of moral ability in conjunction with emergent cognitive abilities, ultimately analysing moral dilemmas using a global, justice-related perspective. A domain-general account of the development of fair resource allocation might predict consistent equality-based allocation in older children who have developed the post-conventional abilities necessary to assess how their actions reflect global principles of fairness and equality. Instead, older children and adolescents are particularly sensitive to the context within which a decision takes place and vary their attitudes towards equal allocation accordingly (Killen, Rutland, Abrams, Mulvey, & Hitti, 2013; Mulvey, Hitti, Rutland, Abrams, & Killen, 2014; Rutland & Killen, 2016).

Social Domain Theory provides a domain-specific account of the emergence of social and moral reasoning that can help account for contextual variation in resource allocation. SDT proposes that rather than moving through stages of moral reasoning, children use multiple domains of knowledge simultaneously when reasoning about moral issues. Turiel proposed that children reason from three perspectives: moral, social-conventional and psychological.

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Moral domain reasoning concerns the inherent rightness or wrongness of a given behaviour. Children develop this knowledge through experience of events that affect the rights or welfare of themselves and others. For example, young children regularly experience how the unfair distribution of toys or food can impinge upon the rights of parties involved in the allocation situation. Turiel's definition of the moral domain meets with Kohlberg's post-conventional stage with a focus on justice and rights. However, Turiel argued that children are capable of this type of reasoning from a younger age than Kohlberg assumed. Moral decisions must take into consideration justice and the rights of those involved. Moral rules, in Turiel's theory, are universal and are applied across contexts. They are also impartial and applied without taking individual identity differences into account. Finally, these rules are not dependent on consensus. Moral rules are accepted regardless of whether a minority of individuals disagree (i.e. it doesn't matter if one person wants to monopolise resources, everyone should still receive a fair share).

Reasoning in the social-conventional domain involves considerations related to the on-going functioning of groups. Children develop an understanding of such conventions based on their experience of social structures. For example, one might experience the benefits to an ingroup that stem from a biased resource allocation strategy. Transgressions in the social-conventional domain are considered wrong because they involve deviation from an agreed upon social norm. By comparison to moral domain rules, social conventions are context-specific (i.e. not universally applied across contexts) and can be decided upon by consensus within groups.

Finally, thought in the psychological domain involves issues of autonomy and individual choice. Children learn about the psychological domain through experience of trying to understand the thinking of others. For example, children

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come to understand that the allocation of a personal windfall of resources falls under the jurisdiction of the individual. For the most part, issues of autonomy and personal choice are less likely to arise in the morally relevant context of intergroup resource allocation.

Intergroup resource allocation scenarios often involve competition between these domains. The present thesis presents participants with situations where they must consider whether to adhere to societal principles of fairness (moral domain), or allocate a greater share of resources to their ingroup in line with conventions regarding favouring one's ingroup (social-conventional domain). We know that children are concerned with both of these domain relevant factors when allocating resources. In some cases young children behave in an egalitarian manner (Benenson et al., 2007) whilst in others they favour ingroup members (Fehr et al., 2008). In order to frame the studies presented in this work we adopt a developmental intergroup perspective that draws upon the tenets of SDT; namely, the Social Reasoning Development approach (Killen & Rutland, 2011; Rutland & Killen, 2017; Rutland, Killen, & Abrams, 2010).

**1.4.2. Social Reasoning Development Approach.** The social reasoning development approach (SRD; Rutland & Killen, 2017; Rutland et al., 2010) proposes that the concurrent emergence of concerns related to morality (moral domain) and group dynamics (social-conventional domain) are of *equal* importance in children's moral decision-making. Authors of the approach have recently argued that children and adolescents simultaneously consider both the moral and group concerns involved in *resource allocation* decisions. The allocation of resources involves more than moral concepts (i.e. equality, merit, need, and equity). Instead group processes are an important part of deciding who gets what and why. The SRD approach makes two

crucial points that are of particular importance to the present thesis. First: group processes (e.g. group norms) are relevant when considering the fair allocation of resources. Second: there are age related changes in fair resource allocation within intergroup contexts.

### **1.5. Group Processes and Fair Resource Allocation**

Interpersonal friendships influence children's moral decision-making regarding resource allocation (Moore, 2009). Less however is known about how group processes, including group status, group identification and group norms influence this process when group membership is a salient variable in the resource allocation decision. Children place important weight upon group membership from middle childhood (Killen & Rutland, 2011; McGuire, Rutland, & Nesdale, 2015; Nesdale & Dalton, 2011), and a strong ingroup preference emerges around this age (Nesdale, 2017). Some children display outgroup negativity, but the most consistent finding is that children treat ingroup members preferentially in both attitude and behaviour (Nesdale & Dalton, 2011; Nesdale & Lawson, 2011). This is observed in resource allocation where children demonstrate ingroup bias by allocating resources in favour of ingroup members (Fehr et al., 2008). Less is known regarding the group-level factors that may help to explain this pattern of ingroup serving allocation behavior.

The SRD approach emphasizes the importance of group processes in moral decision-making. Group norms are one important factor that help to guide the behaviour of group members and delineate group boundaries. Norms are the expectations that regulate behavior both at the group and societal level. Norms are highly influential in guiding children's intergroup evaluations and attitudes. Exclusionary ingroup norms lead to more negative outgroup attitudes and intentions

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(Nesdale, Durkin, Maass, Kiesner, & Griffiths, 2008; Nesdale, Maass, Durkin, & Griffiths, 2005), but the latter can be tempered by an inclusive ingroup norm (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale & Lawson, 2011). The SRD approach argues that norms are an important factor not just in the formation of intergroup attitudes, but so too in moral decision-making and fair resource allocation.

Moral cognition emerges alongside understanding of these group processes in childhood. When group memberships are not made salient, children share equally with one another, seeing these moral decisions as both generalisable (applicable across situations) and impartial (not dependent upon situational factors). Fairness is one such constant that should not be influenced by the partner with whom one is sharing. However, we have seen that children do not always treat resource allocation norms as generalisable or impartial as they allocate resources preferentially to ingroup members. Conventions regarding group distinction and ingroup preference are simultaneously at play.

It is not simply the case that children selfishly allocate resources. We know that children, adolescents and adults all choose to allocate resources equally and favour those who do the same (Geraci & Surian, 2011; Kahneman et al., 1986; Mulvey et al., 2014; Wittig et al., 2013). Rather children show a preference for ingroup members in contexts that present a conflict between morality and group processes. Intergroup settings present the strongest challenge between these competing domain concerns, particularly when group-favouring norms are prescribed. Whilst selfish allocation is rejected as unfair due to its contrast with moral expectations for fairness (Schmidt & Sommerville, 2011), allocating preferentially to ingroup members is seen as more legitimate under certain

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circumstances. Such behavior is justified in terms of group functioning in the social-conventional domain (Mulvey et al., 2014). Ensuring that the ingroup continues to function and encouraging distinction from other groups in terms of access to resources are used as justifications for ingroup biased allocation.

Some recent work has explored how norms can exert an influence on the resource allocation of young children in an interpersonal context. McAuliffe, Raihani and Dunham (2017) manipulated injunctive and descriptive norms of selfishness and generosity in a sample of 4 – 9-year-old children. Injunctive norms were endorsed by the experimenter (“I think you should give...”), whilst descriptive norms outlined the behaviour of same-age individuals (“most kids give...”). Participants who were prescribed a norm for generosity gave more to another child in an adapted dictator game. However, younger children were more likely to take a greater share of resources for themselves when given a selfish norm. In turn, older children were more influenced by the generosity norm.

This study emphasises the importance of normative information for children in resource allocation decisions. However, the present thesis goes beyond this in several key ways. First and most importantly, the empirical studies in this thesis examine these normative processes in an intergroup context. McAuliffe et al. manipulated norms; the origin of the norm was either a figure of authority, or a generic group of ‘kids’. Manipulations in the present thesis make the source of the norm explicit and relevant to the participant by inducting them into groups who hold the norms. Second, this thesis provides a novel extension to such work by examining the shift from early equality concern in childhood into a more advanced understanding of morality in adolescence. Third, the norms manipulated in the present thesis are related to concepts of cooperation and competition rather than

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generous or selfish sharing. Cooperation is important from an early age and provides a more subtle proxy for normative expectations than an explicit instruction from an experimenter (Tomasello & Vaish, 2013).

The SRD approach synthesises work from social identity and social domain theories to argue that, from childhood, when deciding how to allocate resources, reasoning includes concerns about morality and group processes simultaneously. Group norms are a central focus of this theoretical approach, and burgeoning evidence points to their importance in resource allocation. There has yet to be a systematic investigation of resource allocation decisions where social norms are experimentally manipulated on multiple levels in a complex intergroup context, in order to examine their influence from childhood into adolescence. Research from the SRD perspective has made important points regarding the development of understanding of fair resource allocation across these age groups.

### **1.6. Age Related Changes in Fair Resource Allocation**

Recent research has focused on how the relative influence of group processes and moral concerns changes as a function of age. Work in this area has demonstrated a developmental shift from young childhood, through middle childhood and into adolescence where the importance of group membership and promoting group functioning through resource allocation becomes increasingly salient.

Cooley and Killen (2015) asked pre-school (3.5 to 6-years-old) participants to evaluate ingroup members who deviated from peer group norms of either equal or unequal allocation of resources. Participants were members of intra-school classrooms that acted as groups in this study. Participants were informed that their classroom either liked to give five blocks to both groups (i.e. an equality norm), or eight blocks to their own group and two to the other group (i.e. an ingroup biased

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norm). They then read vignettes regarding deviant class group members who wished to allocate resources in the opposite manner to their ingroup.

Ingroup members who deviated from an equal allocation norm were evaluated negatively. Participants justified their negative evaluation of an unequal deviant by referencing the importance of fairness. Crucially, these children differentiated their own perspective from that of the ingroup. 5 and 6-year-olds in this study expected that their group would not positively evaluate a deviant member, even if this individual argued in favour of equal allocation. The act of deviating from group resource allocation normative expectations and the consequences this would have for group functioning was expected to hold more weight than the individual's moral action.

This study emphasizes two points made by the SRD approach. First, there are age-related differences in the importance of morality and group processes. Pre-school children place greater weight on equal allocation than group functioning. Second, with age children apply greater nuance to their understanding of group processes. By 5 years they distinguish between what their group might think, and their own personal viewpoint. Specifically, they understand the consequences of failing to adhere to a group norm even if this is counter to principles of equality.

Killen, Rutland, Abrams, Mulvey and Hitti (2013) extended this work through the developmental lifespan by examining age-related shifts between children's (9 years old) and adolescents' (13 years old) evaluations of deviancy from an equal or unequal resource allocation norm. Again, participants read vignettes where a deviant advocated allocating resources counter to an equal norm (50:50 split) or an unequal norm (80:20 split) that was prescribed by a school ingroup. The monetary resources were to be used to fund a group activity, and so monopolising

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resources for the ingroup would actively disadvantage and exclude the outgroup. Results revealed a developmental shift in coordination of moral and group concerns. With age participants took their ingroup norm into consideration when evaluating deviancy. Adolescent participants argued that their ingroup would be more likely to positively evaluate a deviant who favoured the ingroup (against an equal allocation norm) with their resource allocation than a deviant who allocated resources equally with the outgroup (against an unequal allocation norm).

Adolescent participants reasoned about this behavior with reference to the benefits to group functioning that this unequal deviant would afford them; *“they (the ingroup) would like how she wants her group to get more money”*. With age, individuals understand that there are contexts in which unequal allocation is relatively more justifiable in terms of maintaining group functioning. By comparison, children focused almost exclusively upon the moral duty to share resources equally; *“he is just being greedy, which is not fair”*. In increasingly complex intergroup scenarios where moral and group functioning concerns are simultaneously made salient, children reconcile this issue by focusing upon moral norms for equal allocation, whilst adolescents understand that adherence to group expectations and access to resources are important elements of navigating the social world.

Whilst this emergent understanding of group processes has been well-documented from a third-person evaluative perspective (Killen et al., 2013; Mulvey et al., 2014), less is known regarding how children and adolescents will themselves allocate resources from a first-person perspective in a similarly complex intergroup context where group norms are manipulated. Further, this work has most often used descriptive norms. For example, Killen and colleagues informed participants that

their group had previously allocated resources in a particular way (Killen et al., 2013). Research in the attitudes literature has also used prescriptive norms (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale et al., 2008; Nesdale & Lawson, 2011). Direct prescriptions are often used to inform children how their peers and adults expect them to behave in a given situation, and for children such prescriptions (or injunctive norms) have been shown to be important in interpersonal resource allocation (McAuliffe et al., 2017). The present work advances the literature by not only placing participants in first person allocation scenarios, but by manipulating descriptive *and* prescriptive ingroup norms.

Work drawing from the SRD approach has made it clear that group processes play an important role in tandem with moral concerns in the context of resource allocation decision-making. Work in this area has highlighted developmental shifts between childhood, middle childhood and adolescence. The ability to coordinate group processes with moral concerns emerges across this period, with adolescents best placed to understand that in intergroup contexts a group may prefer someone who allocates in favour of the group. So far however, it is not clear how children and adolescents will actually allocate resources in these situations, and the role of group norms in these decisions.

### **1.7. Ingroup Norms**

Children and adolescents are guided by ingroup prescriptive norms when forming intergroup attitudes (McGuire et al., 2015; Nesdale, Griffith, Durkin, & Maass, 2005; Nesdale, Maass, et al., 2005) and with age come to understand from a third-party perspective how equal allocation norms can influence intragroup dynamics (Killen et al., 2013). The present thesis, for the first time, manipulates

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norms at multiple levels and asks children, adolescents and adults to distribute resources from a first-person perspective in a complex intergroup context.

Norms here are defined as rules (prescriptive) or expectations (descriptive) that are agreed upon as a result of discussion or unspoken consensus. Norms can provide guidance with regard to how one ought to behave in a given situation (i.e. context-specific social conventions), or generalise across scenarios (i.e. generic moral norms). Ingroup norms influence the formation of prejudicial and discriminatory attitudes (Nesdale, Griffith, Durkin, & Maass, 2005; Nesdale, Maass, et al., 2005), can increase intentions to display outgroup negativity (Nesdale et al., 2008), as well as encourage more positive behaviours like prosocial giving (Blake, Piovesan, Montinari, Warneken, & Gino, 2015).

Ingroup norms exist across the domains outlined by Social Domain Theory. For example, equal allocation of communal resources between individuals is a moral domain norm. Children support such norms and challenge those who deviate from them (Hitti, Mulvey, Rutland, Abrams, & Killen, 2014). Moral domain norms are impartial and generalisable; they are applied across situations without consideration of the identities of the individuals involved. In the present work we are particularly interested in moral domain norms related to the allocation of resources. Children generally choose to allocate resources equally in interpersonal situations, which implies the existence of moral domain norms for equal allocation. However, there are also situations in which groups expect their members to preferentially favour the ingroup when allocating.

Social conventional domain norms, by comparison, are more often decided upon within groups and are both specific and non-generalizable. For example, group members may advocate wearing a specific group uniform when they are together in

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order to distinguish ingroup members from outgroup members. Social-conventional ingroup norms like this are not applicable to those outside of the group and tend not to generalize across situations. For example, expectations regarding dress are specific to situations where group members are together.

There may also be instances when social-conventions dictate resource allocation decisions. When choosing who to include in a group, there are situations where socially excluding an individual is seen as more legitimate due to conventions regarding group membership and the qualities of ingroup members (Killen & Stangor, 2001). Similarly, there are situations in which favouring the ingroup is more acceptable due to the context in which resource allocation takes place. So far, less is known about how children reconcile moral domain norms of equality with conventional contexts in which ingroup biased resource allocation is more justifiable.

Preliminary examinations of the importance of ingroup norms in a first-person allocation scenario have revealed developmental trends in line with the SRD approach. McGuire and Manstead (2014) inducted participants aged between 7 and 14-years-old into simulated groups based on school membership. Participants were prescribed ingroup norms of competition or cooperation and asked to allocate resources with an outgroup partner in an adapted dictator game. Children who were prescribed a competitive ingroup norm demonstrated significantly more ingroup bias than adolescents did in the same condition. There was no difference between the age groups when the ingroup advocated a cooperative ingroup norm. Children are highly influenced by the norm of their ingroup when allocating resources. Adolescents on the other hand demonstrated a reflective understanding of the competitive context,

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the ingroup norm and broader societal expectations for acceptable levels of ingroup bias.

The present thesis attempts to extend this work by examining the influence of ingroup norms in more complex scenarios where multiple normative factors must be taken into consideration. Resource allocation scenarios are often more complex than conceptualisations seen in the interpersonal dyadic literature (Benenson et al., 2007; Blake et al., 2016; Blake & Rand, 2010; McAuliffe et al., 2017), involving the balancing of group, moral and contextual information. Importantly, to navigate intergroup scenarios children must take into consideration more than just their ingroup's norms.

### **1.8. Outgroup Norms**

Ingroup normative information is vastly important in guiding the behaviour of group members (McGuire et al., 2015; Nesdale et al., 2008; Nesdale, Griffith, et al., 2005; Rutland, Hitti, Mulvey, Abrams, & Killen, 2015). However, the expected behaviour of outgroup members also plays a role in these scenarios. Less is known regarding how children and adolescents coordinate ingroup and outgroup information. Research examining prosocial behaviour has made intergroup normative contexts salient in which both the ingroup and outgroup hold ingroup biased norms. In these contexts outgroup prosociality decreases and intergroup bias increases among children from approximately 7-years-old (Abrams, Rutland, & Cameron, 2003; Abrams, Van de Vyver, Pelletier, & Cameron, 2015; Spielman, 2000; Zhu, Guan, & Li, 2015).

Yet ingroup and outgroup norms are not always mutually biased in intergroup contexts. Outgroup members who claim to favour their own group members may facilitate bias from ingroup members, but this in turn may depend on

whether the ingroup norm is competitive or cooperative. Therefore, for the first time, in this thesis we manipulated both ingroup *and* outgroup norms of competition and cooperation simultaneously in the context of an intergroup resource allocation task.

Among 6 to 9-year-old children with the necessary social perspective taking ability to attend to multiple group perceptions (Abrams, Rutland, Pelletier, & Ferrell, 2009), a negative outgroup threat significantly increases intergroup bias when the ingroup holds a negative exclusion norm rather than a positive inclusion norm (Nesdale, Maass, Durkin, & Griffiths, 2005). We expected to observe similar interactive effects of ingroup and outgroup norm in the context of resource allocation decision-making when the outgroup held a competitive or group-biased norm. However, not all outgroup influences are negative or threatening. Taking this into account, we also examined the influence of an outgroup who advocates cooperative behaviour. Specifically, we were interested in whether cooperative outgroup normative information would lead to more egalitarian resource allocation from ingroup children and adolescents.

### **1.9. Generic Norms**

Norms exist within groups as moral imperatives and context-specific social-conventions. However there are also broader societal-level generic norms that guide behavior *across* group boundaries in order to maintain established expectations for societal functioning. It is important to consider these higher-level generic norms since research has shown that with age children and adolescents give priority to societal level norms over local-level peer group norms (Killen, Rutland, Abrams, Mulvey, & Hitti, 2013). A particularly important generic normative expectation is the moral imperative to be fair. Children, adolescents and adults alike consider fairness to be of importance at the impartial and generalizable generic level and take

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it into account when evaluating the behavior of normative and deviant ingroup members (Mulvey, Hitti, Rutland, Abrams, & Killen, 2014).

There are however situations in which generic expectations do not require individuals to adhere to generalizable moral absolutes. For example, in a school sports class, participants are expected to attempt to learn together through the medium of sport. By comparison, an intergroup school competition allows individuals to more acceptably favour their own team (within the bounds of the competition). We know that such generic normative expectations are important for establishing intergroup boundaries, making inclusion decisions and evaluating group members (Rutland, Hitti, Mulvey, Abrams, & Killen, 2015). Less is known about how generic level norms influence first-person resource allocation. The present thesis seeks to examine this by directly manipulating generic level norms of competition and cooperation.

### **1.10. Cooperation & Competition**

In Chapters Two through Five, group and generic level norms of competition and cooperation are manipulated. Cooperative and competitive norms underlie many intergroup situations involving the allocation of resources. Cooperation and competition surrounding resources can occur at an individual level ("I want more!" or "I will give you some") or at the group level ("Our group gets more!" or "We will share some with them"). While children are both motivated to engage in competitive and cooperative activities (Crystal, Watanabe, & Chen, 2000; Zhu et al., 2015), and pay attention to norms from a young age (Schmidt, Rakoczy, Mietzsch, & Tomasello, 2016), few studies have examined the influence of cooperative and competitive group norms on the allocation of resources. In fact, little is known about how children balance the influence of both cooperative and competitive norms in

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intergroup resource allocation contexts, or how this understanding develops from childhood through adolescence and into early adulthood.

A longstanding line of research has demonstrated that from infancy, humans show a strong desire to cooperate with others (Killen & de Waal, 2000; Smetana & Turiel, 2003; Tomasello & Vaish, 2013). This generic moral norm for cooperation is reflected in cooperation seen amongst children (Hamann, Warneken, Greenberg, & Tomasello, 2011; Warneken & Tomasello, 2006). Yet, societal moral expectations about cooperation are not the only influence children consider when allocating resources, especially in intergroup contexts when social categories (e.g., gender, ethnicity) and social comparisons are salient.

In early and middle childhood, competitive contexts reduce a preference for a fair distribution of resources (Shaw, DeScioli, & Olson, 2012) as well as prosocial resource allocation in interpersonal contexts (Pappert, Williams, & Moore, 2017). Research has also shown that from approximately 7 years old, a competitive intergroup context decreases outgroup prosociality and increases intergroup bias (Abrams, Rutland, & Cameron, 2003; Abrams, Van de Vyver, Pelletier, & Cameron, 2015; Spielman, 2000; Zhu et al., 2015). However, previous developmental research has not directly manipulated competitive and cooperative group norms; nor has it examined age-related changes from childhood to adulthood in the understanding of such norms.

In the first four chapters of the present thesis ingroup norms of cooperation and competition are manipulated in a morally relevant resource allocation task. Norms of cooperation and competition are relevant for several reasons. Intergroup situations are often inherently competitive, particularly when groups must compete for access to limited resources. At the same time, such decisions fall under the

jurisdiction of cooperative generic expectations that are linked with moral domain issues of equality. Little is known about how children respond to cooperative and competitive ingroup norms, and how they balance the influence of such norms with moral and group factors.

### **1.11. Central Aims**

The present thesis seeks to build upon and synthesise extant work from the fields of decision-making, group processes and moral development to provide an in-depth and systematic examination of the influence of group and generic level norms on children and adolescents' resource allocation decisions. The thesis uses theoretical insights from the social reasoning development approach to examine complex intergroup scenarios where moral and group factors are simultaneously salient, requiring participants to coordinate these factors. Further, we are interested in age related changes in the relative importance of these variables across various complex intergroup contexts. There were three central aims, as follows.

- 1.* To examine how norms directly influence resource allocation. The SRD approach has emphasised the importance of social-conventional group constructs in tangent with moral domain concerns in the resource allocation decision-making process. So far, there has not been a systematic investigation of the types of norms that are influential for children and adolescents' resource allocation decisions. The present work aims to provide this examination by manipulating ingroup norms, outgroup norms, and generic norms in order to establish their relative influence on resource allocation decisions.
- 2.* To examine the developmental shift in coordination of group and moral factors in complex first-person resource allocation scenarios. Specifically,

we are interested in examining how the relative influence of norms (social-conventional domain factor) versus equality concern (moral domain factor) changes across the developmental lifespan and varies by context. Much work has established that children, adolescents and adults alike care about fairness and equal allocation in value-neutral settings. Less is known about how these concerns change developmentally as a function of the complexity of the situation and the group identities of the recipients of resources.

3. To analyse social reasoning data to complement behavioral resource allocation data. Observing how children and adolescents allocate resources as a function of group norms in an intergroup setting is an essential first step. However, any work drawing from a SDT/SRD approach must necessarily consider how children and adolescents reason about their decision-making. Here, social reasoning data was collected and analysed in an attempt to provide a richer picture of the “*why?*” of resource allocation. Specifically, we were interested in the ways in which reasoning style would vary dependent upon the participant’s age and their chosen resource allocation strategy.

### 1.12. Chapter Overview

**Chapter Two: Outgroup Norms.** Children and adolescents are guided by ingroup norms when forming intergroup attitudes and when allocating resources. They also evaluate positively those who cooperate and allocate resources equally in line with an equal allocation ingroup norm. Similarly, outgroup information has been shown to influence the formation of attitudes and evaluations of outgroup members. There has not been a systematic examination of whether similar outgroup normative information influences the allocation of resources. Chapter Two manipulates ingroup

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and outgroup norms of cooperation and competition in order to examine whether children and adolescents coordinate these norms when making resource allocation decisions.

**Chapter Three: Generic Norms & Resources.** Norms are prescribed at the group level and are important in guiding intergroup behavior. However, generic norms also influence behaviour at a broader societal level. Children and adolescents face a challenge when they must consider not only what their group expects of them, but also what the generic normative context suggests to be behaviourally appropriate. Chapter Three extends previous work by examining resource allocation in the context of cooperative and competitive norms at both the ingroup and generic level from middle childhood, through adolescence, into young adulthood. This study attempts to pinpoint the age at which the ability to coordinate group and generic normative processes emerges. Here we manipulated ingroup norms of cooperation and competition, as well as inducting participants into cooperative or competitive generic normative contexts in order to examine whether there are age-related differences in the ability to coordinate these multiple competing variables between middle childhood, adolescence, and young adulthood.

**Chapter Four: Generic Norms & Deviants.** Resource allocation is an important component of moral decision-making. It is also a useful standard for evaluating ingroup members and deciding who ought to be included in the group. In Chapter Four we were interested in children's, adolescents' and adults' evaluations of a group member who deviated from an ingroup norm. Specifically, we wanted to examine whether deviant evaluations were dependent upon ingroup norms, the age of the participant, and their own allocation decisions. Participants' evaluations of normative and deviant ingroup members were assessed, along with perceptions of

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their ingroup's evaluations of these individuals. Developing an understanding of how intragroup behaviour will be evaluated by other ingroup members is an essential ability in order to ensure one's continued membership of chosen social groups, and to establish boundaries between groups. Again, this becomes increasingly challenging when ingroup and generic norms of competition and cooperation are manipulated. Given this, we expected to observe age-related differences in understanding of individual and group perspectives.

**Chapter Five: Growth & Performance Norms.** In Chapter Three, we examined the influence of cooperative and competitive generic normative contexts on resource allocation decisions. The generic cooperation norm in Chapter Three implied that groups ought to work together in order to help a charity cause. Chapter Five extended this work by asking whether cooperative generic contexts always imply the same behavioral expectations (i.e. are always morally relevant) and whether children and adolescents understand these differences. This study once again manipulated ingroup norms of competition and cooperation. However, there were three generic contexts; competitive, performance-focus (ostensibly cooperative, but with an outcome variable that group performance could be measured upon), and learning-focus (cooperative with no outcome variable to measure group performance against). We were interested in whether children and adolescents would demonstrate ingroup bias when their performance could be measured, even in an ostensibly cooperative context. We expected that the measurable outcome of a cooperative event would influence participants' resource allocation decisions.

**Chapter Six: Challenging Inequalities.** Finally, Chapter Six builds upon the preceding four studies in an attempt to apply our understanding of the influence of norms to a situation where there is a pre-existing resource inequality between

groups. It is important to recognise that in many situations resources are unequally distributed based on intergroup characteristics. Chapter Six examined whether children and adolescents would rectify an inequality in a complex intergroup scenario where an ingroup norm of equality or equity was manipulated. This study also extended existing work on inequalities by moving from a third-party perspective to a first-person resource allocation situation where the participants' ingroup were personally advantaged or disadvantaged by a pre-existing inequality. We again expected to observe age-related differences in resource allocation as a function of the prescribed ingroup norm and the relative advantage held by the ingroup.

### **1.13. Common Methodology**

In each of these empirical chapters, participants were inducted into simulated groups based upon school membership. School groups serve as a particularly important ingroup for children and adolescents and they are strongly motivated to maintain membership of these groups (Goodenow, 1993). Manipulating group norms within a school context has previously been shown to be successful in the attitudes literature (McGuire & Manstead, 2014; Nesdale, Griffith, et al., 2005; Nesdale, Maass, et al., 2005). In the present thesis, participants were inducted into groups based on school membership and asked to imagine they would be taking part in a forthcoming inter-school arts event. This method has been previously shown to induce strong ingroup preference (McGuire et al., 2015; Nesdale, Griffith, et al., 2005; Nesdale, Maass, Griffiths, & Durkin, 2003). Ingroup norms were manipulated in each study by informing participants that their group had a 'secret message' for new group members to listen to. This message included the pertinent normative information. Following the normative manipulation, participants allocated resources and provided reasoning justifications for their decision.

### **1.14. Central Hypotheses**

Following on from the central aims of the thesis, there are three central hypotheses (more specific hypotheses are outlined in the relevant chapters that follow).

1. Peer group norms were predicted to provide a key influence for all participants. For example, a competitive ingroup norm was expected to result in more ingroup biased resource allocation. Likewise, a cooperative ingroup norm was expected to lead to more equal resource allocation.
2. Age-related differences were expected in the ability to coordinate ingroup norms and other normative information (e.g. outgroup norms, generic norms). Older participants (adolescents, adults) were expected to show an interactive influence of multiple norms when allocating resources. With age participants were expected to become more competent in coordinating the influence of the ingroup norm with other relevant norms. Children, by comparison, were expected to base their resource allocation decisions primarily upon the ingroup norm. Whilst children can and do consider influences beyond the ingroup norm, previous research has not examined such norms simultaneously in a challenging and complex intergroup competition scenario that requires the consideration of multiple norms as well as the context of allocation. Under these conditions, we expected children to rely more heavily upon the group norm when making decisions.
3. Finally, we expected resource allocation reasoning to differ as a function of age group and the participants' chosen resource allocation strategy. For example, participants who chose to allocate a greater share of resources to their ingroup were predicted to refer more frequently to group functioning

and social-conventional justifications for doing so. With age, we also expected adolescents to engage in more sophisticated reasoning justifications. For example, within the moral domain we expected to observe a shift in focus from fairness to broader conceptions of rights, justice and fair competition.

### **1.15. Summary**

From childhood individuals allocate resources equally and choose to cooperate with others in interpersonal situations. These findings have been well documented in dyadic resource allocation games. However, most resource allocation decisions do not take place in a vacuum where the distributor of resources knows nothing about the identity of the receiver or the context of their decision. Recent work has demonstrated that social conventions and group functioning factors play important roles in decisions about who gets what in a resource allocation task. These group factors must be taken into consideration alongside moral concerns (i.e. fairness and morally relevant cooperation) in order to coordinate a response that is contextually appropriate. The influence of social norms on attitude formation, prejudice and discrimination has long been established. Less is known about how these same normative processes guide resource allocation in childhood, adolescence, and young adulthood.

The present thesis provides the first systematic investigation of how ingroup, outgroup and generic norms can guide resource allocation strategies in complex intergroup situations, along with how participants reason about allocation under these conditions. In Chapter Two, participants were prescribed ingroup and outgroup norms of competition and cooperation and asked to allocate tokens for an arts competition. In Chapter Three, participants were again prescribed an ingroup norm of competition or cooperation, as well as being inducted into a generic normative

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context that was either competitive or cooperative. Participants then allocated money between the two groups for an arts event. In Chapter Four, participants evaluated normative and deviant ingroup members following the same group and norm procedure of chapter three. In Chapter Five, the generic normative context was adapted to focus on classroom-level generic norms of competition, cooperation with a performance-focus, and cooperation with a growth-focus. Participants were asked to allocate boxes of art supplies for use in an arts event. Finally, in Chapter Six, we examined how ingroup norms can influence challenges to resource inequalities. Participants were prescribed an ingroup norm of equity or equality, and asked to allocate boxes of art supplies between advantaged or disadvantaged groups.

This thesis provides an examination of one of the most important constructs of intergroup thinking. Without social norms there are no standards against which behaviour can be measured. If we wish to challenge resource inequality where it exists, establish consensus with regard to what is fair, just or right with regards to the world's communal resources and work towards a fairer society for individuals regardless of their group membership, then understanding how competitive and unfair allocation may emerge in childhood through intergroup processes is an essential first step.

## CHAPTER TWO

### *Ingroup and outgroup norm simultaneously influence intergroup resource allocation and reasoning among children and adolescents*

A version of the study described in this chapter has been accepted for publication:  
McGuire, L., Manstead, A., & Rutland, A. (2017). Group norms, intergroup resource allocation and social reasoning among children and adolescents, *Developmental Psychology*.

### 2.1. Introduction

Allocation of resources is one way children show evidence of cooperative behavior involving basic moral considerations about fairness, equality and concern for others (Killen & Smetana, 2015; Piaget, 1952; Turiel, 1983). A longstanding line of research has demonstrated that from infancy, humans show a strong desire to cooperate with others (Killen & de Waal, 2000; Smetana & Turiel, 2003; Tomasello & Vaish, 2013), reflecting a generic moral norm in human cultures.

Research on resource allocation suggests that children from the age of five typically favour cooperation, defend the entitlements of their peers (Schmidt, Rakoczy, & Tomasello, 2013) and show a persistent concern for fair exchange throughout childhood (Dawes, Fowler, Johnson, McElreath, & Smirnov, 2007; Shaw & Olson, 2012). Resource allocation is an example of a morally relevant context for cooperation, as there can be tangible consequences if one group or individual receives less than another (Killen, 2016). Thus, a group norm of cooperation is often salient during resource allocation reflecting the generic societal moral norm (Hamann et al., 2011; Schmidt & Sommerville, 2011). Yet peer ingroup and

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outgroup social norms are not always cooperative and peer groups do sometimes advocate for competition within competitive intergroup resource allocation scenarios from 7 years onwards (DeJesus, Rhodes, & Kinzler, 2014; Shaw, DeScioli, & Olson, 2012).

In the first study of this thesis we examined the influence of peer ingroup norms and outgroup norms of competition and cooperation in an intergroup context on the development of children's and adolescents' allocation of resources between their own group and another group. Ingroup and outgroup norms do not always advocate the same behavioural stance in intergroup contexts. An outgroup holding a competitive norm may facilitate ingroup bias but this will depend on whether the ingroup norm is competitive or cooperative. Similarly, it is not yet known whether an outgroup holding a cooperative norm may temper the ingroup biased behavioural response to a competitive ingroup norm. Therefore, for the first time, in this chapter we manipulated both ingroup and outgroup norms of competition and cooperation in the context of an intergroup resource allocation task. It is important to establish children's understanding of norms at the intergroup level before moving on to examine their understanding of multiple contextual norms.

In the present study we go beyond previous research by examining whether the effect of an ingroup norm on the development of intergroup resource allocation between 8 and 16 years is interactively influenced by an outgroup norm of competition or cooperation. Developmental research has found that a negative outgroup threat significantly increases intergroup bias when the ingroup holds a negative exclusion norm compared with a positive inclusion norm (Nesdale, Maass, Durkin, & Griffiths, 2005). This suggests that from middle childhood, children apply an interactive understanding of ingroup and outgroup norms to the formation of

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prejudicial attitudes and bias. Likewise, we expected to observe an interactive understanding of ingroup and outgroup norms in relation to resource allocation, which itself is often a demonstration of ingroup bias. Specifically, we expected to find that a negative outgroup norm of competition would result in significantly greater ingroup biased resource allocation when the ingroup also held a competitive rather than a cooperative norm.

Of course, outgroups do not always pose a threatening or competitive influence; instead, outgroup norms can be actively cooperative. Other work in the attitudes literature from a developmental intergroup perspective has shown that outgroup norms have a significant positive effect on reducing ingroup bias. This research has indicated that among children from 7 years, positive outgroup norms of friendship significantly reduce intergroup biases through direct or extended intergroup contact (Cameron, Rutland, & Hossain, 2011; Feddes, Noack, & Rutland, 2009; Turner, Hewstone, Voci, & Vonofakou, 2008). We therefore anticipated that a positive outgroup norm of cooperation would result in significantly less ingroup biased resource allocation when the ingroup also held a cooperative, rather than a competitive, norm. It is this coordinated understanding of contextual intergroup processes that provides the first block upon which understanding of more complex societal norms and contextual moral decision-making is built.

The present study also, for the first time, examined the influence of group norms of cooperation and competition on children's and adolescents' social reasoning when justifying their intergroup resource allocation decisions. Social domain theory (SDT) contends that children simultaneously consider the moral, social-conventional, and psychological domains when thinking about social relations (Turiel, 1983). Research on developmental intergroup processes (Hitti & Killen,

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2015), drawing from the SRD model (Killen & Rutland, 2011; Rutland & Killen, 2017; Rutland et al., 2010), has focused on moral domain reasoning about fairness, whilst expanding the notion of social-conventional reasoning to include a focus on group identity, group dynamics and group norms. We used this model to analyse the social reasoning used by children and adolescents to justify their intergroup resource allocations.

There is reason to expect that social reasoning justifications will be influenced by the ingroup norm but not the outgroup norm. Individuals within an intergroup context must justify their resource allocation decisions to their ingroup in order to retain ingroup membership and avoid social exclusion (Rutland et al., 2015). This is not the case with the outgroup norm since individuals do not have to maintain social identification with the outgroup (Tajfel & Turner, 1986) and are less concerned about social exclusion from an outgroup (Killen & Rutland, 2011). Given this, we did not expect to see social reasoning changing as a function of outgroup norm.

When there was an ingroup cooperative norm, we expected that participants would use significantly more moral reasoning (i.e., it should be fair and each group should have equal rights) to justify an equal allocation of resources since this form of reasoning is likely to be welcomed by a cooperative ingroup. In contrast we did not anticipate an effect of a competitive ingroup norm on the use of social-conventional reasoning. Given the age of our sample, they should possess the social acumen and concern about self-presentation required to avoid overly justifying intergroup bias with explicit reference to ingroup superiority (Nesdale, 2013; Rutland, 2013; Rutland, Cameron, Milne, & McGeorge, 2005).

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We expected the effect of a cooperative ingroup norm on participants' moral reasoning when justifying equal resource allocation decisions to be more pronounced among adolescents compared to children. Recent developmental research has shown that from approximately 11 years of age individuals develop a better understanding of group dynamics and how deviance from the group norm results in social exclusion from the group (Killen, Rutland, Abrams, Mulvey, & Hitti, 2013; Mulvey, Hitti, Rutland, Abrams, & Killen, 2014; Rutland et al., 2015). Further, by adolescence individuals are increasingly sensitive to others' emotions and being socially excluded by peers (Gieling, Thijs, & Verkuyten, 2010; Somerville, 2013). These developmental shifts in knowledge of group processes mean that adolescents are more likely than children to adapt their reasoning to fit with the ingroup norm of cooperation and thus avoid social exclusion.

### **2.1.1 Aims**

1. To explore the relative influence of ingroup and outgroup norms on resource allocation between the ingroup and outgroup in a complex competitive intergroup context. Children and adolescents alike understand ingroup and outgroup norms and are guided by them when forming attitudes and developing intergroup friendships. We aimed to examine whether these norms were equally important when deciding how to allocate resources between groups.
2. To examine participants' social reasoning justifications for their resource allocation behaviour. Specifically, we were interested in whether children's and adolescents' justifications for their allocation strategies differed, and whether ingroup norm exerted an influence on this.

### 2.1.2 Hypotheses

**H1.** We expected to find an interaction between ingroup norm and outgroup norm on resource allocation, independent of age. Specifically, we predicted that a negative outgroup norm of competition would result in significantly more ingroup biased resource allocation when the ingroup held a competitive rather than a cooperative norm. Inversely, we anticipated that a positive outgroup norm of cooperation would result in significantly less ingroup biased resource allocation when the ingroup also held a cooperative, rather than a competitive, norm.

**H2.** We expected, when there was an ingroup cooperative norm, that participants would use significantly more moral domain reasoning to justify an equal allocation of resources, and that this would be particularly true of adolescents compared with children.

## 2.2. Method

### 2.2.1 Participants

Participants ( $n = 229$ ) were recruited from the London metropolitan area. Participants included 131 (64 Female, 67 Male) children aged from 8 to 11 years ( $M = 9.50$ ,  $SD = .74$ ) and 98 (55 Female, 43 Male) adolescents aged between 13 and 16 years ( $M = 14.64$ ,  $SD = .79$ ). Power analysis for an ANOVA with 8 groups was conducted in G\*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.95, and a medium effect size ( $f = .025$ ) (Faul, Erdfelder, Lang, & Buchner, 2007). Based on these assumptions, the desired sample size was 210 participants. Participants lived in an ethnically diverse metropolitan area consisting of 29.4% White British, 28.5% Black British, 12.3% dual heritage, 9.3% Southeast Asian British, and 9.7% other ethnic groups. The ethnic makeup of our sample reflected this, with 24.1% White British, 26.9% Black British, 16.5% Southeast

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Asian British, 11.4% Dual Heritage, 7.6% other ethnic groups, with 13.6% of participants opting to withhold ethnic information. The ethnic mix of these schools reflected the population of the metropolitan area in which testing took place.

Participants attended schools serving lower to middle socioeconomic (SES) status areas. Parental consent and child assent were obtained for all participants.

### **2.2.2. Design**

This study utilised a 2 (age group; adolescents, children) x 2 (ingroup norm; competition, cooperation) x 2 (outgroup norm; competition, cooperation) between-subjects design.

### **2.3. Procedure**

**2.3.1. Group Induction.** Ingroup membership was manipulated using a well-tested simulated group procedure (McGuire, Rutland, & Nesdale, 2015; Nesdale, Durkin, Maass, Kiesner, & Griffiths, 2008). Participants were asked to imagine they would be taking part in an inter-school drawing competition and that they were members of the ‘excellent’ drawing team. The status of the ingroup was ostensibly based on the judgement of a local artist, whom participants were led to believe had assessed their artwork. They were placed in a high status group to reflect the fact that most intergroup bias is enacted by high status ingroups upon low status outgroups (Nesdale & Dalton, 2011; Nesdale & Lawson, 2011).

Participants were shown counterbalanced pictures of two children from their own team, marked as the “Excellent Team” (with a blank space for the participant to fill as the third member of the group) and three members of their opposing team, marked as the “Good Team”. All pictures were matched for participant age and gender. Participants were told that the outgroup had been judged to be ‘good’ drawers, albeit not as good as their own team. This drawing competition

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methodology has been reliably shown to induce strong feelings of ingroup preference, and ingroup norms manipulated in this context exert an effect on attitudes and behaviour (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale et al., 2008).

**2.3.2. Ingroup Norm.** Group norms were manipulated in line with previous studies on children's intergroup attitudes (Nesdale & Dalton, 2011; Nesdale & Lawson, 2011) and resource allocation (McGuire & Manstead, 2014). Children were randomly allocated to the ingroup and outgroup norm conditions. Participants were presented with either a competitive or cooperative ingroup norm via a 'secret message' from an ingroup member.

Participants read the following message: *"Hello, we're really happy you're going to be on our team for this drawing competition. We just have one rule if you're going to be on our team, and that is;*

*(Competitive) ...if you want to be part of the team, you should try and make our team win, don't share with other teams, and don't support the other team in the competition. We want to win the competition.*

*(Cooperative) ...if you want to be part of our team you have to act kindly toward all other members of other teams, share with them and support them in the competition. We want everyone to have fun and be included.*

*...I hope you like being a member of the excellent drawing team, good luck!"*

The ingroup norm manipulation was followed by a normative manipulation check question to probe understanding of the ingroup norm: *"Does your team want to share with other teams?"* (Yes/No).

**2.3.3. Outgroup Norm.** The outgroup norm was manipulated by informing participants that their team had overheard an outgroup member discussing how they were going to behave in the competition.

Participants read the following in the cooperative outgroup norm condition: *“We want everyone in the competition to have a good time and work together. It would be unfair if one team had more than anyone else. Let’s try our best, but it doesn’t matter if we don’t win!”*

In the competitive outgroup norm condition they read: *“We want to win the competition, we’re not bothered about the other team! We want to get the most out of all the teams. The most important thing to us is winning!”*

This was followed by a second normative manipulation check question; *“Does the other team care about winning the competition?”* (Yes/No).

## **2.4. Measures**

Participants were asked to imagine that they had 10 tokens, with a monetary value of £10 that could be exchanged for art materials that the group could use in the drawing competition (*resource allocation*). Participants were asked to divide these between the two groups.

To assess social reasoning, participants were asked ‘*Why?*’ they choose their allocation (*resource allocation reasoning*) in an open-ended response format. All measures were completed individually on a laptop or tablet computer using Qualtrics.

## **2.5. Data Preparation**

Responses to the open ended social reasoning question were coded using categories adapted from Social Domain Theory (Turiel, 1983). The coding system assigned responses to three conceptual categories based on previous research (Killen

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et al., 2013) and theoretical formulations: (1) *morality* (references to justice, fairness or equality, e.g. "because it's the fair thing to do"); (2) *group functioning* (references to group norms, group loyalty or winning the competition, e.g. "our team can use it to buy more resources"); or (3) *personal choice* (references to personal autonomy or personal rights, e.g. "It's my decision what to do with the tokens"). Responses that did not make sense or fit into one of these three conceptual categories were coded as "other" and not included as part of the central analyses ( $n = 53$ , 23%). Analysis of agreement between two coders (one of whom was blind to the hypotheses of the study) across 25% of the responses revealed strong inter-rater reliability (Cohen's  $\kappa = .80$ ).

Participants' chosen allocation strategy was included as a variable in reasoning analyses for those who provided a reasoning justification. Participants who allocated equally (5 tokens to the ingroup, and 5 to the outgroup) were coded as "equality" strategists ( $n = 101$ ), whilst those who allocated 6 or more tokens to their ingroup were coded as "ingroup servers" ( $n = 89$ ).

Participants were considered to have not fully understood the normative manipulation if they answered either manipulation check question counter to the group norm manipulation. For example, a participant was excluded if they said their team wanted to share resources when they were told their team held a competitive norm. Similarly, a participant was excluded if they said the outgroup cared about winning when they were informed that the outgroup held a cooperative norm. 87 participants met the criteria for exclusion; this group comprised 58 children and 29 adolescents (see Appendix A for a complete breakdown of exclusion by condition). Initial analyses were conducted with the full sample, revealing no significant results. Following this, participants who answered the norm manipulation check question

incorrectly were omitted from the final analyses. Participants who did not complete the resource allocation measure were not included in the final analysis ( $n = 10$ ). The final analyses reported here included a total sample of 219 participants (children,  $n = 126$ ; adolescents,  $n = 93$ ).

### **2.6. Data Analytic Plan**

The number of resources allocated to the ingroup (how many tokens the participant allocated to their own group) was subjected to a 2 (Age: children, adolescents) x 2 (Ingroup norm: competitive, cooperative) x 2 (Outgroup norm: competitive, cooperative) univariate ANOVA. Our sample size did not allow for us to reliably test for gender effects in interaction with age or norm conditions. However, given that gender has not previously been shown to exert an effect on adherence to group norms (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale & Lawson, 2011) we did not expect differences in resource allocation or reasoning based on gender.

As predicted, there were no significant main effects or interactions involving age group, and therefore it was excluded from further analysis. Where appropriate, follow up simple main effects tests were conducted for significant interactions using pairwise comparisons with Bonferroni corrections for multiple comparisons applied. One sample t-tests were used to assess ingroup bias in resource allocation by comparing participants' allocations to the midpoint of the scale (criterion value = 5 tokens).

Resource allocation reasoning data was analysed using a multinomial logistic regression model. We modelled the interaction effect of Age Group (Adolescents, Children), Allocation Strategy (Equality, Ingroup Serving) and Ingroup Norm (Competitive, Cooperative) on reasoning style across two conceptual categories

(moral, social-conventional). Fewer than 5% of participants ( $n = 6$ ) used the personal choice category, so these responses were omitted from the analyses, along with participants who used the “other” category ( $n = 53$ ).

## 2.7. Results

### 2.7.1. Resource Allocation

(H1) *Ingroup and outgroup norms will determine resource allocation decisions, independent of age.*

As predicted, there was a significant interaction between Ingroup norm and Outgroup norm on resources allocated to the ingroup,  $F(1, 215) = 4.56, p = .03, \eta^2 = .02$  (see figure 2.1). In line with H1, participants took both ingroup norm and outgroup norm into consideration when deciding how to allocate resources between the two groups.

Specifically, when both the outgroup norm and ingroup norm were competitive ( $M = 6.89, SD = 2.21$ ), participants allocated significantly more resources to the ingroup than when the outgroup norm was also competitive but the ingroup norm cooperative ( $M = 6.11, SD = 1.85, p = .048$ ). In this case, a cooperative ingroup norm tempered ingroup bias when the outgroup advocated explicit competition.

However, when both the outgroup norm and ingroup norm were competitive ( $M = 6.89, SD = 2.21$ ) we did not observe a difference in ingroup allocations compared with a situation where the outgroup norm was cooperative but the ingroup norm was competitive ( $M = 6.13, SD = 2.01; p = .06$ ). Here, a cooperative outgroup did not exert a tempering effect on ingroup bias, and was less influential than a cooperative ingroup norm.

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Contrary to the specifics of H1, we did not observe significantly less ingroup biased allocation when both the outgroup norm and ingroup norm were cooperative ( $M = 6.60$ ,  $SD = 2.46$ ) compared to when the outgroup was also cooperative but the ingroup competitive ( $M = 6.13$ ,  $SD = 2.01$ ,  $p = .27$ ). When the two groups were mutually cooperative, participants in fact demonstrated significantly more ingroup bias than when the ingroup advocated competition.

In addition, participants in the competitive ingroup norm and competitive outgroup norm condition ( $M = 6.89$ ,  $SD = 2.21$ ) did not allocate significantly more resources to the ingroup compared to those in the cooperative ingroup norm and cooperative outgroup norm condition ( $M = 6.60$ ,  $SD = 2.46$ ;  $p = .53$ ). Whilst a mutually competitive situation leads to more ingroup bias than a situation where the ingroup holds a cooperative norm, participants did not temper their ingroup bias in response to a mutually cooperative intergroup situation. Potential explanations for this finding are examined in the discussion.

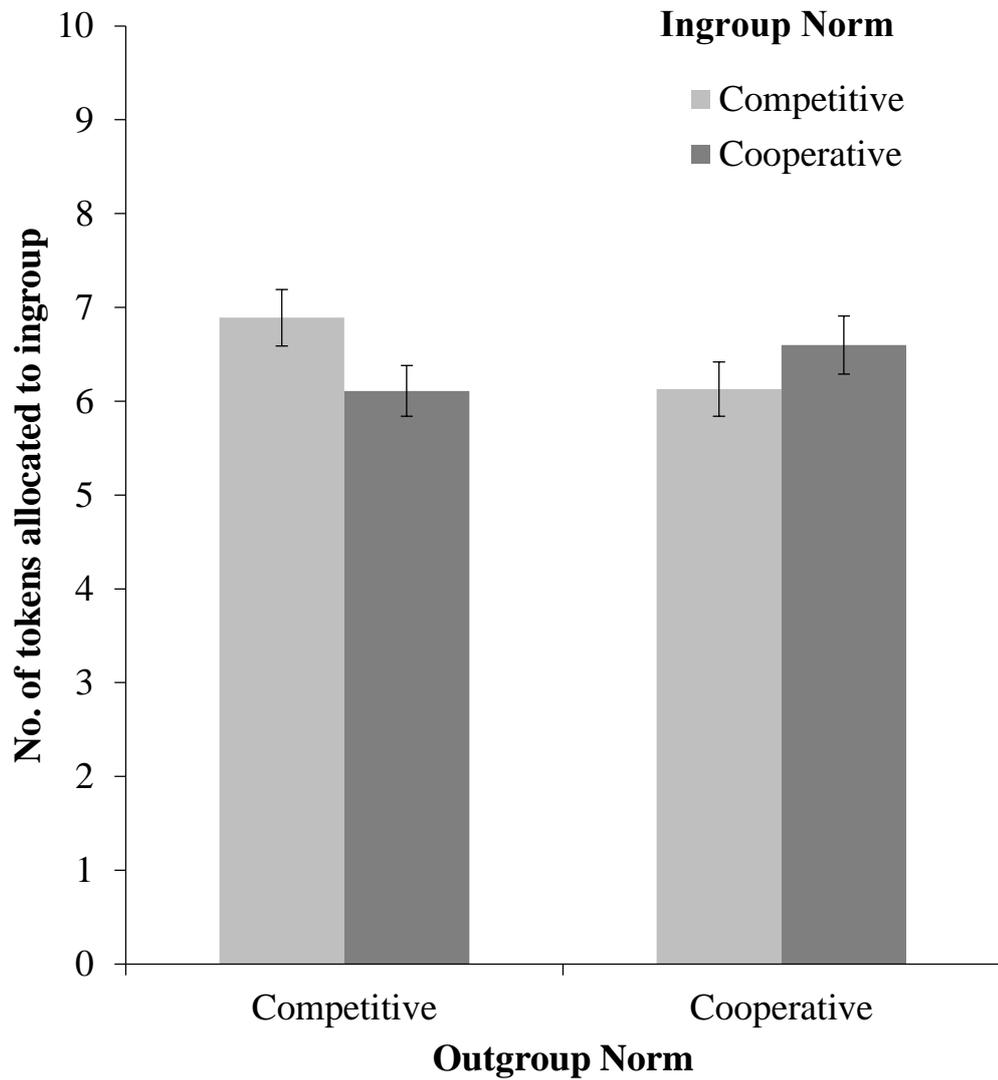
One sample t-tests indicated that for all four crossed ingroup norm/outgroup norm conditions significant ingroup bias was observed at the  $p < .001$  level compared with a criterion level of 5 tokens (see table 2.1.).

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Table 2.1.

*One-sample T-tests of ingroup biased resource allocation (criterion value = 5 tokens) as a function of ingroup norm and outgroup norm condition*

Ingroup Norm Condition	Outgroup Norm Condition	Mean Tokens Allocated To Ingroup	Standard Deviation	t	DF	Sig. (2-tailed)	Cohen's D
Competitive	Competitive	6.89	2.21	6.40	55	< .001	0.86
	Cooperative	6.13	2.01	4.10	52	< .001	0.56
Cooperative	Competitive	6.11	1.85	4.74	61	< .001	0.60
	Cooperative	6.60	2.46	4.51	47	< .001	0.65



*Figure 2.1.* Tokens allocated to the ingroup as a function of ingroup norm and outgroup norm condition with standard error bars.

### 2.7.2. Resource Allocation Reasoning

(H2) *Participants' resource allocation reasoning will depend upon their allocation strategy.*

Addition of the predictors (age group, ingroup norm, strategy) to the model led to a significant improvement in model fit compared with the null model, LR  $\chi^2(6, N = 170) = 72.04$ , Nagelkerke  $R^2 = .51$ ,  $p < .001$ . The effect of strategy was significant,  $\chi^2(2, N = 170) = 69.03$ ,  $p < .001$ . Moral reasoning justifications were more likely to be used than group functioning justifications by equality strategists compared with ingroup servers,  $\beta = -4.08$ ,  $\chi^2(1) = 34.60$ ,  $p < .001$ ,  $\text{Exp}(B) = .02$ , 95% CI [.004, .07]. Allocating resources equally between the two groups was more likely to be justified with reference to the importance of fairness. Inversely, participants justified allocating a greater share of the tokens to their ingroup with reference to the importance of their group winning the competition.

Similarly, the effect of age was significant,  $\chi^2(2, N = 170) = 6.15$ ,  $p = .05$ . Moral reasoning justifications were more likely to be used than group functioning justifications by adolescent participants compared with children,  $\beta = -1.36$ ,  $\chi^2(1) = 5.36$ ,  $p = .02$ ,  $\text{Exp}(B) = .26$ , 95% CI [.08, .81]. There was no significant effect of ingroup norm ( $p = .13$ ). Addition of the significant interaction term between strategy and age did not significantly improve the fit of the model (Nagelkerke  $R^2 = .49$ ).

Given that moral domain reasoning was the predominant category used across age groups, we next examined whether the specific styles of moral reasoning used by adolescents and children differed. Moral responses were further sub-coded into three categories that repeatedly occurred within this category: (1) *fairness* (references to generic fairness, e.g. "because it's the fair thing to do"); (2) *equality* (references to the need to distribute the resources using an equality principle, e.g. "

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*because everybody should have their tokens split equally*"); and (3) *fair competition* (references to the need to ensure both teams have equal opportunities in the competition, e.g. *"so both teams have an equal chance of winning"*). We modelled the interaction effect of Age Group (Adolescents, Children), Allocation Strategy (Equality, Ingroup Serving) and Ingroup Norm (Competitive, Cooperative) on reasoning style across these three conceptual categories, as well as group functioning. Personal choice reasoning was again omitted due to a small cell size.

Addition of the interaction term between age group, strategy and ingroup norm to the model led to a significant improvement in model fit compared with the null model, LR  $\chi^2(21, N = 170) = 102.30$ , Nagelkerke  $R^2 = .55$ ,  $p < .001$ . Given some small cell sizes ( $n < 5$ ), we used Fisher's exact tests and follow up  $z$  tests with Bonferroni corrections for multiple comparisons to examine differences in Resource Allocation reasoning as a function of Age, Ingroup Norm and Strategy. There were significant differences in reasoning style as a function of age amongst equality strategists when the ingroup norm was competitive (Fisher's exact = 10.62,  $p = .003$ ). Adolescents who allocated equally justified their behavior differently to children, specifically when this strategy challenged an ingroup norm of competition. The reported means represent percentage proportions of reasoning within the age group. All differences reported were significant at the  $p < .05$  level.

Children who allocated equally in the competitive ingroup norm condition were more likely to make reference to Fairness ( $M = .39$ ) and Equality ( $M = .32$ ) than Fair Competition ( $M = .29$ ). Children who referenced Fairness argued simply that their allocation strategy was *"fair and not biased"*. Those who referenced Equality justified their strategy with reference to the importance of equality as an allocation strategy: *"because we all need the same amount"*. By comparison, adolescents who

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allocated equally in the competitive ingroup norm condition were more likely to make reference to Fair Competition ( $M = .90$ ) than Fairness ( $M = .10$ ). For example, one adolescent participant argued in favour of an equal allocation:

*“because I still want it to be fair so our team and the other team have a chance of winning”*. With age, participants used more advanced moral domain justifications for their equal allocation decisions.

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Table 2.2.

*Frequencies and proportions of children's (8 – 11 years) reasoning as a function of ingroup norm and allocation strategy*

Ingroup Norm	Allocation Strategy	Fairness	Equality	Fair Competition	Group Functioning
Competitive	Equality	12 (.39)	10 (.32)	9 (.29)	0 (.00)
	Ingroup Serving	2 (.10)	6 (.29)	3 (.14)	10 (.48)
Cooperative	Equality	11 (.48)	7 (.30)	3 (.13)	2 (.09)
	Ingroup Serving	2 (.11)	2 (.11)	4 (.21)	11 (.58)

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Table 2.3.

*Frequencies and proportions of adolescents' (13 – 16 years) reasoning as a function of ingroup norm and allocation strategy*

Ingroup Norm	Allocation Strategy	Fairness	Equality	Fair Competition	Group Functioning
Competitive	Equality	1 (.10)	0 (.00)	9 (.90)	0 (.00)
	Ingroup Serving	0 (.00)	0 (.00)	3 (.25)	9 (.75)
Cooperative	Equality	7 (.32)	5 (.23)	8 (.36)	2 (.09)
	Ingroup Serving	0 (.00)	0 (.00)	0 (.00)	5 (1.00)

## 2.8. Discussion

This study manipulated both ingroup and outgroup norms of competition and cooperation in the context of an intergroup resource allocation task in order to examine how children and adolescents coordinate group information when allocating resources between groups. In line with the Social Reasoning Developmental (SRD) approach both peer ingroup and outgroup norms influenced children and adolescents' intergroup resource allocations. As expected, an outgroup norm of competition lead to significantly more ingroup bias when the ingroup also held a competitive rather than a cooperative norm. However, counter to our prediction (H1), a positive outgroup norm of cooperation did not result in significantly less ingroup bias when the ingroup also held a cooperative rather than a competitive norm. Adolescents who allocated equally counter to an ingroup norm of competition used more varied moral domain reasoning to justify this challenge to normative behavior than children who used the same allocation strategy in this condition.

The valence of the outgroup and ingroup norms influenced the impact of the norm upon resource allocation decisions. A negative outgroup norm combined with a negative ingroup norm significantly increased bias, while a positive outgroup norm together with a positive ingroup norm did not significantly decrease bias. While negative outgroup and ingroup norms seem to increase bias, it appears harder to reduce ingroup bias with joint positive outgroup and ingroup norms. This may be explained by the 'negativity bias' in how adults process their experience (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), and how children make sense of the social-emotional world (Vaish, Grossmann, & Woodward, 2008). Either our children and adolescents paid more attention to the negative compared to positive group norms or,

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alternatively, a mutually cooperative situation between the groups was simply not believable during an intergroup competition.

We did not observe a reduction in ingroup biased resource allocation when the outgroup advocated for cooperation, even when the ingroup norm was competitive; compared to a situation where both group norms were competitive. Children respond to negative outgroup information when forming attitudes about outgroups (Nesdale et al., 2005) and yet less is known about the effects of exposure to a positive cooperation outgroup norm in relation to a competitive ingroup norm. It is likely that an outgroup cooperation norm, while serving as a reminder of the importance of generic societal cooperation, did not lead to a reduction in ingroup bias due to concerns for challenging the ingroup norm and the potential social exclusion consequences of doing so. This finding in itself is not surprising given the power of ingroup norms for children and adolescents (McGuire et al., 2015; Nesdale et al., 2008), and the importance of ensuring access to resources. It would be interesting to explore whether there are situations in which concerns for loyalty to an ingroup norm are set aside in favour of supporting a positive, cooperative outgroup. Future work exploring the more positive potential influence of outgroup information will be an important line of enquiry.

When both the ingroup and outgroup advocated cooperative group norms, participants did not decrease their displays of ingroup bias. In fact, this group allocated as much to their ingroup as participants in the mutually competitive condition. It is possible that children and adolescents simply do not find a mutually cooperative intergroup scenario convincing when they are asked to imagine they are taking part in an intergroup competition. The intergroup competition carries with it generic connotations of what is expected of participants. First and foremost,

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participants may expect their fellow group members to compete in attempts to advance the relative position of the ingroup. Interestingly, a potential generic competitive norm wasn't the only salient generic influence since our participants were all in a school context. In this context a generic moral norm for cooperation was likely salient. Chapter Three extends this work by directly manipulating competitive and cooperative generic normative contexts to observe their interactive influence with ingroup norms throughout the developmental lifespan.

### **2.9. Overview**

In summary, to our knowledge this is the first study demonstrating that intergroup resource allocation amongst children and adolescents is influenced by both ingroup and outgroup norms. This is compatible with developmental research on intergroup attitudes (McGuire et al., 2015; Nesdale et al., 2005), which has shown that children's consideration of multiple norms influences their intergroup attitudes. This study showed that from 8-years-old, participants displayed the most ingroup biased resource allocation when both the ingroup and outgroup peer norms promoted competition. Moreover, we found that with age participants varied their moral reasoning depending on the prevalent peer group norm.

This study has established that from middle childhood in first-person resource allocation tasks, multiple normative sources are considered simultaneously. Specifically, outgroup competition norms are taken into consideration alongside ingroup norms of competition leading to more ingroup biased allocation. Further work is required to establish whether children and adolescents are equally capable of considering generic normative contextual information when allocating resources. Allocation decisions do not take place in the dyadic vacuum of decision-making games; instead, the context in which resources are being allocated and what these

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resources will be used for are important factors to consider. There are some situations in which ingroup bias, like that seen in the present work, is less acceptable.

Chapter Three extends this first study by examining whether there are age-related differences between children and adolescents' understanding of cooperative and competitive generic norms.

## CHAPTER THREE

### *Children show ingroup bias when allocating resources in a cooperative generic context*

A version of the study described in this chapter has been accepted for publication: McGuire, L., Rizzo, M.T., Killen, M., & Rutland, A.. (2018). Children show ingroup bias when allocating resources in a cooperative context. *Developmental Psychology*.

### **3.1. Introduction**

In Chapter Two, children and adolescents took ingroup and outgroup norms of cooperation and competition into consideration when asked to allocate resources between groups in a complex intergroup context. Specifically, we observed increased ingroup bias in a situation where both groups held competitive ingroup norms. Likewise, a cooperative ingroup norm tempered the effect of a competitive outgroup in reducing ingroup bias. From 8-years-old, children take multiple norms at the group level into consideration when deciding how to allocate resources. Intergroup dynamics play an important role in how children and adolescents allocate resources. However, resource allocation decisions involve more than just considerations of who gets what based on their group identity.

Contextual information plays an important role in decision-making and yet less is known regarding whether children take into account the context within which resource allocation decisions take place. These contexts in turn vary in the moral pull they exert over the decision-making process. In Chapter Three, we explored this by manipulating the generic normative context of the resource allocation decision. We were first interested in whether an ingroup norm for cooperation or competition was superseded by a cooperative or competitive generic normative context. Second, we

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focused on whether the relative influence of the generic context changed as a function of the participants' age. In the present study we extended the age range to include young adults. This older sample was included in an attempt to examine whether there were further age-related differences in normative understanding between adolescents and young adults.

The present study aimed to extend previous research in several novel ways by exploring how cooperative and competitive group norms interact with an intergroup resource allocation context. This was achieved by manipulating social norms at different levels. First, we manipulated ingroup norms as in Chapter Two. For the first time, we also manipulated generic norms. These norms are defined here as conventions shared by individuals at a societal level that guide behaviour between groups. We know that cooperation and competition are both generic norms which can be shared between groups, since research has shown that societies value cooperative behavior (Tomasello & Vaish, 2013), although they can also favour competition in certain contexts (Leibbrandt, Gneezy, & List, 2013). Developmental research suggests that a generic norm of competition is often salient in schools, especially between middle to late childhood when individuals seek acceptance from peer groups by excluding others in an intergroup competitive context (Abrams et al., 2003; Branco, Palmieri, & Pinto, 2012; Rutland, Hitti, Mulvey, Abrams, & Killen, 2015).

In Chapter Three, participants were inducted into simulated groups based on school membership and asked to imagine they would be taking part in an intergroup arts competition. As per Chapter Two, participants were prescribed an ingroup norm of competition or cooperation by a member of their ingroup. Extending beyond Chapter Two, this study also included a novel generic norm manipulation.

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Participants were told that the art competition would be followed by a second event that was either competitive or cooperative. Participants were then asked to allocate resources between the ingroup and outgroup that could be used in the arts competition.

Research has shown developmental differences between children and adolescents in the coordination of generic and peer norms when judging individuals who allocate resources equally or unequally from a third-party perspective (Killen, Rutland, Abrams, Mulvey, & Hitti, 2013; Rutland & Killen, 2016). Less is known regarding how these processes influence first-party resource allocation, and how they may develop later beyond adolescence. Therefore, we extended the sample of our current investigation to examine young adults as well as children and adolescents. In line with previous research examining the coordination of norms, as well as the tenets of the SRD approach, the greatest differences were still expected to emerge between childhood and adolescence.

We expected that for children, ingroup norms would prove a salient influence on their resource allocation decisions. For example, even in a cooperative generic context, children were expected to demonstrate significant ingroup bias when prescribed an ingroup norm of competition, compared with when their group supported a cooperative ingroup norm. This prediction is based upon the increased complexity of the multiple norms manipulated in this study. In conjunction with this, ingroup competition norms are known to reduce children's outgroup prosociality and increase intergroup bias (Abrams et al., 2015). In contrast, adolescents and young adults are better able to coordinate the influence of multiple norms. Given this, we expected adolescents and adults to balance the relative importance of the ingroup norm and the generic norm, and to therefore use equality as a strategy in a generic

cooperative context, even when the ingroup advocates competition. The use of equality in this context meets with broader generic behavioural expectations, but also meets with group expectations regarding not explicitly favouring an outgroup.

Reasoning justifications are a crucial component of the present thesis, affording insight not only into how participants allocate, but why they do so. As per the findings of Chapter Two, we expected reasoning style to be contingent upon peer group norms, as well as participant age and resource allocation strategy. Specifically, in the case of participants who allocated equally, we expected a focus on moral reasoning as seen in Chapter Two. We expected to observe age effects when participants challenged an ingroup competition norm by allocating equally between groups. In this case, younger participants were expected to emphasise the moral importance of equal allocation in challenge to the ingroup norm of competition. By comparison, older participants were expected to once again move beyond a simple fairness focus (i.e. *“it’s fair”*) and turn instead to discuss ideas of fair competition and equality (i.e. *“it’s fair because...”*).

In contrast, participants who allocated more to their ingroup were expected to justify this behavior exclusively in terms of group functioning, with a focus on loyalty to the group and achieving success in the intergroup competition. Participants who demonstrate ingroup bias in their resource allocation cannot argue that their allocation strategy is fair or meets with standards for equal allocation. Instead, they must seek to justify their behavior as a strategy to advance the relative position of the ingroup within the context of the competition.

### **3.1.1. Aims**

1. To examine the relative influence of ingroup norms across varying generic normative contexts of competition and cooperation on the development of

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resource allocation between middle childhood and adolescence.

Specifically, to examine age differences in the simultaneous consideration of generic norms alongside ingroup norms.

2. To examine participants' social reasoning justifications for their allocation decisions. Specifically, we were interested in whether reasoning would differ as a function of resource allocation strategy and ingroup norm.

### 3.1.2. Hypotheses

**H1.** Resource allocation decisions were expected to vary as a function of ingroup norm, generic norm, and age. Specifically, we expected that children would focus primarily upon ingroup normative information. That is, when the ingroup norm was competitive they would demonstrate ingroup bias by allocating a relatively larger share of resources to their ingroup than the outgroup, even when the generic context was cooperative. By comparison, adolescents and young adults, having the requisite ability to coordinate multiple complex norms, were expected to temper their ingroup bias when a competitive ingroup norm was coupled with a cooperative generic norm. When both the generic norm and ingroup norm were cooperative we expected all participants, independent of age, to use an equality strategy and allocate resources equally between the ingroup and outgroup.

**H2.** We expected participants' social reasoning justifications to vary as a function of age, ingroup norm and allocation strategy. Specifically, we expected that participants who allocated equally, counter to an ingroup norm of competition, would make greater reference to moral domain reasoning to justify their challenge to an ingroup norm they perceived to be unfair. This moral domain reasoning was expected to differ as a function of age, with older participants referencing concepts of fair competition and equality, where children were expected to focus on fairness. In contrast, participants who allocated equally when the ingroup norm was cooperative were expected to make reference to fairness *and* group functioning. These participants were expected to justify their allocation as being in line with the group norm and with reference to issues of ingroup loyalty or cohesion.

## 3.2. Method

### 3.2.1. Participants

Participants ( $n = 263$ ) were recruited from the London metropolitan area. Participants included 103 (47 Female, 56 Male) 8- to 11-year-olds ( $M_{age} = 8.66$ ,  $SD = 0.50$ ), 90 (50 Female, 40 Male) 13- to 15-year-olds ( $M_{age} = 13.83$ ,  $SD = 0.71$ ), and 70 (61 Female, 9 Male) Adults ( $M_{age} = 20.89$ ,  $SD = 2.83$ ). Power analysis for an ANOVA with 12 groups was conducted in G\*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.95, and a medium effect size ( $f = .025$ ) (Faul et al., 2007). Based on these assumptions, the desired sample size was 251 participants. The sample consisted of approximately 50% White British, 17% Southeast Asian British, 15% Black British, and 12% other ethnic groups (including Dual Heritage British, Chinese British, and Eastern European participants), with 6% of participants opting to withhold ethnic information. The ethnic mix of these schools reflected the population of the metropolitan area in which testing took place. The children and adolescents attended schools serving lower to middle socioeconomic (SES) populations, ethnically representative of the sampling population. The adult participants attended a university in the same area and participated as part of an undergraduate module. Parental consent and child assent were obtained for all participants under 18.

### 3.2.2. Design

This study utilised a 3 (Age group; adolescents, adults, children) x 2 (Ingroup norm; competition, cooperation) x 2 (Generic norm; competition, cooperation) between-subjects design.

### 3.3. Procedure

**3.3.1. Group Induction.** To establish group membership, participants were told that they would be taking part in an inter-institution art competition between their own and a local rival institution. For children and adolescents, this institution was their school. For young adults who were university students, their university was chosen as the institution in question. Rather than the photographs used in Chapter Two, participants were shown an illustration of four same-gender individuals representing their own team for the competition (ingroup), and a separate illustration of their rival team (outgroup). The age of the individuals in these illustrations was deliberately ambiguous to ensure they could be used for participants of all ages (see Appendix B). Illustrations were used to reduce the possibility that the different age photographs used between groups were exerting an effect on ingroup affiliation. Participants picked a team name, colour, and logo in order to further instill feelings of ingroup membership.

**3.3.2. Ingroup Norm.** The ingroup norm for the intergroup arts competition was established using the “secret message” manipulation. Participants read:

*“Hello we’re really happy you’re going to be on our team for this drawing competition. We just have one rule if you’re going to be on our team and that is, you should try and make our team win...”*

(Competitive ingroup norm) *...and never help the other teams in the competition*

(Cooperative ingroup norm) *...but also help the other teams in the competition.*

*Good luck!”*

These norms were designed to ensure they were believable in the context of the local competition, particularly given the strong expectation that individuals should support the ingroup during any competition (Bauer, Cassar, Chytilová, &

Henrich, 2013; Bowles, 2006). Hence the norms focused on trying to make your team win in both norm conditions.

Participants answered a manipulation check question to ensure that they had paid attention to and understood their ingroup norm: “*Based on what you just read, does your team want to help other teams in the competition?*” (Yes/No).

**3.3.3. Generic Norm.** The generic normative context was established by telling participants that the winning group from the inter-institution art competition would either participate in the ‘United Kingdom National Art Competition’ (competitive generic normative context) or the ‘United Kingdom Charity Art Event’ (cooperative generic normative context).

In the competitive generic context, participants were told their aim would be to display the best art in order to beat the other teams in the competition: “*The winning school will go on to represent London in the UNITED KINGDOM NATIONAL ART COMPETITION, which is the highest level of art competition in the country that schools can take part in. This will be a big day where winning schools from all over the United Kingdom compete to display the best art.*”

In the cooperative generic context, the aim was to work together with the other teams in order to raise as much money as possible for an animal shelter: “*The winning school will go on to represent London in the UNITED KINGDOM CHARITY ART EVENT, where paintings and drawings will be sold to raise money so homeless animals are given somewhere to live. This will be a big day where schools from all over the United Kingdom work together and help raise money for animals in need*”

**3.3.4. Resources.** Participants were told that the student councils of their institution and the rival institution had collectively raised £100 to distribute between

the ingroup and the outgroup. This money was to be used to purchase special materials, which could help them produce better art. They were told that each group already had access to basic art supplies (e.g. pens, paper, paints). The £100 raised by the school councils was to be used to purchase extra, special, supplies. Participants were informed that the members of their group had voted to either give £50 to each group (in the cooperative ingroup norm condition), or £80 to their ingroup and £20 to the outgroup (in the competitive ingroup norm condition). The outgroup was always said to have voted in favour of the opposite strategy to the ingroup.

### 3.4. Measures

Participants completed all measures individually on a laptop or desktop computer via the online survey software Qualtrics. *Resource allocation* was measured by asking participants to distribute £100 between their own team (ingroup) and the other team (outgroup). This was accompanied by a reminder that the money could be used to purchase special materials for use in the art competition. Participants indicated how much money they would give to each team using a slider from £0 to £100 with increments of £1. *Resource allocation reasoning* was measured using an open-ended question (“*Why did you split the money the way you did?*”).

### 3.5. Data Preparation

Responses to the open ended social reasoning question were coded using categories adapted from SDT (Turiel, 1983). We incorporated the extended moral domain categories developed from Chapter Two into the present study. The coding system assigned responses to five conceptual categories based on previous research (Killen et al., 2013) and theoretical formulations; (1) *Fairness*, generic references to fairness (e.g., “I split it that way because it’s the fair thing to do”), (2) *Equality*, references to distributing resources equally between individuals/groups (e.g. “it’s

*important that both groups get the same amount of money*”), (3) *Fair Competition*, references to ensuring the maintenance of fair competition between groups (e.g. “*we shouldn’t have an advantage, otherwise we won’t be able to tell who has won fairly*”), (4) *Group Functioning*, references to group norms, group loyalty, winning the competition (e.g., “*Because that’s how the team wanted to do it*”), or (5) *Personal Choice*, references to personal autonomy (e.g., “*It’s my choice how to share the money*”). Two coders conducted the coding, one of whom was blind to the hypotheses of the study. Analysis of agreement between two coders across 25% of the responses revealed strong inter-rater reliability (Cohen’s  $\kappa = .95$ ).

Participants’ chosen allocation strategy was included as a variable in reasoning analyses for those who provided a reasoning justification. Participants who allocated equal amounts of money to both groups ( $n = 127$ ) were coded as Equality Strategists. Participants who allocated more money to the ingroup ( $n = 83$ ) were coded as Ingroup Serving Strategists. Participants who allocated more to the outgroup were excluded from the reasoning analysis due to a small cell size ( $n = 4$ ).

Participants were considered to have not fully understood the normative manipulation if they answered the ingroup norm manipulation check question counter to the group norm manipulation. For example, a participant would be excluded if they said that their team wanted to help other teams in the competition when they had been told their team held a competitive ingroup norm. This excluded group comprised 39 children, 26 adolescents and 10 adults (see Appendix A for a complete breakdown of exclusion by condition). Analyses were conducted with the full sample, revealing no significant results. Following this, participants who answered the norm manipulation check question incorrectly were omitted from the final analyses. Participants who did not complete the resource allocation measure

were not included in the final analysis ( $n = 33$ ). The final analyses reported here included a total sample of 230 participants (children,  $n = 80$ ; adolescents,  $n = 87$ ; adults,  $n = 63$ ).

### **3.6. Data Analytic Plan**

Resources allocated to the ingroup (how much money they allocated to their own group out of a total £100) were subjected to a 3 (Age: children, adolescents, adults) x 2 (Ingroup norm: competitive, cooperative) x 2 (Generic norm: competitive, cooperative) univariate ANOVA. Initial analyses did not reveal differences between adolescent and adult participants; therefore these categories were collapsed for the purposes of the central analyses (Age: children, older). In order to test for age group differences, the effect of age was tested using a planned contrast that compared children's resource allocation against adolescents and adults (weights +2, -1, -1), as well as interactions between this planned age contrast, ingroup norm and generic norm.

Our sample size did not allow for us to reliably test for gender effects in interaction with age or norm conditions. However, given that gender has not previously been shown to exert an effect on adherence to group norms (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale & Lawson, 2011) we did not expect differences in resource allocation or reasoning based on gender.

Where appropriate, follow up simple main effects tests were conducted with Bonferroni corrections for multiple comparisons applied. One sample t-tests were used to assess ingroup bias in resource allocation by comparing participant's allocations to the midpoint of the scale (criterion value = £50).

Resource allocation reasoning data was analysed using a multinomial logistic regression model. We modelled the effects of Age Group (Children, Older),

Allocation Strategy (Equality, Ingroup Serving), and Ingroup Norm (Competitive, Cooperative) on reasoning style across four conceptual categories (Fairness, Equality, Fair competition, Group functioning). Fewer than 5% of participants ( $n = 5$ ) used the personal choice category, and so these responses were omitted from the analyses, along with participants who used the “other” category ( $n = 69$ ).

### 3.7. Results

#### 3.7.1. Resource Allocation

(H1) *Participants' resource allocation decisions differ as a function of age, ingroup norm, and generic norm.*

As predicted, analyses revealed a significant three-way interaction between Age, Ingroup norm and Generic norm,  $F(2, 228) = 5.86, p = .016, \eta^2 = .03$  (see Figure 3.1). How participants chose to allocate resources depended not only upon their age group, but also what ingroup norm they were prescribed and which generic normative context they were allocating resources within.

Amongst children, there were significant differences in resource allocation as a function of ingroup norm when the generic norm was cooperative. When the ingroup norm was competitive, children ( $M = 70.52, SD = 22.50$ ) allocated a significantly greater share of the resources to their ingroup than when the ingroup norm was cooperative ( $M = 52.90, SD = 9.28; p = .002$ ). When their peers advocated competing with the outgroup, children allocated a significantly greater share of resources in favour of their ingroup. When the generic context of the decision was cooperative (i.e. a United Kingdom Charity Art Event), children allocated a significantly greater share of resources in favor of their ingroup when the group supported a competitive norm, than when the group supported a cooperative norm. In the competitive ingroup norm condition, this allocation differed significantly from

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the criterion value of 50 (mid-point of the allocation scale),  $t(20) = 4.18, p < .001$ , Cohen's  $d = .91$ . However, in the cooperative ingroup norm condition this allocation did not differ significantly from the midpoint of the scale,  $t(19) = 1.40, p = .18$ , Cohen's  $d = .31$ .

However, for children in the competitive generic norm condition, there was no significant difference between allocations in the competitive ingroup norm condition ( $M = 53.25, SD = 31.72$ ) and cooperative ingroup norm condition ( $M = 63.21, SD = 19.98; p = .08$ ). However, when the ingroup norm was cooperative, children in this condition demonstrated significant ingroup bias compared with the midpoint of the scale,  $t(18) = 2.88, p = .01$ , Cohen's  $d = .66$ . For those in the competitive generic condition, this allocation did not differ significantly from the criterion value of 50;  $t(19) = -.46, p = .65$ , Cohen's  $d = .10$ .

For older participants, there were no significant differences in resource allocation in the competitive generic norm condition as a function of ingroup norm. Older participants' allocations in the cooperative ingroup norm condition ( $M = 60.92, SD = 15.42$ ) did not differ significantly from those in the competitive ingroup norm condition ( $M = 57.04, SD = 17.44; p = .32$ ). In both conditions, participants demonstrated significant ingroup bias compared with the midpoint of the scale; cooperative ( $t(37) = 4.37, p < .001$ , Cohen's  $d = .71$ ), competitive ( $t(45) = 2.74, p = .009$ , Cohen's  $d = .40$ ).

Likewise, in the cooperative generic norm condition, older participants' allocations did not differ between the cooperative ingroup norm condition ( $M = 55.48, SD = 10.36$ ) and the competitive ingroup norm condition ( $M = 55.57, SD = 11.68; p = .98$ ). Again, in both conditions older participants demonstrated significant ingroup bias compared with the midpoint of the scale; cooperative ( $t(30) = 2.95, p =$

.006, Cohen's  $d = .53$ ), competitive, ( $t(34) = 2.82, p = .008$ , Cohen's  $d = .48$ ).

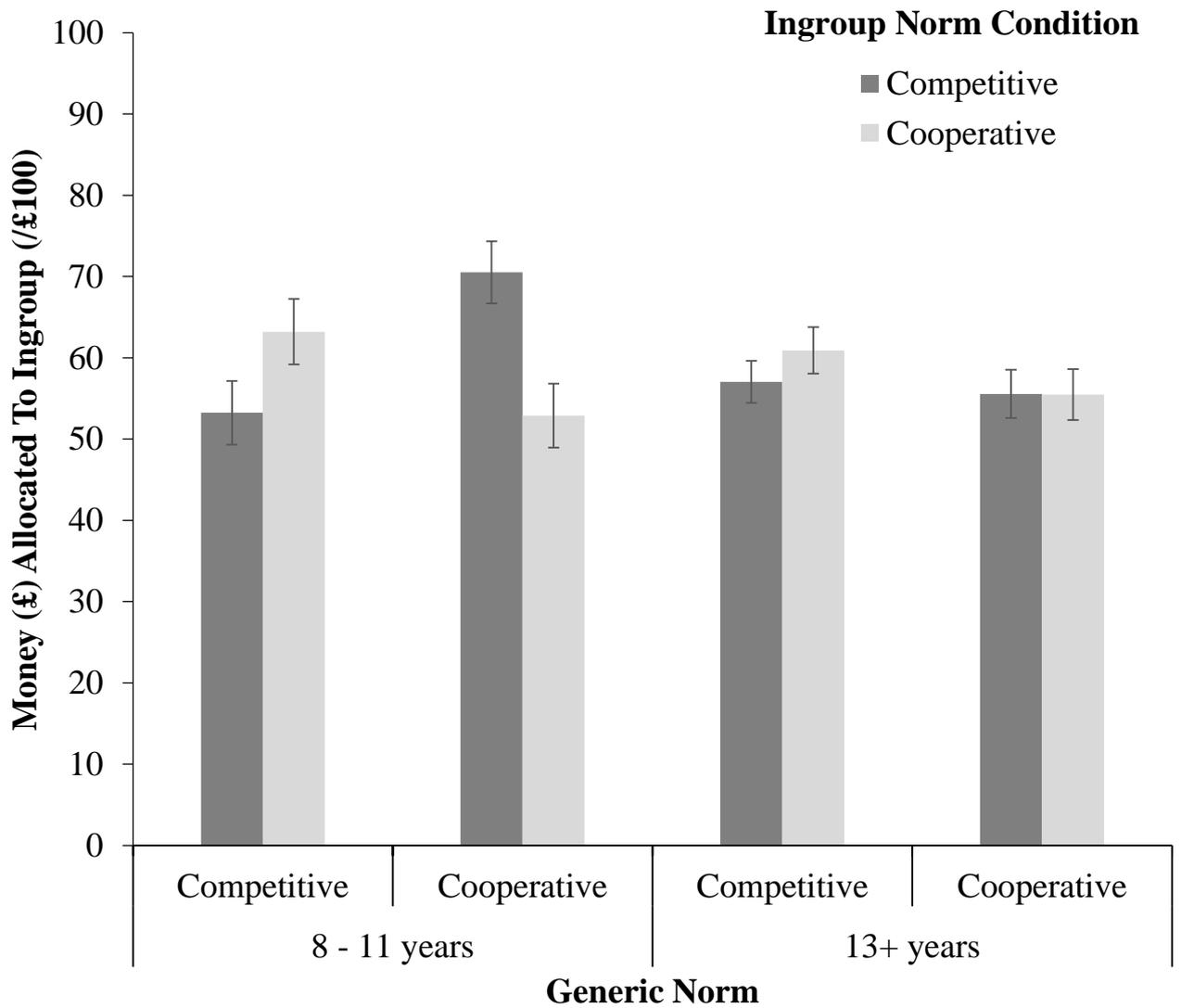


Figure 3.1. Money allocated to ingroup as a function of age, ingroup norm and generic norm with standard error bars

### 3.7.2. Resource Allocation Reasoning

(H2) *Participants' resource allocation reasoning differs as a function of their age, allocation strategy, and ingroup norm.*

Addition of the predictors (age group, ingroup norm, strategy) to the model led to a significant improvement in model fit compared with the null model, LR  $\chi^2(12, N = 189) = 69.44$ , Nagelkerke  $R^2 = .34$ ,  $p < .001$ . We observed a main effect of Strategy on resource allocation reasoning,  $\chi^2(3, N = 189) = 53.19$ ,  $p < .001$ . Specifically, equality strategist participants were more likely to justify their allocation strategy with reference to fairness than group functioning,  $\beta = -2.69$ ,  $\chi^2(1) = 37.53$ ,  $p < .001$ ,  $\text{Exp}(B) = .07$ , 95% CI [.29, .16]. Participants who allocated resources equally between the groups made reference to the importance of fairness as a moral construct.

Similarly, there was a significant main effect of Age Group on resource allocation reasoning,  $\chi^2(3, N = 189) = 8.51$ ,  $p = .04$ . Children made greater reference to strict fairness than fair competition,  $\beta = -.53$ ,  $\chi^2(1) = 6.39$ ,  $p = .01$ ,  $\text{Exp}(B) = 3.40$ , 95% CI [1.32, 8.77]. Children relied predominantly upon simple references to fairness, rather than focusing upon the more complex idea of a fair competition.

Addition of the interaction term between strategy, age group and ingroup norm significantly improved the fit of the model, LR  $\chi^2(21, N = 189) = 81.97$ , Nagelkerke  $R^2 = .39$ ,  $p < .001$ . The preceding main effects of strategy and age group were qualified by this interaction term. Given some small cell sizes, we used Fisher's exact tests and follow up  $z$  tests with Bonferroni correction for multiple comparisons to examine differences in Resource Allocation reasoning as a function of Age, Ingroup Norm and Strategy. All comparisons reported were significant at the  $p < .05$  level, and reported means are proportional percentages of reasoning.

First, reasoning amongst older participants differed significantly as a function of strategy in the competitive ingroup norm condition, Fisher's exact = 14.97,  $p = .001$ . Older participants who allocated resources equally between the two groups when the ingroup norm was competitive made significantly greater reference to fairness ( $M = .55$ ) than equality ( $M = .05$ ), fair competition ( $M = .28$ ) or group functioning ( $M = .13$ ). These participants challenged the competitive ingroup norm with reference to generic expectations for fairness; *"it's unfair for us to have more money"*. When challenging ingroup norms of competition through equal allocation, older participants relied upon broad arguments related to the central importance of fairness.

By contrast, older participants who allocated a greater share of resources to their ingroup when the ingroup norm was competitive made greater reference to group functioning ( $M = .50$ ) than fairness ( $M = .10$ ), equality ( $M = .05$ ) or fair competition ( $M = .35$ ). These participants justified favouring their ingroup with reference to advancing the position of the group in order to win the competition, *"so that our team gets more money to buy special materials"*. For older participants who favoured their ingroup in a competitive ingroup situation, the need to benefit one's ingroup was highly important.

Similarly, there were significant differences in reasoning style as a function of strategy amongst older participants in the cooperative ingroup norm condition, Fisher's exact = 28.45,  $p < .001$ . Older participants who allocated equally when the ingroup advocated cooperation made equal reference to fairness ( $M = .41$ ) and fair competition ( $M = .31$ ), both of which differed significantly from references to equality ( $M = .05$ ) and group functioning ( $M = .23$ ). Participants who justified an equal allocation with reference to fair competition discussed the importance of

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ensuring that the most talented team would win the competition, irrespective of access to resources; *“So that we can see which team has the best potential – it’s not fair if we won’t be able to see that.”* When older participants’ moral behaviour is coherent with normative expectations, and they do not have to challenge a norm they perceive to be unfair, they use more nuanced forms of moral domain reasoning.

In contrast, older participants who allocated resources in favour of their ingroup counter to a cooperative ingroup norm made greater reference to group functioning ( $M = .86$ ) than fairness ( $M = .11$ ) or equality ( $M = .04$ ). There were no references to fair competition amongst these participants. Interestingly, some of these older participants considered an allocation that favoured their ingroup to still meet basic requirements for fairness when allocating with an outgroup. For example, one participant justified allocating £60 to their ingroup and £40 to the outgroup by saying; *“It is fair because it not only helps the other team, but it gives our team an advantage”*.

There were also significant differences in children’s reasoning as a function of strategy in the competitive ingroup norm condition, Fisher’s exact = 9.48,  $p = .01$ . Amongst children who adopted an equality strategy in the competitive ingroup norm condition, there was greater reference to fairness ( $M = .63$ ) than equality ( $M = .13$ ), fair competition ( $M = .19$ ) or group functioning ( $M = .06$ ). Like their older counterparts, these children justified a counter-normative equal allocation with reference to the importance of generic expectations for fairness. These participants challenged a norm they perceived to be unfair by both allocating resources equally and justifying this with reference to the moral obligation to be fair.

Again, as expected, younger participants who allocated in favour of their ingroup made greater reference to group functioning ( $M = .57$ ) as a justification for

their allocation than fairness ( $M = .36$ ) or fair competition ( $M = .07$ ). There were no references to equality amongst these participants. These participants justified their ingroup serving allocation predominantly with reference to winning the art event. For these participants, benefitting the ingroup in order to succeed in the competition outstripped any concern for fairness.

There was no significant difference in reasoning style as a function of strategy amongst children in the cooperative ingroup norm condition, Fisher's exact = 4.89,  $p = .15$ . Equality strategists in this condition referenced fairness ( $M = .65$ ), equality ( $M = .09$ ), fair competition ( $M = .09$ ) and group functioning ( $M = .17$ ). Use of these categories did not differ significantly from one another. Similarly, ingroup serving participants in the cooperative ingroup norm condition made reference to fairness ( $M = .33$ ), fair competition ( $M = .11$ ) and group functioning ( $M = .56$ ). However, use of these categories did not differ significantly from one another.

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Table 3.1.

*Frequencies and proportions of children's (8 – 11 years) reasoning as a function of ingroup norm and allocation strategy*

Ingroup Norm	Allocation Strategy	Fairness	Equality	Fair Competition	Group Functioning
Competitive	Equality	10 (.63)	2 (.13)	3 (.19)	1 (.06)
	Ingroup Serving	5 (.36)	0 (.00)	1 (.07)	8 (.57)
Cooperative	Equality	15 (.65)	2 (.09)	2 (.09)	4 (.17)
	Ingroup Serving	3 (.33)	0 (.00)	1 (.11)	5 (.56)

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Table 3.2.

*Frequencies and proportions of older participants' (13+ years) reasoning as a function of ingroup norm and allocation strategy*

Ingroup Norm	Allocation Strategy	Fairness	Equality	Fair Competition	Group Functioning
Competitive	Equality	22 (.55)	2 (.05)	11 (.28)	5 (.13)
	Ingroup Serving	2 (.10)	1 (.05)	7 (.35)	10 (.50)
Cooperative	Equality	16 (.41)	2 (.05)	12 (.31)	9 (.23)
	Ingroup Serving	3 (.11)	1 (.04)	0 (.00)	24 (.86)

### 3.8. Discussion

This study found, for the first time, that children between 8 and 11-years-old showed significantly more ingroup bias when allocating resources in a cooperative generic context (e.g., a charity art event) when their group supported a competitive ingroup norm, compared with when their group supported a cooperative ingroup norm. This finding indicates that whilst children give priority to a competitive ingroup norm in a cooperative generic norm context, a cooperative ingroup norm can serve to temper displays of ingroup bias. The ability to simultaneously consider conflicting ingroup and generic norms of competition and cooperation emerged in adolescence, with older participants recognizing that it is inappropriate to display excessive ingroup bias in a cooperative generic context even when the ingroup norm is competitive.

In this study children placed greater emphasis on allocating resources in line with a competitive ingroup norm than adhering to a cooperative generic context. From a normative perspective it would be expected that children would be very aware of generic norms and expectations, given that adults usually communicate generic norms. Children often defer to adult authority over peer authority (Laupa, 1994). In this context, though, children were more persuaded to behave in line with their local peer norm of competition than the broader generic societal-level expectation for cooperation.

This finding extends this work by highlighting the salience of peer groups and group identities in resource allocation decision-making for children from 8-years-old. This is a period when children interact and identify with increasing numbers of social groups within and outside of school (Brown, 2004), developing their knowledge and understanding of ingroup norms and dynamics within groups

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(Abrams & Rutland, 2008; Killen et al., 2013). Based on the present results, children's ability to simultaneously coordinate different levels of groups (i.e. one's own ingroup and the larger societal norm) may not fully manifest until early adolescence. The majority of children's allocation experiences are through dyadic and triadic group sharing (i.e., peer groups in schools). They rarely need to consider broader generic contexts that involve multiple groups at different levels (e.g. clubs from different schools in different cities), unlike adolescents who are active members of both local peer groups as well as being aware of larger societal groups (e.g., city or state wide bodies).

In the cooperative generic context, children demonstrated explicit ingroup bias when prescribed an ingroup norm of competition. One possibility is that children give priority to peer-level norms, and place less emphasis on broader generic norms. However, in the competitive generic context they demonstrated significant ingroup bias when prescribed an ingroup cooperation norm. It is possible that children interpreted the ostensibly cooperative generic norm condition differently from adolescent and adult participants. In this condition, participants were told they would be taking part in a charity event to raise money for an animal shelter. This condition was designed to imply that cooperating with the outgroup would benefit a prosocial charity goal. However, children in this condition may have instead interpreted the goal of the event to be 'winning' by raising the most money for the charity, rather than working with the outgroup. The relation between cooperative action and the outcome of cooperation is explored in greater detail in Chapter Five.

When both the peer-level norm was competitive *and* the generic context was competitive, children did not demonstrate significant ingroup bias. Instead, they used

an equal allocation strategy. There are two possible explanations for this. First, we know that participants were concerned with ideas of “fair competition” in this study. Whilst references to fair competition were more prominent amongst older participants, there were some children who spoke about ensuring that the competition took place on a level playing field. It is possible that a strong promotion of competition at two levels enforced these ideas. Second, children have been shown to be concerned with self-presentation and to reduce their explicit outgroup prejudice when made accountable to adult authority figures (McGuire et al., 2015; Nesdale & Dalton, 2011). It is possible that when placed in such a highly competitive intergroup scenario, participants were more aware of the social reputational consequences of demonstrating explicit ingroup bias.

We often expect the “oughts” that guide society to reflect generic norms surrounding positive affirmations of cooperation, yet this is not always the case. The current work emulated this by inducting half the participants into a generic competitive context. In this case, we might have expected participants to allocate more to their ingroup, particularly in combination with a competitive ingroup norm. However, the evidence suggests that whilst a cooperative generic context guided individuals towards a desire for greater equality, a competitive generic context did not always have the opposite effect for children. It is possible that for children a competitive generic context implies that whilst competing is acceptable, this does not extend to actively disadvantaging the outgroup. It is likely that a desire for equal allocation of resources (Geraci & Surian, 2011; Rizzo, Elenbaas, Cooley, & Killen, 2016; Sloane, Baillargeon, & Premack, 2012) extends to ideas surrounding a “fair competition”. Some participants' reasoning referenced the futility of a competition where one team begins on an uneven footing. It would be interesting for future

research to explore the developmental bounds of what is considered a fair competition, and how this informs generic behavioral expectations within competitive intergroup contexts.

Whilst not as severe as the bias shown by children in the competitive ingroup norm condition, older participants did demonstrate significant ingroup bias across the norm conditions. This bias was greatest when the generic condition was competitive and the ingroup norm was cooperative. For adolescents and adults in this condition, broader generic behavioral expectations took precedence over a peer level endorsement of cooperation. Under generic competitive conditions, participants were informed that they would be taking part in a high level intergroup competition. In this situation, demonstrations of ingroup bias are more justifiable, as the outgroup are also likely to compete. Older participants also demonstrated significant ingroup bias when the ingroup norm and generic norm were cohesively competitive. In this condition, the individual understands that their group wishes to behave competitively *and* that the context of the allocation decision affords greater opportunity to favour one's ingroup in order to succeed in the competition. Therefore, ingroup bias simultaneously meets demands for loyalty to group norms and meets with contextual expectations for competition.

This study also found that participants' reasoning varied as a function of their chosen allocation strategy, the ingroup norm and their age. Older participants who allocated resources equally varied their justifications for their allocations according to the ingroup norm. Participants who shared resources equally used significantly more moral reasoning to explain their allocation decision in the context of a competitive ingroup norm (e.g., they should be fair). In contrast, group functioning reasoning was used in the cooperative ingroup norm condition with justifications

referencing the importance of loyalty to group norms of cooperation. This demonstrates that social reasoning about intergroup resource allocation is related to supporting or rejecting the ingroup norm.

Reasoning justifications among children also reflected an interactive understanding of ingroup norms. The strongest fairness justifications were observed amongst participants who risked social exclusion from their group by allocating equally in spite of a competitive ingroup norm. For these participants, competitive ingroup normative expectations were not enough motivation for them to adopt an unfair allocation strategy. Instead, they sought to challenge unfair competitive ingroup norms by making direct reference to the importance of fairness. Inversely, participants who allocated in favor of their ingroup made greater reference to group functioning. These participants justified their allocation strategy in line with maximising the ingroup's access to resources in order to 'win' the intergroup competition. This reflective social reasoning based within the group norm category demonstrates that children are capable of using domains in a flexible manner to both stress moral imperatives, and situate their decision within the context of group loyalty.

### **3.9. Overview**

This study is amongst the first to demonstrate that group norms of competition and cooperation influence both intergroup allocation behaviour and reasoning justifications. Specifically, with age participants learn to reflect on both ingroup and generic norms when allocating resources. This chapter emphasises the early importance of normative information in childhood and the emerging influence of contextual information in adolescence when deciding how to allocate resources. The following chapter turns to examine a parallel group dynamic process. As has

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been previously established, resource allocation is an important context in which moral domain issues are learnt. As we are beginning to see however, experiences of resource allocation are also highly relevant contexts in which individuals learn about group dynamic processes. The next chapter explores resource allocation as a context in which children come to understand intragroup processes and how they apply this to the evaluation of deviant and normative ingroup members. From an early age children understand the importance of adhering to group norms of competition and cooperation. In the present chapter they were shown to be less adept at coordinating this with contextual generic information. Less is known about the parallel process of evaluating group members based upon their resource allocation decisions when normative information is manipulated.

By late adolescence and adulthood individuals identify with a wide range of groups. How group loyalty and the evaluation of those who challenge group norms manifests when multiple group identities exist requires close examination. An important next step is to explore how children, adolescents and adults extend their own understanding of groups and normative processes to the evaluation of deviant and normative ingroup members. When do individuals recognise that competing at the local level may be counterproductive to group cohesion and functioning when the ingroup expectation is one of cooperation? When individuals get it wrong conflict inevitably ensues. Thus, understanding how the ability to balance multiple group expectations develops from childhood onwards will contribute to creating more constructive and positive intergroup relationships from an early age.

## CHAPTER FOUR

### *Deviating from the group: The role of competitive and cooperative contexts*

A version of the study described in this chapter has been accepted for publication:  
McGuire, L., Rizzo, M.T., Killen, M., & Rutland, A. (2018). The role of competitive and cooperative contexts in the development of deviant evaluations. *Child Development*.

### 4.1. Introduction

Competitive and cooperative norms are fundamental motivators of intergroup behavior. As we have established in Chapters Two and Three, this includes resource allocation between groups. Ingroup norms of cooperation serve to temper ingroup bias when allocating resources with an outgroup. However, an ingroup competition norm can lead to greater ingroup bias, especially for children. With age, generic contexts come to interactively influence these decisions alongside ingroup norms. Beyond resource allocation, competition and cooperation are also important in delineating boundaries between groups. Should peers in my group cooperate with others from different groups or should they compete with others? Such questions lay the grounds for decisions about who should be included or excluded in an intergroup setting. Peer group members who turn away from group norms face the risk of social exclusion by fellow ingroup members. Chapter Four provides the first examination of how competitive and cooperative group norms influence the development of peer group member evaluations in an intergroup resource allocation context between childhood, adolescence and young adulthood.

Research shows that children, adolescents and adults alike typically expect individuals to work together and positively evaluate equality as a strategy for the

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distribution of resources (Geraci & Surian, 2011; Güth et al., 1982; Kahneman et al., 1986; Sloane, Baillargeon, & Premack, 2012). We also know that children favourably evaluate others who allocate resources equally, even if this aligns with an outgroup norm (Killen et al., 2013). However, adherence to ingroup norms has also been shown to be of great importance. The well-established “Black Sheep effect” demonstrates that outgroup members who adhere to ingroup norms are preferentially evaluated over ingroup members who deviate from the norm, including norms of competition (Marques & Paez, 1994; Marques, Yzerbyt, & Leyens, 1988; Travaglino, Abrams, Randsley de Moura, Marques, & Pinto, 2014). Less is known regarding whether the desire to cooperate (and in turn allocate equally) means that deviant ingroup peers who want to cooperate with an outgroup, counter to an ingroup competition norm, are favourably evaluated. Understanding how individuals of different ages evaluate those who deviate from cooperative norms will provide crucial insight into the relative importance of such norms within resource allocation.

The present study examines individual favourability of normative ingroup targets who adhere to normative expectations and deviants who eschew cooperative or competitive norms in a morally relevant resource allocation context. We also examined participants’ perceived group evaluations of these targets. Understanding what your group thinks, as well as how this might differ from your own perception is an important step towards navigating complex intragroup situations. As they come to develop more advanced perspective taking abilities (Fitzroy & Rutland, 2010) children become capable of separating their own perspective from that of the group (Hitti, Mulvey, Rutland, Abrams, & Killen, 2014; Killen, Rutland, Abrams, Mulvey, & Hitti, 2013). However, less is known about these processes in competitive situations where morally relevant cooperation considerations must be coordinated

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with generic contextual issues and group processes. When intergroup competition is made salient and participants are asked to evaluate ingroup members, it is not yet clear whether children are capable of separating their own perspective from the perspective of their ingroup. Such judgments are essential for guiding the formation of group boundaries.

Evaluating deviant ingroup members is a complicated task requiring the coordination of group and moral concerns (Hitti et al., 2014; Mulvey, Hitti, Rutland, Abrams, & Killen, 2014). From 9-years-old, individuals' evaluations of ingroup members reflect the fact that they favour a generic moral norm for equal allocation over an unequal allocation ingroup norm that favours their ingroup. Children positively evaluate and include ingroup members who support equal allocation norms (Killen et al., 2013; Mulvey et al., 2014). With age, adolescents understand that group specific allocation norms become relatively more important than generic moral norms. This leads to the rejection of deviant ingroup members who support equal allocation norms (despite this being consistent with a societal moral norm) if this norm runs counter to an unequal allocation norm at the group level (Killen et al., 2013).

These age-related differences reflect the increasing understanding of group dynamics predicted by the SRD model (Rutland et al., 2010; Rutland & Killen, 2017). Similar age effects in understanding of cooperative and competitive norms with age were expected in the present chapter. Cooperative norms are often related to the equal allocation of resources, whilst under competitive normative conditions it is more acceptable to allocate resources to benefit one's ingroup. We expect to observe a shift from childhood, through adolescence and into adulthood where experience of such norms at the group and generic level will be reflected in a more

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advanced understanding of how groups may evaluate deviant and normative ingroup members.

From 9-years-old, children prefer a deviant who favours equal allocation even when their group supports an unequal allocation norm (Killen et al., 2013). Given this, children were expected to positively evaluate a deviant who sought to cooperate with an outgroup through the medium of resource allocation against competitive ingroup norm expectations. Coherently, children were predicted to negatively evaluate a deviant who advocated competition when the ingroup norm was cooperative. Not only this, children were expected to believe that their group would share their own positive evaluation of a cooperative deviant when the ingroup norm was competitive. As they are less capable of coordinating group functioning and moral factors in complex multi-faceted situations (Rutland & Killen, 2017), and have less experience of group membership (Abrams et al., 2009), children were expected to focus on the moral nature of cooperation, rather than taking into consideration their ingroup's normative preference for competition.

Following a developmental shift in the ability to coordinate social norms from childhood to adolescence (Killen et al., 2013; Rutland & Killen, 2017), and increased understanding of competitive contexts (Abrams, Van de Vyver, Pelletier, & Cameron, 2015; Zhu, Guan, & Li, 2015) adolescent participants were expected to argue that their group would positively evaluate a competitive deviant, due both to the ingroup serving benefits of this behavior and coherence with the intergroup competitive context. 13 year olds favour deviants who support norms of unequal allocation that benefit their ingroup, and therefore it was expected that this would extend to the support of deviants who advocate competitive behaviour that benefits the ingroup counter to a cooperative ingroup norm.

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A crucial novel component of the present chapter is the extended age range compared to previous research that has examined evaluations of deviant ingroup peers in intergroup contexts. Cooperation and equal allocation are important in adulthood (Kahneman et al., 1986). Similarly, intergroup competition acts as a powerful influence on resource allocation into adulthood (Sidanius, Haley, Molina, & Pratto, 2007). Adults use cooperative and competitive strategies across different scenarios, varying based on individual differences (Ward, 1995). Despite the ongoing importance of these two motivations into adulthood, less is known regarding how adults evaluate intragroup deviation from norms of cooperation and competition.

Cooperation and competition are inherently intergroup experiences. Adults generally gain an advanced understanding of group processes through exposure to intergroup situations, and harshly evaluate ingroup members who deviate from ingroup norms (Marques & Paez, 1994; Marques et al., 1988). Adults particularly dislike those who desert their group in a competitive situation (Travaglino et al., 2014). However, deviancy is often more subtle than complete desertion. As in the present chapter, an ingroup member may deviate by agreeing with an outgroup norm. Further, cooperative and competitive contexts present a unique case where deviancy can either be morally relevant (i.e. cooperative), or serve to advance the position of the ingroup (i.e. competitive) – both of which are important motivations. Given their ongoing desire to cooperate, it is likely that adults will personally positively evaluate a cooperative deviant. However, they also understand the consequences that follow from ingroup deviation. Given this, the most negative perceived group evaluations of cooperative (against a competitive ingroup norm)

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deviancy were expected in young adult participants, despite their personally positive evaluation of this target.

Justifying these evaluative decisions, particularly personal agreement with deviancy, involves the coordination of moral and group dynamic information. We expected to see participants using different social reasoning domains to justify their evaluations of a deviant target depending on how much they agreed with the behavior of the deviant, along with what normative condition they were in. For example, a participant who agreed with deviant behavior in the competitive condition may be more likely to use moral domain justifications (i.e. references to the unfair nature of ingroup serving allocation) to justify a favourable evaluation of deviancy. By comparison, participants who agreed with the deviant in the cooperative condition may be more likely to rely upon social-conventional justifications (i.e. references to the ingroup benefits of an unequal allocation strategy) to justify their evaluation.

Following the group induction and norm prescription used in Chapter Three, participants were introduced to a deviant ingroup member and a normative ingroup member, before being asked to evaluate these individuals from their own, and the group's perspective.

### **4.1.2. Aims**

1. First, we sought to examine age effects in the evaluation of ingroup members who either adhered to, or deviated from, the competitive or cooperative normative expectations of the group. We measured this from both the individual's perspective, and the perceived group evaluation.

2. Second, we examined whether there was a link between individual and group evaluations and whether this differed with age.
3. Third, we sought to further explore not only how participants evaluated deviants, but how they used social reasoning across reasoning domains in order to justify these evaluations.

#### **4.1.3. Hypotheses**

**H1.** In the case of evaluating normative targets, we predicted main effects of age and ingroup norm from both the individual and group perspectives. Specifically, we expected evaluations of normative behaviour to become more favourable with age, and for cooperative normative behaviour to be evaluated more favourably than competitive behaviour. This fits with evidence that has highlighted the importance of cooperation throughout the developmental life span, and normative ingroup behaviour.

**H2.** When evaluating deviant targets from an *individual* perspective, we expected an interaction between age and ingroup norm. We expected all participants to evaluate cooperative deviancy positively due to its coherence with generic moral norms. Between childhood, adolescence and young adulthood, we expected evaluations of competitive deviancy to become more positive. With age, participants come to understand that competitive behaviour that favours the ingroup can advance the relative position of the ingroup compared with outgroups.

**H3.** When evaluating deviant targets from the *group* perspective, we again expected an interaction between age and ingroup norm. Children were expected to believe that their group would favour a cooperative deviant as they personally would. With age, participants were expected to understand that their group may in fact favour a competitive deviant who benefits their ingroup over a cooperative

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deviant. This is because with age individuals develop an advanced understanding of intergroup processes and the importance of benefitting the ingroup in competitive contexts. In contrast, adolescents come to understand that cooperating with an outgroup (whilst morally laudable) counter to an ingroup competition norm, will be negatively evaluated.

**H4.** Reasoning justifications for deviant target evaluations were expected to vary depending upon the ingroup norm and participants' agreement with the deviant behaviour. Specifically we expected to see greater reference to group functioning for participants who agreed with a competitive deviant. Competition is important to advance the position of the group, especially in the context of a competitive intergroup art event. Inversely, participants who agreed with a cooperative deviant were expected to make reference to fairness and equality. As per Chapters Two and Three, we also expected to see more varied and nuanced moral domain reasoning amongst adolescents and adults compared with children.

**H5.** We expected that the strength of the relation between participants' own evaluations and their perceived group evaluation of the deviant would weaken with age. Adolescents have previously been shown to understand that their group's evaluation may differ from their own. Children struggle to make this distinction, especially when the behaviour under evaluation falls within the moral domain.

### 4.2. Method

These measures were a part of the same protocol used in Chapter Three and as such the participant information (using the same exclusion criteria), design, and ingroup norm manipulation were all the same as described in Chapter Three.

**4.2.1. Target Introduction.** After being informed that their institution council and the rival institution council had collectively raised £100 to distribute to

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the groups, participants were introduced to the normative and deviant ingroup member. These individuals were represented by one of the cartoon figures.

Participants were informed that the normative target agreed with how the group wanted to distribute the resources. In the competitive ingroup norm condition, the normative target wanted to allocate £80 to the ingroup and £20 to the outgroup. In the cooperative ingroup norm condition, the normative target wanted to allocate £50 to the ingroup and £50 to the outgroup.

Participants were then introduced to the deviant target, who they were told disagreed with how the group wanted to distribute the money, instead arguing for the opposite to that of the ingroup majority. This alternative allocation option was favoured by the outgroup. In the competitive ingroup norm condition, the deviant target wanted to allocate £50 to the ingroup and £50 to the outgroup. In the cooperative ingroup norm condition, the deviant target wanted to allocate £80 to the ingroup and £20 to the outgroup.

### 4.3. Measures

Participants completed all measures individually on laptops, via Qualtrics. Evaluation of the normative target was assessed using three questions. First, participants were asked: “*how much do you think your group would like (Normative name)?*” (*Group Evaluation*). Second, participants were asked “*how much do you think you would like (Normative name)?*” (*Individual Evaluation*). Both responses were recorded on a five-point scale from ‘dislike a lot’ to ‘like a lot’. The individual evaluation question was followed by an open-ended “*Why?*” (*Reasoning Justification*) question.

Evaluation of the deviant target was assessed using three questions. Participants were asked: “*how much do you think your group would like (Deviant*

*name)?*” (*Group Evaluation*). Second, participants were asked “*how much do you think you would like (Deviant name)?*” (*Individual Evaluation*). Both responses were recorded on a five-point scale from ‘dislike a lot’ to ‘like a lot’. The individual evaluation question was followed by an open-ended “*Why?*” (*Reasoning Justification*) question. In order to assess reasoning, we also included a Deviant Agreement question, which asked participants “*how much do you agree with how (Deviant name) wants to share the money?*” This question followed the explanation of how the deviant member wanted to share the money and was recorded dichotomously as “agree” or “disagree”.

#### **4.4. Data Preparation**

Responses to social reasoning justifications were coded using a framework adapted from Social Domain Theory (Turiel, 1983). The coding system assigned responses to five conceptual categories based on previous research (Killen et al., 2013) and theoretical formulations: (1) *Fairness*, references to generic fair sharing (e.g. “*it’s fair*”), (2) *Equality*, references to allocating resources equally between groups (e.g. “*So the supplies are equal*”), (3) *Fair Competition*, references to ensuring the competition is conducted on a level playing field (e.g. “*So every team has a chance to win*”), (4) *Group Functioning*, references to group dynamics, norms or loyalty (e.g. “*because that’s what the rest of the team wanted to do*”), and (5) *Personal Choice*, references to personal autonomy (e.g. “*because each person can make their own mind up*”). Responses that did not fit into one of these five conceptual categories were coded as “other”. Two coders, one of whom was blind to the hypotheses of the study, conducted the coding. Analysis of agreement between two coders (one of whom was blind to the hypotheses of the study) across 25% of the responses revealed strong inter-rater reliability (Cohen’s  $\kappa = .95$ ).

We hypothesised that whether or not a participant agreed with the target would direct the domain of reasoning in which they justified their evaluation, and as such, this was essential for our analysis. We used the Deviant Agreement question in order to assess this. Participants who agreed with the deviant (competitive ingroup norm,  $n = 68$ ; cooperative ingroup norm,  $n = 38$ ) were expected to differ significantly in reasoning style from those who disagreed with the deviant (competitive ingroup norm,  $n = 21$ ; cooperative ingroup norm,  $n = 44$ ).

### **4.5. Data Analytic Plan**

Normative and Deviant Evaluation responses were subjected to 3 (age group: child, adolescent, adult) x 2 (ingroup norm: competitive, cooperative) x 2 (generic norm: competitive, cooperative) univariate ANOVAs. Interaction effects were followed up with pairwise comparison tests with Bonferroni corrections for multiple comparisons applied. One-sample t-tests were used to assess whether participants' responses differed significantly from the mid-point of the scale (criterion value = 2.5).

Our sample size did not allow for us to reliably test for gender effects in interaction with age or norm conditions. However, given that gender has not previously been shown to exert an effect on adherence to group norms (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale & Lawson, 2011) we did not expect differences in deviant evaluation or reasoning based on gender.

Individual deviant evaluation reasoning responses were analysed using a multinomial logistic regression model. We modelled the effects of Age Group (Children, Adolescents, Adults), Deviant Agreement (Agree, Disagree), and Ingroup Norm (Competitive, Cooperative) on reasoning style across four conceptual categories (fairness, fair competition, group functioning, personal choice). Fewer

than 5% of participants ( $n = 11$ ) used the equality category, and so these responses were omitted from the analyses, along with participants who used the “other” category ( $n = 71$ ).

We were also interested in examining the relation between participants’ perceived group favourability towards the deviant, and their own individual favourability, along with developmental trends in this relation. The PROCESS Macro tool (Hayes, 2012) was used to test for a moderation relation between group and individual favourability. Using bootstrapping, we entered the centered continuous variables for group favourability and age in months, together with their interaction terms hierarchically in order to predict participants’ individual favourability.

## 4.6. Results

### 4.6.1. Individual Favourability of Normative Target

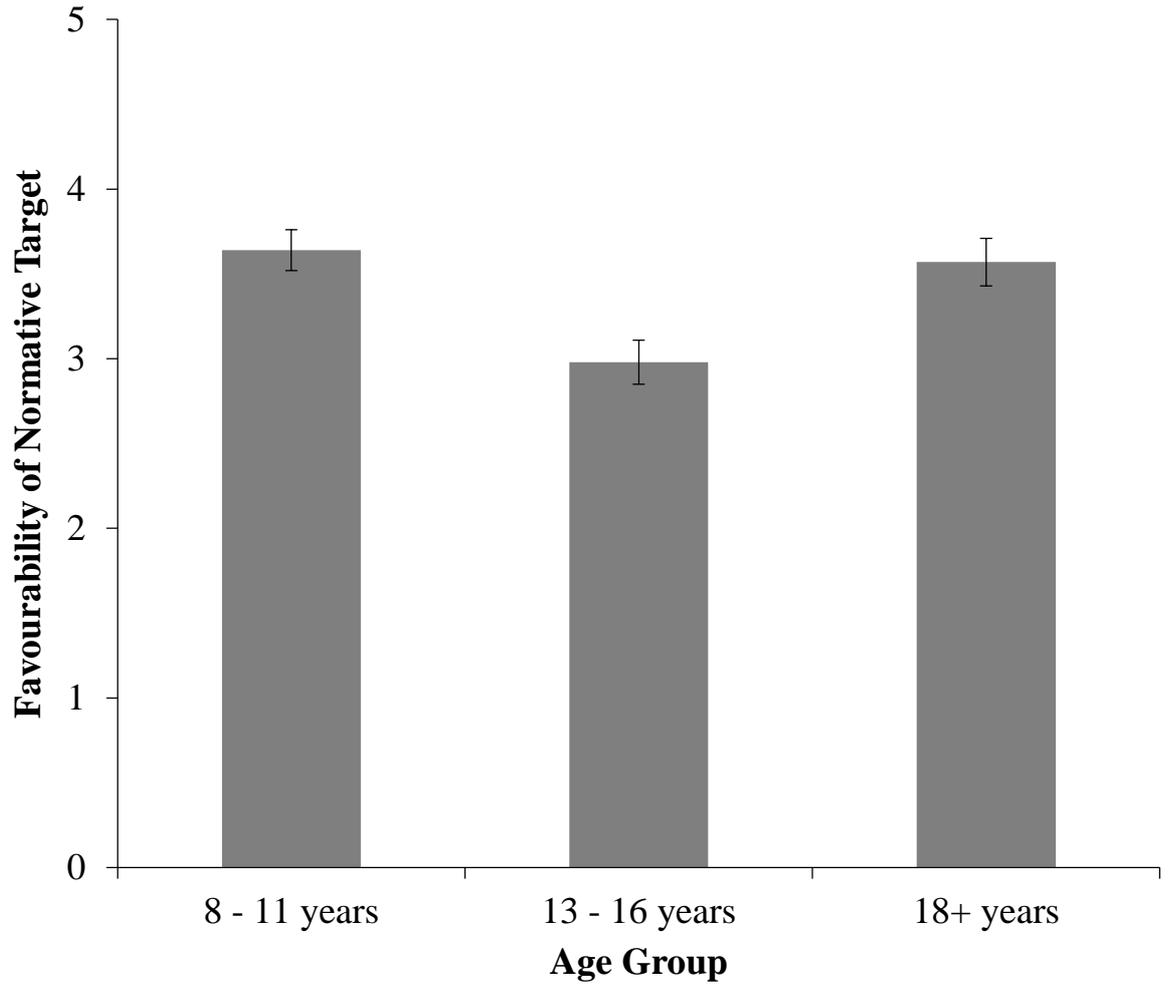
(H1) *Individuals were expected to evaluate normative behaviour more favourably with age, and in the cooperative ingroup norm condition.*

When evaluating a normative target, there was a significant main effect of age group  $F(2, 247) = 7.40, p = .001, \eta^2 = .06$  (see Figure 4.1.). Both children ( $M = 3.64, SD = 1.47; p < .001$ ) and adults ( $M = 3.57, SD = 1.12; p = .009$ ) evaluated a normative target more favourably than adolescents ( $M = 2.98, SD = 1.27$ ). There was no difference between the evaluations of children and adults ( $p = .44$ ). Both children’s ( $t(95) = 4.25, p < .001, \text{Cohen’s } d = .78$ ) and adults’ ( $t(67) = 4.21, p < .001, \text{Cohen’s } d = .96$ ) individual evaluations of this normative target differed significantly from the midpoint of the scale. Adolescents by comparison, did not differ significantly from the midpoint of the scale,  $t(88) = -.17, p = .87, \text{Cohen’s } d = .03$ . This age effect suggests that children positively evaluate normative ingroup

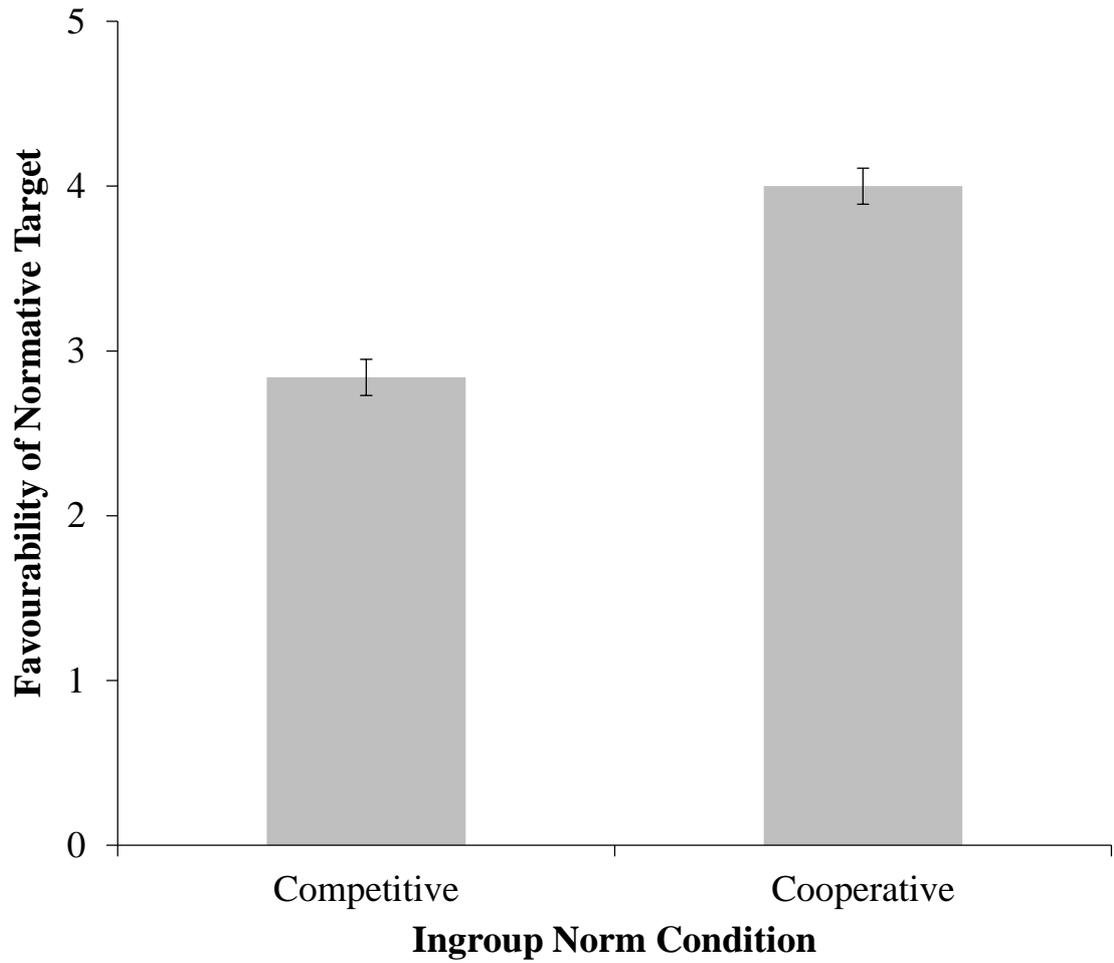
## Chapter Four: Deviant Evaluation

behaviour, before becoming more neutral in adolescence. In young adulthood, a positive evaluation of normative behaviour returns.

The analysis also revealed a significant main effect of ingroup norm,  $F(1, 247) = 56.99, p < .001, \eta^2 = .19$  (see Figure 4.2.). Participants rated normative behaviour more favourably in the cooperative ingroup norm condition ( $M = 4.00, SD = 1.14$ ) than they did in the competitive ingroup norm condition ( $M = 2.84, SD = 1.28; p < .001$ ). Evaluations of normative cooperative behaviour differed significantly from the midpoint of the scale,  $t(118) = 9.61, p < .001$ , Cohen's  $d = 1.32$ . By comparison, evaluations of normative competitive behaviour did not differ significantly from the midpoint of the scale,  $t(133) = -1.42, p = .16$ , Cohen's  $d = .27$ . Cooperative behaviour was generally rated more favourably than competitive behaviour, even when this competitive behaviour aligned with an ingroup norm. There was no main effect of generic norm, nor did it interact with ingroup norm or age group.



*Figure 4.1.* Individual favourability of normative ingroup member as a function of age group with standard error bars

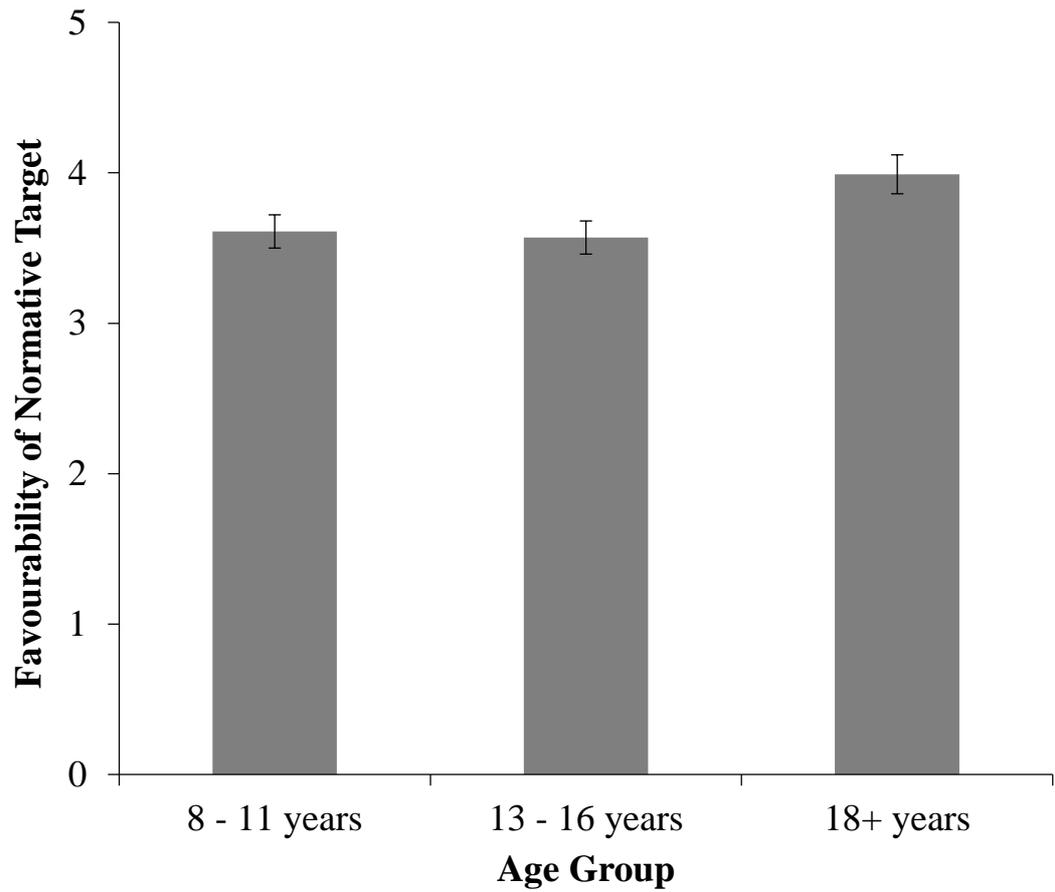


*Figure 4.2.* Individual favourability of normative ingroup member as a function of ingroup norm with standard error bars

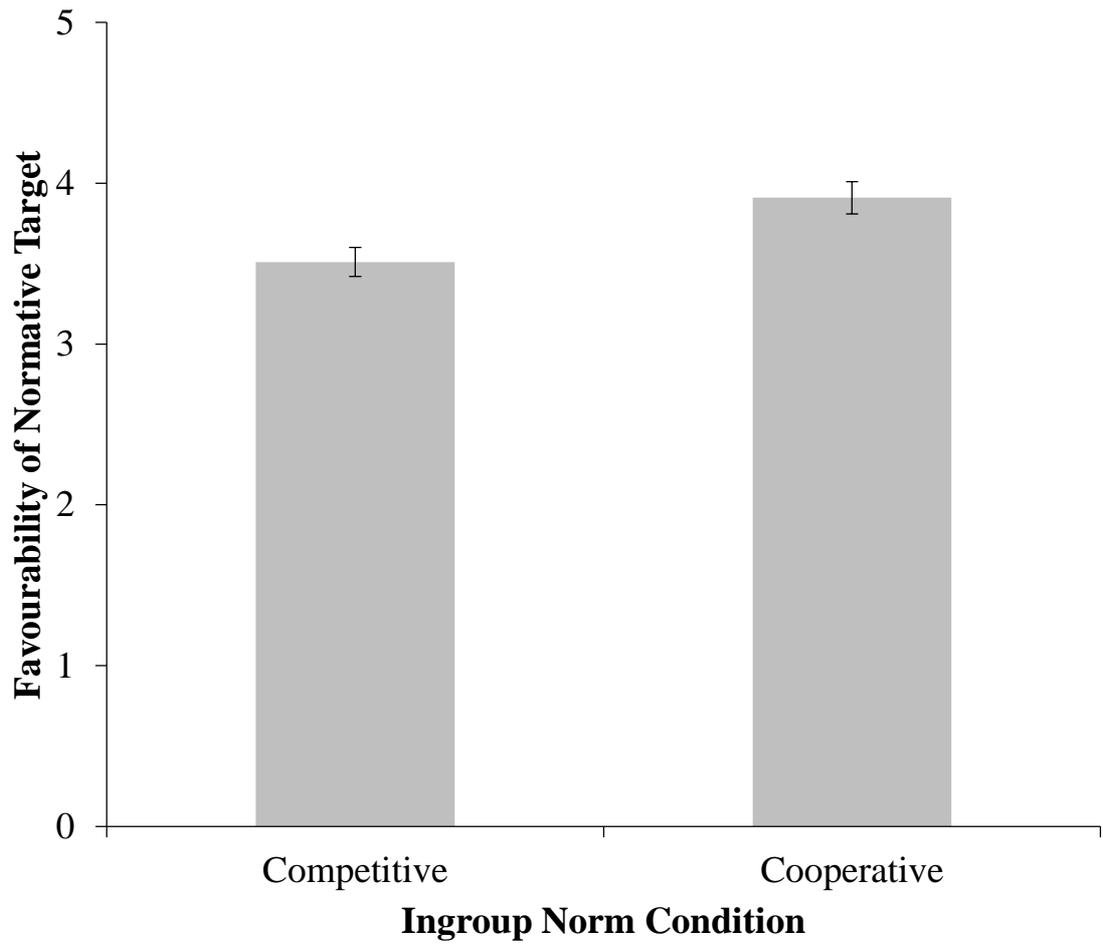
#### 4.6.2. Group Favourability of Normative Target

When considering participants' perceived group evaluations of a normative target, we observed a significant main effect of age group  $F(2, 243) = 3.12, p = .05, \eta^2 = .03$  (see Figure 4.3.). Adult participants ( $M = 4.00, SD = .77$ ) believed that their group would evaluate a normative target more favourably than both adolescents ( $M = 3.57, SD = 1.05; p = .02$ ) and children ( $M = 3.61, SD = 1.24; p = .04$ ). Children's ( $t(93) = 8.67, p < .001, \text{Cohen's } d = .90$ ), adolescents' ( $t(87) = 9.56, p < .001, \text{Cohen's } d = 1.02$ ) and adults' ( $t(66) = 15.82, p < .001, \text{Cohen's } d = 1.95$ ) perceived group evaluations of normative behaviour all differed significantly from the midpoint of the scale. With age, participants come to believe that ingroup members increasingly prefer normative behaviour.

As per the individual level analyses, we observed a main effect of ingroup norm,  $F(1, 243) = 7.09, p = .008, \eta^2 = .03$  (see Figure 4.4.). Again, the normative target was more favourably evaluated in the cooperative ingroup norm condition ( $M = 3.91, SD = .94$ ) than in the competitive ingroup norm condition ( $M = 3.51, SD = 1.15; p = .008$ ). In both the cooperative ( $t(116) = 16.22, p < .001, \text{Cohen's } d = 1.50$ ) and competitive ( $t(131) = 10.07, p < .001, \text{Cohen's } d = .88$ ) conditions, participants' perceived group evaluations of normative behaviour differed significantly positively from the midpoint of the scale. Again, there was no main effect of generic norm, nor did it interact with ingroup norm or age group.



*Figure 4.3.* Perceived group favourability of normative ingroup member as a function of age group with standard error bars



*Figure 4.4.* Perceived group favourability of normative ingroup member as a function of ingroup norm condition with standard error bars

### 4.6.3. Individual Favourability of Deviant Target

(H2) *Age and ingroup norm were expected to influence participants' individual evaluations of a deviant target.*

First, our analyses revealed a significant interaction between age group and ingroup norm,  $F(2, 233) = 3.42, p = .04, \eta^2 = .03$  (see Figure 4.5). Participants' evaluations of a deviant ingroup target depended both upon their age, and the ingroup norm they were prescribed. As per the normative analyses, we did not observe a main effect of generic norm, or any interactive effects.

In the cooperative ingroup norm condition (i.e. a competitive deviant), children ( $M = 2.55, SD = 1.15$ ) evaluated the deviant significantly less positively than both adolescents ( $M = 3.47, SD = 1.06; p = .002$ ) and adults ( $M = 3.65, SD = .85; p < .001$ ). There was no significant difference between the ratings of adolescents and adults ( $p > .05$ ). Children's personal evaluations of the competitive deviant did not differ significantly from the midpoint of the scale ( $t(39) = .27, p = .79$ , Cohen's  $d = .04$ ). Adolescents ( $t(37) = 5.67, p < .001$ , Cohen's  $d = .91$ ) and adults ( $t(33) = 7.88, p < .001$ , Cohen's  $d = 1.35$ ) evaluated this individual significantly above the midpoint of the scale. With age, competitive deviancy was evaluated more positively relative to evaluations of this behaviour amongst children.

By comparison, when the ingroup norm was competitive, there were no differences between age groups in terms of how they rated cooperative deviancy ( $p > .05$ ). Children ( $M = 3.83, SD = 1.62$ ), adolescents ( $M = 3.80, SD = 1.34$ ) and adults ( $M = 4.33, SD = .55$ ) all positively rated deviants who advocated for cooperation with the out-group. For children ( $t(45) = 5.54, p < .001$ , Cohen's  $d = .82$ ), adolescents ( $t(50) = 6.94, p < .001$ , Cohen's  $d = .97$ ) and adults ( $t(29) = 18.37, p < .001$ , Cohen's  $d = 3.33$ ), individual evaluations of a cooperative deviant different

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significantly from the midpoint of the scale. Across the age groups, a cooperative deviant was favourably evaluated from the personal perspective.

Children also evaluated a cooperative deviant significantly more favourably than a competitive deviant ( $p < .001$ ). This was also true for adults ( $p = .02$ ). Adolescents on the other hand did not make a distinction between their favourability evaluations for competitive and cooperative deviants ( $p = .20$ ). Again, these age-related differences suggest that positive evaluative attitudes towards cooperation (even as a form of deviancy) in childhood are reduced amongst adolescents, but return in young adulthood.

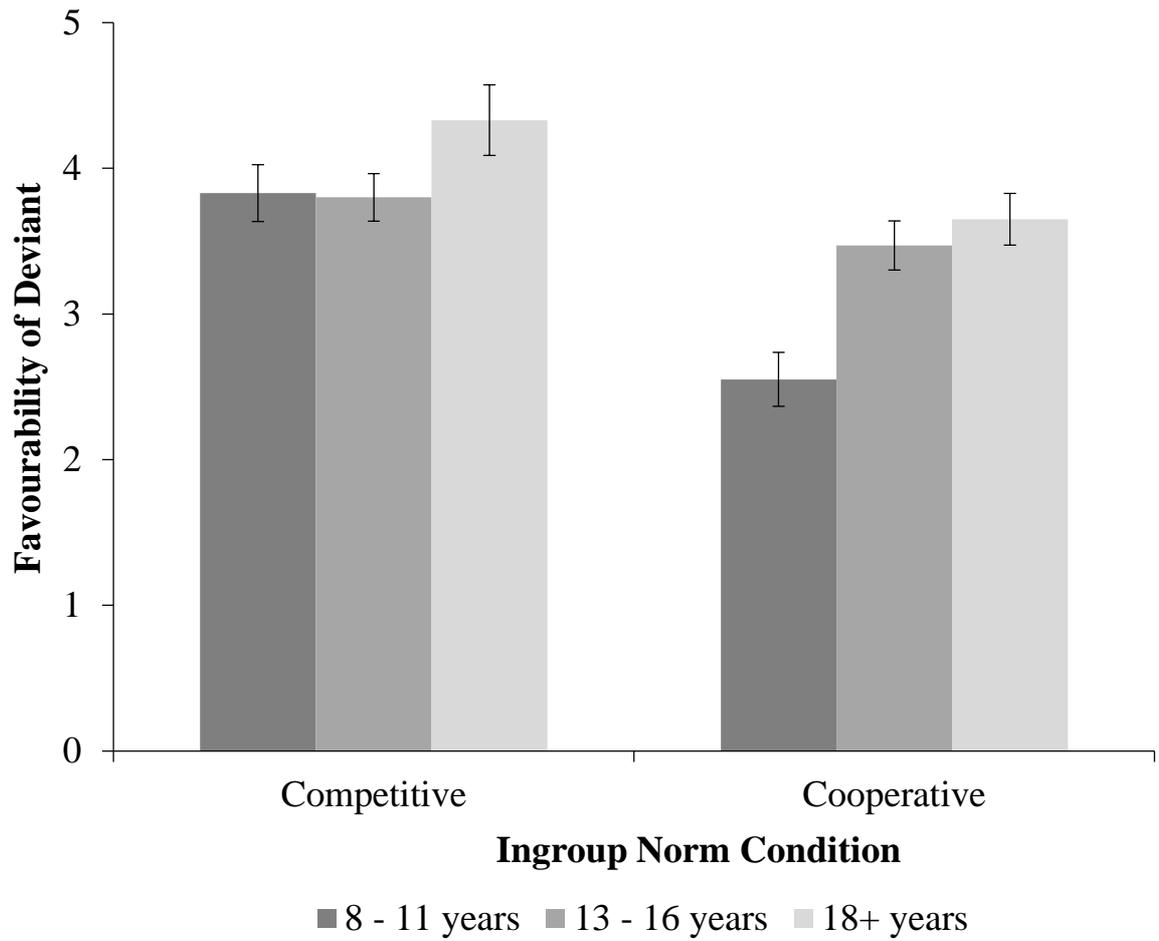


Figure 4.5. Individual favourability of deviant ingroup member as a function of age group and ingroup norm with standard error bars

#### 4.6.4. Perceived Group Favourability of Deviant

(H3) *Age and ingroup norm were expected to influence participants' perceived group evaluations of a deviant target.*

As per the individual's deviant evaluations, there was a significant interaction between age group and ingroup norm,  $F(2, 231) = 6.99, p = .001, \eta^2 = .06$  (see Figure 4.6). Perceived group evaluations of the deviant target were dependent upon the prescribed ingroup norm, and the age of the participant. Once again, there was no main effect of generic norm, nor did it interact with ingroup norm or age group.

When the ingroup norm was competitive (i.e. a cooperative deviant), there were significant differences between perceived group evaluations based on age group. Children ( $M = 3.02, SD = 1.57$ ) believed their group would rate deviancy in this condition significantly more positively than adolescents ( $M = 2.24, SD = .99; p = .004$ ). There was no significant difference between adults ( $M = 2.49, SD = .92$ ) and children's perceived group evaluations of the deviant in this condition ( $p > .05$ ). Similarly, there was no significant difference between the adolescents' and adults' perceived group evaluation of the deviant member in the competitive condition ( $p > .05$ ). Children's perceived group evaluation of a cooperative deviant differed significantly from the midpoint of the scale,  $t(46) = 2.28, p = .03$ , Cohen's  $d = .33$ . Adolescents' ( $t(50) = -1.91, p = .06$ , Cohen's  $d = -.26$ ) and adults' ( $t(30) = -.09, p = .93$ , Cohen's  $d = -.01$ ) perceived group evaluations of the cooperative deviant did not differ significantly from the midpoint of the scale. Whilst children expected their group to positively evaluate a cooperative deviant, adolescents and adults expected this individual to be more neutrally evaluated by the group.

There were also significant differences between participants of different ages in the cooperative ingroup norm condition (i.e. a competitive deviant). Adults ( $M =$

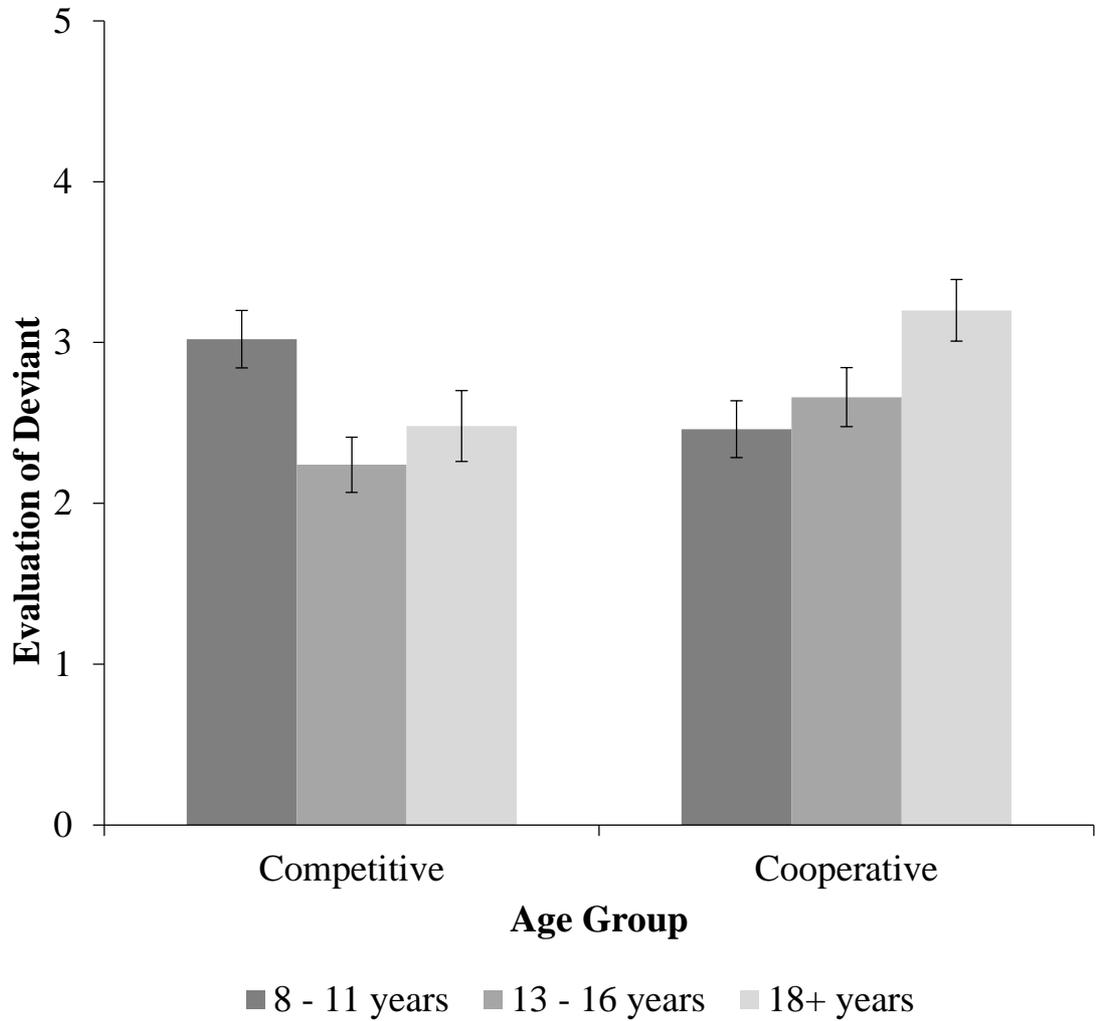
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3.20,  $SD = .99$ ) believed their group would rate deviancy (that is, competitive behavior) significantly more positively than children ( $M = 2.46$ ,  $SD = 1.25$ ;  $p = .02$ ). There was no significant difference between adults and adolescents perceived group evaluations of a deviant in the cooperative ingroup norm condition ( $M = 2.66$ ,  $SD = 1.12$ ,  $p > .05$ ). Similarly, there was no significant difference between children and adolescents perceived group evaluations of deviancy in this condition ( $p > .05$ ). Children ( $t(40) = -.18$ ,  $p = .85$ , Cohen's  $d = -.03$ ) and adolescents' ( $t(37) = .87$ ,  $p = .39$ , Cohen's  $d = .14$ ) perceived group evaluation of a competitive deviant did not differ significantly from the midpoint of the scale. Adults ( $t(34) = 4.16$ ,  $p < .001$ , Cohen's  $d = .71$ ) perceived group evaluations of this competitive deviant were significantly above the midpoint of the scale. These results indicate age effects between childhood and adulthood, with individuals moving towards an understanding that an ingroup may actually be less negative towards a deviant who is favouring the ingroup, even when this runs counter to cooperative peer level expectations.

Again, within the age groups there were differences in evaluations of competitive and cooperative targets. Children believed their group would evaluate a cooperative deviant more favourably than a competitive deviant ( $p = .03$ ). Adults by comparison believed that their group would evaluate a competitive deviant more favourably than a cooperative deviant ( $p = .02$ ). There was no difference in adolescents' evaluations of deviant targets as a function of ingroup norm condition ( $p = .10$ ). These results complement those from the individual perspective. Children perceive that their group will show the same positive evaluation of a cooperative deviant relative to a competitive deviant that they personally do. Adults, by comparison, have inverted this relation in understanding that their group may in fact

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evaluate a competitive deviant more positively than a cooperative deviant – even if they themselves would personally prefer a cooperative deviant.



*Figure 4.6.* Perceived group favourability of deviant ingroup member as a function of age group and ingroup norm with standard error bars

#### 4.6.5. Individual Deviant Favourability Reasoning

(H4) *Deviant agreement and ingroup norm were expected to influence participants' justifications for their deviant evaluations.*

We next examined how age group, ingroup norm and agreement with the deviant influenced participants' chosen reasoning justification for their evaluation of the deviant target, using a multinomial logistic regression approach. Addition of the predictors (age group, ingroup norm, target agreement) to the model led to a significant improvement in model fit compared with the null model, LR  $\chi^2(15, N = 171) = 79.37$ , Nagelkerke  $R^2 = .41$ ,  $p < .001$ .

The main effect of Age Group,  $\chi^2(6, N = 171) = 33.97$ ,  $p < .001$  was significant. Specifically, children were more likely than adults to make reference to fairness than group functioning reasoning to justify their evaluation of a deviant,  $\beta = -1.67$ ,  $\chi^2(1) = 9.25$ ,  $p = .002$ ,  $\text{Exp}(B) = .19$ , 95% CI [.06, .55]. Children justified their evaluations of a deviant with reference to concerns for fairness. For example, one child participant positively evaluated a cooperative deviant "*because he is fair*". By comparison, adults discussed the group functioning consequences of including a deviant target. For example, one adolescent participant negatively evaluated a cooperative deviant by stating "*I would dislike her on my team as she is disagreeing with most of our group, which will cause arguments*".

As well as this main effect, we observed an interaction effect between Ingroup Norm and Deviant Agreement,  $\chi^2(9, N = 171) = 33.97$ ,  $p < .001$ . Given some small cell sizes, we used Fisher's exact tests and follow up  $z$  tests with Bonferroni correction for multiple comparisons to examine differences in individual deviant evaluation reasoning as a function of Ingroup Norm and Deviant Agreement.

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All comparisons reported were significant at the  $p < .05$  level, and reported means are proportional percentages of reasoning.

First, there were differences in reasoning style dependent upon deviant agreement within the competitive ingroup norm condition (i.e. a cooperative deviant), Fisher's exact = 22.84,  $p < .001$ . Participants who agreed with a cooperative deviant in this condition made greater reference to fairness ( $M = .50$ ) than fair competition ( $M = .13$ ) or group functioning ( $M = .30$ ) reasoning. Participants who agreed with this form of cooperative deviancy did so because they believed it was the fair thing to do. Counter to this, participants who disagreed with the cooperative deviant made greater reference to group functioning ( $M = .71$ ) than fairness reasoning ( $M = .14$ ) or personal choice ( $M = .14$ ). There were no references to fair competition amongst these participants. In this condition, less favourable evaluations of cooperative deviancy were justified with reference to the counter-normative nature of the deviant's behavior, and the problems for advancing the relative position of the ingroup this would create. One participant justified a negative evaluation of a cooperative deviant by arguing that "*she'd give away half our precious money!*"

Likewise, in the cooperative ingroup norm condition (i.e. a competitive deviant) there were significant differences in reasoning domain use as a function of agreement with the deviant, Fisher's exact = 22.18,  $p = .001$ . Participants who agreed with the competitive deviant made significantly greater use of group functioning reasoning ( $M = .89$ ) than personal choice reasoning ( $M = .12$ ). These participants justified a positive evaluation of the deviant with reference to the group functioning benefits of their behaviour. Amongst participants who disagreed with the competitive deviant, there were also references to group functioning ( $M = .40$ ) above

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and beyond fairness ( $M = .33$ ), personal choice ( $M = .16$ ) or fair competition ( $M = .12$ ). These participants viewed the behaviour of the competitive deviant negatively due to the consequences their deviancy would have for group functioning. For example, one participant argued “*I would dislike her on my team as she is disagreeing with most of our group which will cause arguments*”.

Table 4.1.

*Frequencies and proportions of participants’ reasoning as a function of ingroup norm and deviant agreement*

Ingroup Norm	Deviant Agreement	Fairness	Personal Choice	Fair Competition	Group Functioning
Competitive	Agree	35 (.54)	0 (.00)	9 (.14)	21 (.32)
	Disagree	3 (.14)	3 (.14)	0 (.00)	15 (.71)
Cooperative	Agree	0 (.00)	3 (.12)	0 (.00)	23 (.89)
	Disagree	17 (.33)	8 (.16)	6 (.12)	20 (.40)

#### 4.6.6. Relation Between Perceived Group and Individual Favourability

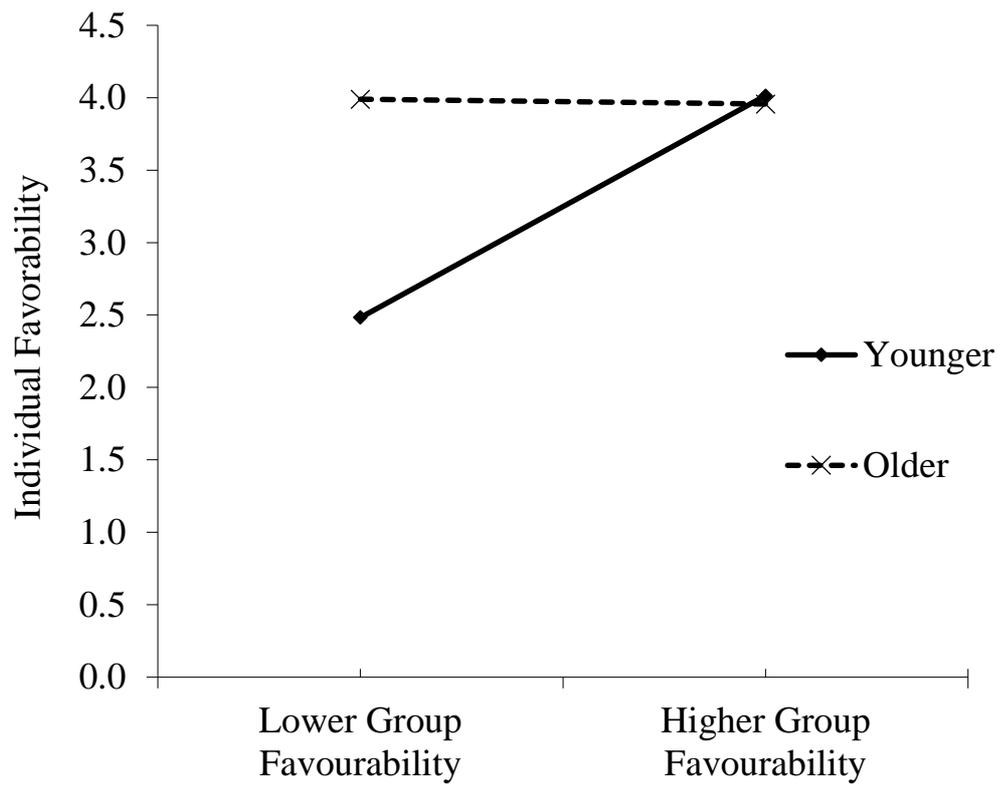
(H5) *With age, the relation between perceived group and individual evaluations was expected to weaken.*

Finally, we used the PROCESS Macro tool (Hayes, 2012) to test whether age moderated the relation between group and individual favorability. Using bootstrapping, we entered the centred continuous variables for group favorability and age in months, together with their interaction terms hierarchically in order to predict participants' individual favorability.

This analysis revealed a significant relation between age and individual favorability of the deviant ( $\beta = 0.01$ ,  $t = 5.33$ ,  $p = .001$ ),  $R^2 = .27$ ,  $F(3, 225) = 22.43$ ,  $p < .001$  (see Figure 4.7). In general, older participants were more favorable towards a deviant than younger participants.

Similarly, group favorability was a significant predictor of individual favorability ( $\beta = 0.31$ ,  $t = 4.77$ ,  $p = .001$ ). Participants who perceived that their ingroup would be more favorable towards a deviant showed higher individual favorability.

These predictive effects were qualified by a significant interaction between age and perceived group favorability ( $\beta = -0.01$ ,  $t = -5.85$ ,  $p = .001$ ) on individual favorability. Simple slopes analyses revealed that the relation between individual favorability and group favorability of the deviant was significantly stronger amongst younger participants ( $t = 7.60$ ,  $p = .001$ ) than older participants ( $t = -0.14$ ,  $p = .89$ ). This suggests that with age, the relation between adolescents and adults' individual evaluations of the deviant and their perceived group evaluation becomes significantly weaker.



*Figure 4.7.* Individual favorability of deviant target among younger and older participants as a function of perceived group favorability. For older and younger participants and higher and lower perceived group favorability scores, we substituted values 1 standard deviation above and below the means, respectively.

#### 4.7. Discussion

The findings of this chapter extend previous research in the field of intragroup dynamics by examining how evaluations of ingroup peers in competitive and cooperative intergroup contexts develop between middle-childhood and young adulthood. This study shows that children expect their group to prefer a cooperative deviant relatively more than older participants, even when this is counter to a competitive ingroup norm in the context of a competitive arts competition. In line with work that has shown the importance of cooperation throughout the lifespan, participants of all ages positively evaluated the cooperative ingroup deviant. In contrast, when the ingroup deviant was competitive there were differences in favourability judgments as a function of age. Adult participants believed their group would evaluate this deviant relatively more favourably. Similarly, evaluations of a competitive ingroup deviant from middle childhood, into adolescence and adulthood became more positive from the individual perspective. In addition this study showed that participants varied the social reasoning they used to justify their evaluations according to whether the ingroup norm was competitive or cooperative, and their own personal agreement with the deviant.

These findings address changing conceptions with age regarding cooperative and competitive norms. Previous work has shown that deviance from equal allocation norms becomes more acceptable between childhood and adolescence (Killen et al., 2013; Mulvey et al., 2014). This study extends previous findings by examining resource allocation related to competitive and cooperative contexts from middle childhood to adulthood. Specifically, we observed important differences between adolescents and adults that reflect an on-going developmental process. Adults personally positively evaluated a cooperative deviant ingroup member in the

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same manner as children. However, unlike children they demonstrated more advanced intragroup knowledge in understanding that their group would not favourably evaluate this individual. This fits with research that has demonstrated the ongoing importance of cooperation into adulthood (Kahneman et al., 1986). Adults support cooperative norms and positively evaluate those who challenge such norms against a group norm for competition. This deviant is not only challenging an ingroup norm, but is also acting against a competitive intergroup context (i.e. the arts competition). Even with their advanced understanding of group processes and contextual knowledge, adults personally favour an individual who is arguing in favour of cooperation.

By comparison, adolescents do not distinguish between competitive and cooperative deviants from their personal perspective. This is an interesting example of the conflicting influence of group processes and moral domain concerns outlined by the SRD approach (Rutland & Killen, 2017; Rutland et al., 2010). In different contexts, both cooperation and competition can be considered acceptable behavioral motivations. Adolescents do not seem to positively evaluate one over the other when it comes to deviancy. It would be interesting to further manipulate the context of the resource allocation decision in order to examine adolescents' understanding of contextual factors and the impact this may have upon their evaluative preference for cooperation and competition.

Moderation analyses revealed a relation between perceived group and individual evaluations for younger, but not older, participants. For younger participants the more favourable they perceived their group to be towards a deviant, the more favourable they themselves were. For older participants however, there was no link between individual and group evaluations. This supports the idea that a

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fundamentally different understanding of intragroup dynamics emerges between childhood and young adulthood. Younger individuals struggle to comprehend that any group they would join could collectively think differently from themselves, especially when cooperation and equal distribution of resources are under in question. Adolescents and adults, on the other hand, make a distinction between their own attitudes and those of the group when making evaluative judgments of ingroup members. It is this understanding that both competitive and cooperative behaviors can be seen as acceptable from different perspectives, and depending on the situational context, which separates adolescents and adults from children.

This study extends previous work examining the influence of group norms on deviant evaluation by making a distinction between prescriptive and descriptive peer group norms. In comparable work, peer group norms have been descriptive, where normative expectations were outlined via examples of past resource allocation behavior (Mulvey et al., 2014). However, peer group norms can also be delivered as prescriptions (i.e. a direct instructional statement regarding how group members are expected to behave). Here, participants received both a prescribed statement of cooperation or competition *and* observed how their fellow ingroup members were going to allocate resources (coherent with the prescription). Despite a unified statement of intent and allocation action, children in the competitive ingroup norm condition still believed that their group would like a cooperative deviant. Children's commitment to cooperation is strong enough to supersede both a unified prescriptive *and* descriptive norm for competition.

In line with predictions from the SRD model (Rutland & Killen, 2017), participants' reasoning justifications for their evaluations of the deviant target involved the coordination of both moral and group functioning concerns. This was

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specifically related to participants' agreement with the deviant act. Those who disagreed with competitive deviancy referenced the inherently unfair nature of taking more resources for one's ingroup. Conversely, participants who agreed with such behavior almost exclusively focused on the group functioning benefits of access to a greater share of the resources, or the consequences caused by including a cooperative deviant who wanted to give resources away to the outgroup.

It is well established that children and adolescents simultaneously consider group functioning and moral domain concerns in their reasoning justifications (Mulvey et al., 2014; Rizzo, Elenbaas, Cooley, & Killen, 2016; Rutland & Killen, 2017). These reasoning results extend this work by emphasising the importance of context in determining which of these factors takes precedence in a given situation. Group members' justifications for evaluations of deviancy must not only take into account the morality of the deviant's behavior, but also the contextual bounds in which this behaviour takes place. Specifically, in competitive intergroup contexts children face complex decisions requiring them to weigh up whether they ought to adhere to generic moral expectations or follow competitive cues to advance the relative position of their ingroup. Differential reasoning processes guided the evaluation of a deviant target, a process which itself differed dependent upon participant age. This intertwined relation between reasoning and judgment developing across childhood predicted by the SRD model is integral to children's developing moral understanding.

As predicted, the generic normative context did not influence evaluations of normative or deviant members. Instead, ingroup norms were of greater importance in predicting evaluations of ingroup targets. This finding fits with the idea that evaluating group members is seen as beyond the influence of generic expectations.

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Who is chosen to join a group and how they are expected to behave falls under the jurisdiction of group members (Killen & Stangor, 2001) and is not contingent upon the context in which the group finds itself. For example, whilst a group member behaving cooperatively in line with a cooperative generic norm could be evaluated positively based upon moral principles of fairness and equality, such deviation in the context of a competitive ingroup norm is a transgression against group expectations. As such, the context in which this transgression happens is of less importance when participants are asked how their *group* would evaluate such behavior. Future work should seek to elucidate what behaviours that breach generic normative contexts are considered reproachable enough to face negative evaluation from the individual and group perspective, even if such behavior is in line with group norms. Similarly, it would be interesting to explore children's understanding of how external individuals would evaluate various deviant acts. In particular whether, from the perspective of a non-group member, children understand that generic context does begin to play a more important role.

### **4.8. Overview**

The present work extends knowledge regarding children, adolescents and adults' understanding of intragroup dynamics into a context where competitive and cooperative norms were manipulated. Using a novel prescriptive norm method in the context of intergroup competition we demonstrated age-related differences between children, adolescents and adult's understanding of group and individual evaluations of competitive and cooperative deviancy. Children favourably evaluated cooperative deviant targets from both a group and individual perspective, and didn't separate their own perspective from that of the group. By comparison, adolescents and adults positively evaluated competitive group members whose behavior supported the

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advancement of the ingroup's relative share of resources, *and* cooperative group members who sought to share with the outgroup. At the same time, older participants understood that their group may still have positively evaluated a competitive deviant, whilst simultaneously negatively evaluating a cooperative deviant. Reasoning data supported these findings by demonstrating a shift between reasoning domains dependent on the ingroup norm and agreement with the deviant.

With age individuals develop a sophisticated understanding of the interactive importance of both group membership and cooperation. When these issues conflict, adolescents and adults understand that there may be a difference between their own and the ingroup's viewpoint. Understanding this difference is essential in order to retain functioning group cohesion in increasingly complex contexts. By comparison, children remain focused on cooperation even when this may compromise ingroup cohesion. Intergroup situations are often competitive, and understanding when it is more or less justifiable to compete is important in order to maintain both inter-group and intra-group harmony. Crucially, by adulthood individuals revert to a strong personal positive evaluation of morally relevant cooperation even when they believe their group will not do so.

Chapters Three and Four demonstrated the importance not just of peer level norms in resource allocation and intragroup evaluation, but also of contextual information and generic norms. Specifically, with age, individuals coordinate these factors to guide their behaviour and reasoning. Chapter Five returns to examine resource allocation, specifically with a focus on extending our investigation of generic level norms. In Chapter Two children integrated ingroup and outgroup level information when allocating resources. Children also found it difficult to coordinate ingroup information with more abstract generic contextual information manipulated

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in Chapters Three and Four, particularly in a challenging intergroup scenario.

Chapter Five seeks to examine whether a more concrete form of generic norm, made relevant to children's everyday experience, exerts more of an influence upon their resource allocation decisions. Generic norms of cooperation are a powerful tempering influence on adolescents' and adults' resource allocation under competitive ingroup conditions. It is important to understand whether there are similar generic norms that, when designed in the context of children's everyday experience, can exert a similar tempering effect on their ingroup biased resource allocation decisions.

## CHAPTER FIVE

*Cooperation is not always morally relevant: The influence of performance-focus and learning-focus generic norms for cooperation*

### 5.1. Introduction

In Chapters Three and Four we examined whether children and adolescents simultaneously considered ingroup and generic contextual norms of competition and cooperation when allocating resources and evaluating their peers in a competitive intergroup scenario. These Chapters demonstrated that both ingroup and generic norms of competition and cooperation have an important role to play. Generic norms become increasingly important for adolescents when allocating resources. In Chapter Three, children adhered to a competitive ingroup norm by allocating a greater share of resources to their ingroup, even in a cooperative generic context. Older participants, by comparison, tempered their ingroup bias when the generic context was cooperative, even when prescribed an ingroup norm of competition. These findings suggest that between the ages of 7 and 11 years, children place greater emphasis upon ingroup norms than they do generic contextual norms. Chapter Five was designed to explore whether this is always the case, or alternatively whether there are more specific generic norms that are relevant for children's resource allocation decision-making. In Chapter Three, age-related differences in understanding of generic contexts emerged between childhood and adolescence. Therefore, in Chapter Five we did not include an adult sample.

In Chapter Three, participants in the cooperative generic normative context were asked to imagine they would be taking part in a "United Kingdom charity art event". In this event, the art that groups produced would be sold to raise money for

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an animal shelter. This generic normative context was designed to suggest to participants as there was no “winner” of the event, that cooperating with the outgroup to produce the best art possible would be the optimal solution to benefit the charity. Children, however, may have interpreted this scenario differently. Specifically, younger participants may in fact have assumed that the “winners” of the charity art event would be the school group who raised the greatest amount of money for the animal shelter. We know that children are highly influenced by competitive norms (see Chapter Two) and behave less prosocially under such conditions (Abrams et al., 2015). Biased ingroup allocation could be an attempt to prepare for the forthcoming charity art event by securing greater access to luxury art resources. This could be exaggerated when coupled with the competitive ingroup norm condition. Under such conditions a morally ambiguous cooperative event could be viewed through a competitive lens.

This alternative interpretation of the results of Chapter Three draws from Killen's (2016) argument that cooperation alone is not always morally relevant. In line with evolutionary anthropological formulations of cooperation, Killen agrees that cooperation should be seen as a fundamental human process. However, she proposes that cooperation is not always a morally relevant or unambiguous action. The examples presented by Killen are dramatic (e.g. the cooperation of war criminals to commit genocide) but the central argument is relevant to the propositions of Chapter Five. Working together does not necessarily imply that the outcome of cooperation is going to be morally relevant. The intentions of the cooperating parties and the outcomes of the cooperative enterprise are just as important as the decision to work together when assessing the morality of an act. In Chapter Three, children may have interpreted “winning” the charity event as a more important goal than

allocating resources equally with the outgroup (i.e. a more traditional cooperative motive).

A second line of thought relevant to this interpretation comes from the attitudes literature. Specifically, it is possible that children allocated a greater share of resources to their ingroup based upon assumptions of high ingroup competence. Through an extensive line of enquiry, Fiske and colleagues have established that outgroup members are stereotyped on two dimensions of warmth and competence (Fiske, Cuddy, Glick, & Xu, 2002). The Stereotype Content Model (SCM) argues that ingroup status and intergroup competition determine where stereotypes fall on the axes of warmth and competence. Given the competitive intergroup context of Chapter Three, less positive stereotypes about the outgroup may have been activated. The SCM proposes that individuals classify groups based on their warmth and competence. High-status or competitive groups are thought to be competent, but low in warmth. By comparison low-status or noncompetitive groups are categorised as low in competence, but high in warmth. In the case of the cooperative generic normative context in Chapter Three, participants may have stereotyped outgroup members as less competent artists than themselves.

Competence scales have variously included measures of capability, skillfulness, intelligence, and confidence (Cuddy, Fiske, & Glick, 2008).

Competence in conjunction with warmth has been shown to be of central importance in the formation of stereotypes of older people, Asian Americans, immigrants, and even in fascist propaganda regarding racial groups (Cuddy & Fiske, 2002; Durante, Volpato, & Fiske, 2010; Kitano & Sue, 1973; Lee & Fiske, 2006). The SCM argues that attitudes towards groups are ambivalent in nature. That is, groups are either viewed as high in competence and low in warmth (for example, Asian Americans),

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or low in competence but high in warmth (for example, the elderly). Crucially, stereotypes regarding ingroup members are a rare non-ambivalent example, as ingroup peers are viewed as both high in competence and warmth. Children in Chapter Three likely applied positive non-ambivalent stereotypes of high competence and warmth to their ingroup relative to the outgroup.

In Chapter Five we examine the possibility that rather than ignoring generic expectations altogether, children in Chapter Three interpreted the cooperative generic norm situation as one in which they should attempt to better the outgroup in raising money for the charity, and in turn believed that their highly competent ingroup should receive the greater share of resources in order to do so. The SCM also emphasises the importance of group status. High status groups are considered to be more competent than low status groups, due to the belief that status is a consequence of ability rather than luck (Cuddy et al., 2008). In Chapter Two, participants were inducted into a high status ingroup in order to replicate the real-world status quo where high status groups enact biased resource allocation which disadvantages low status minority groups. Less is known regarding how first-person membership of a low status ingroup influences the resource allocation process. In the present study, for the first time in conjunction with resource allocation norms, status is manipulated in order to examine its influence upon ingroup biased resource allocation.

In Chapter Three, we manipulated generic contexts by informing participants that they would be taking part in one of two activities. These activities implied certain behavioural expectations associated with competitive or cooperative scenarios. It is possible that generic norms in this form did not guide children's allocation behaviour as they were not outlined at the classroom level in which

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children develop the majority of their intergroup social understanding. A third line of research can help to clarify why this is the case, with particular relevance given the age group and setting of Chapter Three. A rich literature regarding learning style has outlined two key motivations that guide children's learning strategies at school: namely, learning and performance goals (Ames, 1992; Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988). Learning goals involve a commitment to the process of learning, and individual development as the most important outcome of a given learning experience. When learning goals are applied, individuals are encouraged to develop new skills and master new tasks (Brophy, 1983; Meece, Blumenfeld, & Hoyle, 1988).

Performance goals, by comparison, focus on comparing one individual's abilities against others' abilities in the same task. When performance-focus goals are applied, measuring success relative to comparison groups and receiving public recognition for success are the important goals. Less is known about how these motivational processes guide behaviour beyond learning. Performance-focus goals are particularly relevant to a setting where an outgroup exists against which performance can be measured. Indeed, they can be considered analogous to generic norms at the classroom level, where teachers outline goals and the expected means by which class members should behave in order to achieve these goals. With generic norms prescribed at the classroom level with specific expectations outlined to participants, we did not expect to observe age differences in the ability to take these more concrete generic norms into consideration.

Performance-focus and learning-focus goals act as two of the central motivations for children's learning. The generic cooperative charity context of Chapter Three has remarkable similarities with Dweck and colleagues' performance-

focus goal motivation. The charity context presented a situation in which one group's artistic output could be measured against the other group. In the present study we attempted to control for this difference in cooperative motivation by creating two different generic cooperative contexts. In the generic performance-focus context, participants were again informed that they would be taking part in an event to raise money for a charity. The focus here was upon the outcome, i.e. the amount of money raised for the charity. We also, for the first time, inducted participants into a learning-focus generic context. In this morally relevant cooperation situation, participants were told they would be creating art to be displayed as part of an exhibition where the exhibitors would work together to learn about art. In this condition, there would be no winner on the day, nor a measureable outcome variable. We were interested in whether this distinction between performance and learning focuses could help explain why children in Chapter Three allocated a greater share of resources to their ingroup, even when the generic normative context was ostensibly cooperative.

In the present study, participants were inducted into simulated groups based on school membership and asked to imagine they would be taking part in an art event with a school from the local area. For the first time, they were informed that their group was either of a professional artistic standard (high status) or an average artistic standard (low status). They were then prescribed an ingroup norm of competition or cooperation. The art event acted as the generic normative context for the study. This was either a direct competition (competitive), a charity art event (performance-focus cooperation) or an art exhibition (learning-focus cooperation).

### **5.1.1. Aims**

1. We aimed to establish whether children and adolescents make a distinction between different cooperative norms at the generic level. We were interested in whether children and adolescents would allocate resources differently as a function of the focus or outcome of the generic cooperative context (i.e. whether that was performance or learning).

2. For the first time in such a resource allocation task we manipulated the status of the ingroup. Our aim was to understand whether members of higher status groups would show greater ingroup bias than participants in low status groups, particularly in the context of an art event where competence was related to success.

3. We were again interested in understanding children's social reasoning justifications for their behavior and how this differed as a function of age and chosen allocation strategy.

### **5.1.2. Hypotheses**

**H1.** We expected to observe a significant main effect of ingroup norm. Participants in the competitive ingroup norm condition were expected to allocate a greater share of resources to their ingroup than those in the cooperative ingroup norm condition.

**H2.** We expected to observe a significant interaction between ingroup norm, generic norm and status. In the cooperative ingroup norm condition, high status participants were expected to allocate a greater share of resources to the ingroup, but only when the generic norm was performance-focus. In the cooperative ingroup norm condition, low status participants were expected to allocate a greater share of resources to the outgroup in the performance-focus generic norm condition, given that the outgroup would have the greater competence required to meet the goals of

the charity event. In the learning-focus condition participants were expected to allocate resources equally regardless of status or ingroup norm. In the competitive generic context, we expected to see allocations in favour of the ingroup, particularly when the ingroup norm was competitive. When the ingroup norm was competitive, we expected to see greater ingroup biased allocation, independent of the generic norm condition.

**H3.** Reasoning justifications for allocation were again expected to differ as a function of chosen resource allocation strategy, ingroup norm and age. In particular, we expected to see greater reference to fair competition and generic context to justify an equal allocation against a competitive ingroup norm amongst adolescents, compared with references to achieving basic fairness and equality amongst children.

## 5.2. Method

### 5.2.1. Participants

Participants ( $n = 344$ ) were recruited from the Greater London metropolitan area. Participants included 190 (97 female, 93 male) 9- to 11-year-old children ( $M^{age} = 9.84$ ,  $SD = .65$ ), and 154 (87 female, 67 male) 14- to 16-year-old adolescents ( $M^{age} = 14.92$ ,  $SD = .74$ ). Power analysis for an ANOVA with 24 groups was conducted in G\*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.95, and a medium effect size ( $f = .025$ ) (Faul et al., 2007). Based on these assumptions, the desired sample size was 322 participants. The sample consisted of approximately 42% White British, 19% Black British, 20% Asian British, and 16% other ethnic minority backgrounds (including Dual Heritage British, Chinese British and Eastern European participants), with 3% of participants opting to withhold ethnic information. The ethnic mix of these schools reflected the population of the metropolitan area in which testing took place. Participants attended schools serving

lower to middle-class socioeconomic (SES) populations. Parental consent and child assent were obtained for all participants.

### **5.2.2. Design**

The study used a 2 (age: children, adolescents) x 2 (status: high, low) x 2 (ingroup norm: competitive, cooperative) x 3 (generic normative context: competitive, learning, performance) between-subjects design.

### **5.3. Procedure**

All measures were completed individually on laptop or desktop computers using Qualtrics. Group membership was initially established using the same method as in studies one, two and three. Participants were asked to imagine that they would be taking part in an inter-school arts event between their own school and a local rival school. They saw cartoon images representing the two groups, and picked a team logo, colour and name in order to instill feelings of group membership.

**5.3.1. Status.** Status was manipulated by informing participants that an “award winning local artist” had been invited to assess the art of both competing school teams ahead of the forthcoming art event.

In the high status condition, participants read: *“The artist decided that most of the artists in your group were of a professional standard, and better than most examples they see from people of your age. The artist decided that most of the artists from the other school group were of an average standard, and no better than most examples they see from people of your age.”*

In the low status condition, this information was reversed and participants read: *“The artist decided that most of the artists in your group were of an average standard, and no better than most examples they see from people of your age. The artist decided that most of the artists from the other school group were of a*

*professional standard, and better than most examples they see from people of your age.”*

**5.3.2. Ingroup Norm.** Ingroup norm was again manipulated by informing participants that their teammates had a secret message to be relayed to new team members prior to the art event.

Participants read: *“Hello, we’re really happy you’re going to be in our group for this drawing event. We just have one rule if you’re going to be in our group, and that is...”*

(Competitive ingroup norm) *“If you want to be a part of the group, you should try and make our school do better than the other school groups, and never help the other groups in the event.*

(Cooperative ingroup norm) *“If you want to be a part of the group, you should try and make our school do better than the other school groups, but also help the other groups in the event.*

*...We’re really happy you’re going to be a member of the [School Name] group, good luck!”*

These norms were again designed to ensure they were believable in the context of the local competition, particularly given the strong expectation that individuals should support the ingroup in competitive situations (Bauer et al., 2013; Bowles, 2006).

Next participants answered a manipulation check question to ensure that they had paid attention to and understood their ingroup norm: *“Based on what you just read, does your team want to help other teams in the competition?”* (Yes/No). Participants who failed to accurately understand their ingroup norm were excluded from the final analyses ( $n = 112$ ). For example, a participant was excluded if they

said that their team wanted to help other teams in the competition when they had been told their team held a competitive ingroup norm. A sample of 344 participants (child,  $n = 190$ , adolescent,  $n = 154$ ) was included in the final analyses.

**5.3.3. Generic Norm.** Following the ingroup norm induction, participants were told more about the generic normative context, which was one of three art events in which their group would be taking part. Participants were asked to read a message ostensibly from their class teacher, informing them about the event.

In the Competitive Generic Norm condition, they read: *“You will be taking part in the United Kingdom Art Competition, which is the highest level of art competition in the country that schools can take part in. The idea here is for you to try your hardest to win by making the best art.”*

In the Performance-focus Generic Norm condition, participants read: *“You will be taking part in a United Kingdom Charity Art Event. The art will be used for a charity event for animal shelters across the UK. The idea here is to raise as much money as possible”*

In the Learning-focus Generic Norm condition, participants read: *“You will be taking part in a United Kingdom Art Exhibition. The art will be used as part of an exhibition of lots of different schools across the country. The idea here is to work together so that everyone can display their art and learn a lot”*

**5.3.4. Resources Introduction.** Following the ingroup and generic normative manipulations, participants were introduced to the resources to be distributed in advance of the art event. Participants were told that the school councils of their school and the other school in the event had bought materials that could be used in the art event. These were graphically represented as ten boxes of art supplies. We opted here to ask participants to allocate boxes of art supplies for the event rather

than money to be spent on supplies. This was designed to remove a layer of ambiguity for child participants and in turn to increase the direct relevance of the resources to the event. In the competitive ingroup norm condition, participants were told that their group had voted to give *“more supplies to your own school group, and less supplies to the other group”*. In the cooperative ingroup norm condition, participants were told that their group had voted to *“give the same amount of supplies to both groups”*.

#### **5.4. Measures**

Participants were first asked to evaluate the chosen allocation strategy of their school group. They were asked either: *“How okay or not okay is it for your school to give more supplies to your own group?”* (competitive ingroup norm) or: *“How okay or not okay is it for your school to give the same amount of supplies to both groups?”* (cooperative ingroup norm) (*resource allocation agreement question*). Participants responded on a scale from 1 (really not okay) to 5 (really okay). Following this, participants were asked to indicate how they would distribute 10 boxes of art supplies between the two groups (*resource allocation*). They could drag and drop pictures of each box to a column marked “Your School Group” or “Other School Group”. All 10 boxes had to be allocated in order to complete the task. For the analyses presented below, ingroup bias was measured in terms of the number of resources allocated to the participants ingroup (from 0 to 10 boxes of art supplies). After completing the allocation task, we assessed social reasoning by asking participants to justify their proposed allocation using an open ended *“Why did you split the supplies the way you did?”* question (*resource allocation reasoning*).

### 5.5. Data Preparation

Responses to social reasoning justifications for both the resource allocation agreement measure and the resource allocation measure were coded using categories adapted from Social Domain Theory (Turiel, 1983). The coding system assigned responses to seven conceptual categories based on previous research (Killen et al., 2013) and theoretical formulations: (1) *Fairness*, references generic fairness (e.g. “*It’s the fair thing to do*”), (2) *Equality*, references to allocating resources equally between groups (e.g. “*So the supplies are equal*”), (3) *Fair Competition*, references to ensuring the competition is conducted on a level playing field (e.g. “*So every team has a chance to win*”), (4) *Group Functioning*, references to group dynamics, norms or loyalty (e.g. “*because that’s what the rest of the team wanted to do*”), (5) *Status*, references to the status difference between the two groups (e.g. “*because we are the better artists*”), (6) *Generic Context*, references to the generic context of the event (e.g. “*because I wanted the charity event to have lots of money and other groups can help by making amazing art*”), (7) *Personal Choice*, references to autonomy (e.g. “*it was my decision how to split the boxes*”). Responses that did not fit into one of these seven conceptual categories were coded as “other”. Two coders, one of whom was blind to the hypotheses of the study, conducted the coding. Analysis of agreement between two coders (one of whom was blind to the hypotheses of the study) across 25% of the responses revealed good inter-rater reliability (Cohen’s  $\kappa = .67$ ).

Participants’ chosen allocation strategy was included as a variable in reasoning analyses for those who provided a justification for their allocation. Participants who assigned five boxes to each team were coded as Equality Strategists ( $n = 274$ ). Participants who assigned more boxes to their ingroup were coded as Ingroup Servers ( $n = 70$ ).

Participants were considered to have not fully understood the normative manipulation if they answered the ingroup norm manipulation check question counter to the group norm manipulation. For example, a participant would be excluded if they said that their team wanted to help other teams in the competition when they had been told their team held a competitive ingroup norm. This excluded group comprised 97 children and 20 adolescents (see appendix A for a complete breakdown of exclusion by condition). Initial analyses were conducted with the full sample, revealing no significant results. Following this, participants who answered the norm manipulation check question incorrectly were omitted from the final analyses. The analyses reported here included a total sample of 344 participants (children,  $n = 190$ ; adolescents,  $n = 154$ ).

### **5.6. Data Analytic Plan**

Participants' Resource Allocation (boxes allocated to the ingroup) and Resource Allocation Agreement responses were both subjected to 2 (Age Group: Children, Adolescents) x 2 (Ingroup Norm: Competitive, Cooperative) x 3 (Generic Norm: Competitive, Learning-Focus, Performance-Focus) univariate ANOVAs.

Our sample size did not allow for us to reliably test for gender effects in interaction with age or norm conditions. However, given that gender has not previously been shown to exert an effect on adherence to group norms (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale & Lawson, 2011) we did not expect differences in resource allocation or reasoning based on gender.

Follow up pairwise comparisons tests were conducted with Bonferroni corrections for multiple comparisons applied. One sample t-tests were used to assess ingroup bias in resource allocation by comparing participants' allocations to the midpoint of the scale (criterion value = 5 boxes).

Reasoning responses were analysed using a multinomial logistic regression model. We modeled the effects of Age Group (Adolescents, Children) and Allocation Strategy (Equality, Ingroup Servers) on reasoning style across five conceptual categories (fairness, equality, fair competition, group functioning, generic context). Fewer than 5% of participants used the status ( $n = 5$ ) and personal choice categories ( $n = 5$ ), and so these responses were omitted from the analyses, along with participants who used the “other” category ( $n = 17$ ).

## 5.7. Results

### 5.7.1. Resource Allocation Agreement

Analyses revealed a main effect of ingroup norm in participants' evaluations of the resource allocation strategies advocated by the competitive and cooperative ingroups,  $F(1, 319) = 249.51, p < .001, \eta^2 = .44$ . Giving more resources to one's own group (competitive ingroup norm condition) was rated as significantly less acceptable ( $M = 2.17, SD = 1.27$ ) than distributing the resources equally between the two groups (cooperative ingroup norm condition) ( $M = 4.13, SD = 1.04$ ). Participants evaluated cooperative equal allocation more favourably than competitively favouring one's ingroup, independent of their status, age or generic norm.

### 5.7.2. Resource Allocation

(H1) *Participants will allocate more resources to their ingroup when the ingroup norm is competitive.*

Having established that participants judged cooperative equal allocation to be more acceptable than competitive ingroup bias we next analysed ingroup allocation as a function of status, age, ingroup norm and generic norm. There were no significant or interactive effects for the status manipulation. We observed a significant main effect of age group,  $F(1, 337) = 10.29, p = .001, \eta^2 = .03$ .

Adolescents ( $M = 5.66$ ,  $SD = 1.41$ ) allocated a greater share of the art resources to their ingroup than did Children ( $M = 5.26$ ,  $SD = .78$ ). There was also a significant main effect of ingroup norm,  $F(1, 337) = 4.65$ ,  $p = .03$ ,  $\eta^2 = .01$ . Participants in the competitive ingroup norm condition ( $M = 5.55$ ,  $SD = 1.28$ ) allocated significantly more resources to their ingroup than those in the cooperative ingroup norm condition ( $M = 5.32$ ,  $SD = .93$ ).

(H2) *Participants' allocations would differ as a function of ingroup norm, generic norm and status.*

These significant main effects were qualified by a significant interaction between ingroup norm and generic norm  $F(2, 320) = 5.41$ ,  $p = .005$ ,  $\eta^2 = .03$  (see Figure 5.1). Participants' resource allocation decisions were dependent not only upon their prescribed ingroup norm, but also the generic context in which the art event would take place. When the ingroup norm was cooperative, there were significant differences in resource allocation as a function of the generic norm condition. Participants in the Performance-Focus (i.e. a charity art event) generic norm condition ( $M = 5.72$ ,  $SD = 1.33$ ) allocated a significantly greater share of the resources to their ingroup than participants in either the Competition (i.e. inter-institution competition) generic norm condition ( $M = 5.19$ ,  $SD = .59$ ;  $p = .02$ ) or Learning-Focus (i.e. cooperative art exhibition) generic norm condition ( $M = 5.12$ ,  $SD = .50$ ;  $p = .01$ ). There was no significant difference between the Competition and Learning-Focus conditions ( $p = .99$ ). Participants' allocations in the performance ( $t(56) = 4.07$ ,  $p < .001$ , Cohen's  $d = .54$ ) and competition ( $t(53) = 2.33$ ,  $p = .02$ , Cohen's  $d = .32$ ) conditions differed significantly from the criterion value of 5 boxes. Allocations in the Learning-Focus condition did not differ significantly from this value,  $t(57) = 1.84$ ,  $p = .07$ , Cohen's  $d = .24$ . In the Performance-Focus

condition, when the ingroup norm was cooperative, participants demonstrated significantly greater ingroup biased allocation than in the Learning-Focus or Competition generic contexts.

There were no significant differences between the Competition ( $M = 5.40$ ,  $SD = 1.00$ ), Performance-Focus ( $M = 5.52$ ,  $SD = 1.30$ ) or Learning-Focus ( $M = 5.82$ ,  $SD = 1.50$ ) generic conditions when the ingroup norm was competitive. Participants' allocations differed significantly from the criterion value of 5 boxes in the Competition ( $t(64) = 3.24$ ,  $p = .002$ , Cohen's  $d = .40$ ), Performance-Focus ( $t(53) = 2.93$ ,  $p = .005$ , Cohen's  $d = .40$ ) and Learning-Focus ( $t(55) = 4.09$ ,  $p < .001$ , Cohen's  $d = .55$ ) conditions. In the competitive ingroup norm condition, the generic context was less influential upon participants' decisions to allocate resources.

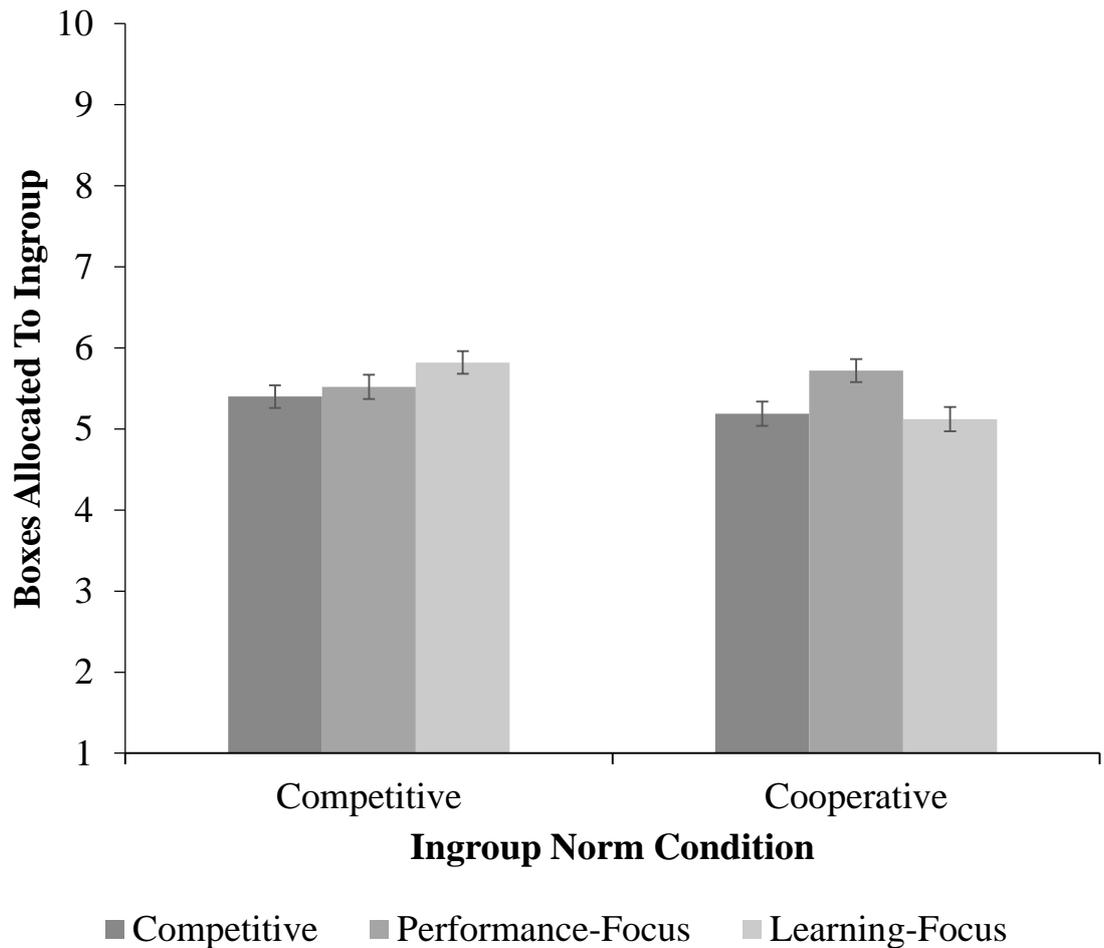


Figure 5.1. Boxes allocated to ingroup as a function of ingroup norm and generic norm with standard error bars

### 5.7.3. Resource Allocation Reasoning

(H3) *Participants' reasoning justifications were expected to differ as a function of age and allocation strategy.*

Addition of the predictors (age group, ingroup norm, strategy) to the model led to a significant improvement in model fit compared with the null model, LR  $\chi^2(24, n = 317) = 212.26$ , Nagelkerke  $R^2 = .51$ ,  $p < .001$ . The main effects of Strategy,  $\chi^2(4, n = 317) = 163.12$ ,  $p < .001$  and Age Group,  $\chi^2(4, n = 317) = 17.27$ ,  $p = .002$  were both significant, as well as the interaction effect of Strategy and Age

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Group,  $\chi^2(12, N = 317) = 197.63, p < .001$ . There were no differences in reasoning style as a function of ingroup norm. Given some small cell sizes ( $n < 5$ ), we used Fisher's exact tests and follow up  $z$  tests with Bonferroni correction for multiple comparisons to examine differences in Resource Allocation reasoning as a function of Age and Strategy (see Table 5.1).

Amongst adolescents, there were significant differences in reasoning style as a function of allocation strategy, Fisher's exact = 84.67,  $p < .001$ . Adolescent participants who used equality as an allocation strategy made greater reference to fair competition ( $M = .38$ ) than fairness ( $M = .20$ ), equality ( $M = .21$ ), group functioning ( $M = .06$ ) or generic context ( $M = .15$ ). These participants argued that it was important to allocate resources equally between the two groups in order to ensure that both groups would have equal access and a fair chance in the competition. For example one participant allocated resources equally between the groups "*because I think even though it's a competition we should all be given the same chance and opportunity to make it fair to win.*"

By comparison, participants who allocated a greater share of the resources to their ingroup made significantly greater use of group functioning justifications ( $M = .82$ ) than equality ( $M = .03$ ), or generic context ( $M = .15$ ). There were no references to fairness or fair competition amongst this group. Participants who justified ingroup serving behavior within this group functioning category referenced the importance of advancing the relative position of their ingroup. For example, one participant justified allocating six of the ten boxes to their ingroup by arguing: "*we want more than an even chance to win, so the other team will need less supplies – but not too little.*" It is interesting that despite the prominent importance of ingroup success, this participant was still concerned with some form of equity.

Similarly amongst children, there were significant differences in reasoning style as a function of allocation strategy, Fisher's exact = 71.81,  $p < .001$ . Children who allocated the resources equally between the two groups made equal reference to fairness ( $M = .33$ ) and fair competition ( $M = .33$ ). They referenced these two styles significantly more than they did equality ( $M = .28$ ), group functioning ( $M = .03$ ) or generic context ( $M = .04$ ). Participants who referenced fairness justified their equal allocation with reference to the importance of basic principles of fairness. For example one participant gave equal numbers of art supplies to both groups "*because if I gave more supplies to one team it would be unfair.*" Concerns for fair competition were also present amongst children, who argued that equal allocation was important: "*so it is fair; if we had more than them they could run out of materials.*"

In contrast, children who allocated a greater share of the resources to their ingroup justified this with greater reference to group functioning ( $M = .80$ ) than fairness ( $M = .10$ ) or generic context ( $M = .10$ ). There was no reference to equality or fair competition amongst this group. Similarly to the adolescent sample, these participants made reference to the group functioning benefits of ingroup biased resource allocation for the forthcoming art event. There were also references to the importance of group loyalty, for example one participant justified allocating six of the ten boxes to their own school "*because I don't want to help another school win, other than mine.*"

Crucially, there were differences in proportion of reasoning style as a function of age within the equality strategists, Fisher's exact = 15.48,  $p = .003$ . Children justified an equal allocation of resources with significantly greater reference to simple fairness than adolescents. In contrast, we observed significantly

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greater reference to the generic context amongst adolescents than children. For example, there were references to the Learning-Focus generic normative context.

One adolescent participant argued that it was important to give both groups the same amount of supplies *“as it’s stated that the idea is to have fun and learn a lot about displaying art. The other team won’t have fun if it’s not really fair.”* There were also references to the charity art event amongst adolescents. For example, one adolescent participant split the boxes equally between the two groups *“so we can have an equal amount and raise as much money as we could for the charity.”*

Table 5.1.

*Frequencies and proportions of participants' reasoning as a function of age and allocation strategy*

Allocation Strategy	Age Group	Fairness	Equality	Fair Competition	Group Functioning	Generic Context
Equality	13 – 16 years	22 (0.20)	23 (0.21)	41 (0.38)	6 (0.06)	16 (0.15)
	8 – 11 years	51 (0.33)	43 (0.28)	51 (0.33)	4 (0.03)	6 (0.04)
Ingroup Servers	13 – 16 years	0 (0.00)	1 (0.03)	0 (0.00)	28 (0.82)	5 (0.08)
	8 – 11 years	2 (0.10)	0 (0.00)	0 (0.00)	16 (0.80)	2 (0.10)

### 5.8. Discussion

The present study demonstrated that the process of cooperation in the context of resource allocation is more complex than a case of “you help me and I’ll help you” reciprocity (Killen, 2016). Instead, participants simultaneously coordinated normative information regarding the outcomes of their cooperative resource allocation action with moral and group functioning factors. Here, we observed a significant interaction between ingroup norm and generic norm when participants were asked to allocate resources for use in a forthcoming arts event. Specifically, within the cooperative ingroup norm condition, ingroup biased resource allocation was dependent upon a generic normative context that implied participants’ performance would be measured or compared with the outgroup.

Whilst participants took ingroup and generic norms into account independent of age, reasoning data revealed age-related differences in the style of justification used amongst equality strategists. Adolescents made greater reference to the need to establish a fair competition, and in turn to the two cooperative generic contexts. Children by comparison relied on more straightforward references to the necessity for strict equality and fairness. It is this reasoning process that differentiates children’s and adolescents’ resource allocation decision-making, even when they allocate resources using the same strategy. Whilst 9-year-olds are capable of using generic contextual information to guide their allocation, their reasoning to justify these decisions relies upon more straightforward fairness concerns. Adolescents on the other hand, emphasise more advanced notions of fair competition, as well as situating the decision within the generic context.

In Chapter Three, children allocated a greater share of communal resources to their ingroup than an outgroup in a cooperative generic normative context when

prescribed a competitive ingroup norm. One possible explanation for this allocation behavior was that they ignored the generic context altogether, and displayed ingroup bias in line with a competitive ingroup norm. Chapter Five tested an alternative explanation drawn from the work of learning motivation theorists (Ames, 1992) and the Stereotype Content Model (Fiske et al., 2002). Guided by this work, we argued that it was possible children had construed the cooperative generic context in Chapter Three to involve comparison with the outgroup and assessment based on performance in terms of money raised for the charity event. In turn, it is known that individuals believe their ingroup to be composed of high competence members (Cuddy et al., 2008). As such, children in Chapter Three may have allocated more resources to their perceived high competence ingroup in an attempt to succeed in the charity art event. We tested this possibility by adding a third condition, based on a learning-focus motivation, where no tangible outcome could be measured against the outgroup.

Under these conditions we observed an interaction between ingroup norm and generic norm, independent of age. When prescribed an ingroup competition norm, participants allocated a greater share of resources to their ingroup than an outgroup regardless of generic condition. This ingroup preference under competitive conditions has been established in Chapters Two and Three. However, when prescribed an ingroup norm of cooperation, resource allocation differed as a function of generic normative context. Participants allocated a significantly greater share of the resources to their own group in the performance-focus condition relative to both the learning-focus and competitive conditions. Children and adolescents alike believed that in the performance-focus condition, their group require a greater share of the resources in order to successfully sell more art to benefit the charity. It is

important to stress that this does not mean children and adolescents ignore cooperative motivations, rather that they pay attention to the outcomes related to a generic context alongside moral norms of cooperation.

When the ingroup norm was cooperative, participants demonstrated more ingroup bias when allocating in a performance-focus generic normative context than when the generic norm was competitive. In the case of the performance-focus condition, demonstrating ingroup bias can arguably be justified as an attempt to benefit not one's ingroup, but instead to assist the charity target via the means of selling high quality art. In the competitive generic condition however, displays of ingroup bias cannot be justified as either an attempt to display group loyalty (as the ingroup norm is cooperative), or as a biased means to a moral end. This difference emphasises children's and adolescents' developing understanding of the conditions in which it is acceptable to demonstrate ingroup bias, as well as their continued commitment to cooperation at the intergroup level.

Interestingly, we did not observe the predicted effects of our status manipulation. Manipulating the status of the ingroup based on perceived artistic capability did not result in greater ingroup bias when in a high status group, or in low status group members favouring the outgroup. There are two possible explanations for this. First, children and adolescents may simply have found it hard to believe that their ingroup could be low in competence. This would fit with studies from the SCM perspective that have reliably shown ingroup members to be characterised as warm and high in competence across cultures (Cuddy et al., 2009).

Alternatively, it may be the case that as members of a low status ingroup, participants sought to rectify the inequality in ability by assigning a greater share of resources to their ingroup for use in the competition. This could explain why low

status groups did not allocate in favour of a “professional” high status outgroup. Participants in the high status ingroup did not allocate a greater share of resources to a less competent low status outgroup in this study. Children and adolescents are aware of the consequences of ingroup disloyalty (Killen et al., 2013; Mulvey et al., 2014; Rutland et al., 2015) and are unlikely to show outgroup bias in their allocation, even when they are in a position of power. Future research is essential in order to tease apart these two explanations. A burgeoning line of research has begun to explore whether children challenge preexisting resource inequalities by rectifying in favour of disadvantaged groups (Elenbaas & Killen, 2016a, 2016b; Elenbaas, Rizzo, Cooley, & Killen, 2016). An interesting next step following this work could involve manipulating the status of these groups in terms of competence and task-ability.

We also asked participants to justify their resource allocation strategy. Analysis of this data revealed an interactive influence of participants’ chosen strategy, and their age. Amongst participants who allocated resources equally between the two groups, we observed significant age trends. Older participants predominantly referenced fair competition when justifying such behavior; *“Because I think even though it’s a competition we should all be given the same chance and opportunity to make it fair to win”*. Children also made reference to fair competition, but did so in tangent with more generic references to fairness; *“because if I gave more supplies to one team it would be unfair”*. By 9 years, children are beginning to move beyond reasoning about more general principles of fairness, and applying specific contextual knowledge to their reasoning justifications.

Adolescents also made reference to the generic context of the art event. Some adolescents justified an equal allocation by referencing the learning-focus; *“as it’s stated that the idea is to have fun and learn a lot about displaying art. The other*

*team won't have fun if it's not really fair.*” Others referred to the importance of working together to benefit the charity organization; *“so we can have an equal amount and raise as much money as we could for the charity”*. This is particularly interesting given that it was in the performance-focus condition that we observed greater ingroup bias than the competition or learning-focus generic conditions.

Whilst some participants justify an equal allocation in reference to the charity, we do not observe such explicit reference to the charity event to justify an ingroup biased allocation. Instead, these participants talk about how their group needs a greater share of resources in order to “win” the event. With age, the same generic contextual information can be differentially used to justify both equal and ingroup biased allocation. The more advanced moral domain reasoning seen amongst adolescents reflects a higher order interactive coordination of issues of fairness, intergroup functioning, ingroup norms *and* contextual information. Cooperation is important throughout the lifespan, but what it means to cooperate changes and becomes more contextual with age.

Future research could serve to pick apart differences in how children and adolescents think about cooperative scenarios like this one. Clearly, some participants do believe that the charity event is a situation that requires cooperation, whilst others believe their group is fundamentally better equipped to benefit the charity. It would be interesting to explore how perceptions of ingroup ability feed into this. Further it is important to establish whether ingroup identification play a role. It is possible that participants who identify highly with their ingroup whilst simultaneously believing that said group is high in competence are most likely to demonstrate ingroup biased resource allocation in a performance-focus task.

Ultimately, whilst children are beginning to show evidence that they can think

beyond simple “fair or unfair” reasoning, it is adolescents who reach beyond ideas of fair competition to incorporate generic contextual information in their moral reasoning justifications in order to guide their allocation decisions.

### **5.9. Overview**

In this study we set out to extend understanding of the influence of generic norms in childhood and adolescence. The findings of this study support the idea that from middle childhood, generic normative information can be incorporated into resource allocation decisions when it is made salient and specific to children’s classroom experiences. Participants favoured their ingroup in a situation where their performance could be compared to an outgroup, but did not do so in an unambiguous cooperative context. Children are capable of coordinating generic norms with ingroup norms when they are relevant to their experiences of school life. The key distinction between childhood and adolescence falls in the reasoning that is used to justify this decision. It is only by adolescence that references to fair competition and generic context become prominent.

Chapters Two to Five have demonstrated that under the appropriate conditions, children and adolescents coordinate group normative information with cues from the generic context and their intrinsic desire to share resources equally between groups. In the final empirical chapter we extend our examination of the coordination of multiple informational sources by introducing a scenario where one group is disadvantaged by a preexisting resource inequality. Less is known regarding how children and adolescents allocate resources in such situations where they not only have to take into account norms and expectations for equal allocation, but also information regarding existing access to resources. This final chapter provides an important extension to the preceding studies. When both groups begin on an even

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standing, adhering to a group norm of equality is a morally unambiguous behaviour that is unlikely to disadvantage others. However, when one group has less to begin with, allocating in line with an equal allocation norm may actually serve to disadvantage another group and perpetuate systematic inequalities. The study described in Chapter Six aimed to clarify whether children and adolescents are capable of coordinating such situational information with concerns for group loyalty and norms.

## CHAPTER SIX

### *Ingroup bias in rectifying resource inequalities: The role of ingroup norms*

A version of this chapter is under review as: McGuire, L., Rutland, A., Elenbaas, L., & Killen, M. (Under Review). The development of ingroup bias in rectifying resource inequalities: The role of ingroup norms.

### 6.1. Introduction

Resources are often unequally distributed between societal groups based on characteristics including, for example, race and gender. Recent work has demonstrated that, under certain conditions, children between 5 and 10 years of age will rectify resource inequalities between groups (Elenbaas et al., 2016; Li, Spitzer, & Olson, 2014; Olson, Dweck, Spelke, & Banaji, 2011). Less is known, however, regarding age-related differences of this ability between childhood and adolescence, or the role that salient peer group norms play in the decision to rectify inequalities. Chapter Six sought to extend our knowledge of peer group norms into a situation where one group has been disadvantaged by a preexisting resource inequality.

Further, recent research on resource allocation and inequality has predominantly taken a third-party perspective. It is important to extend this work to the first-person perspective, and examine how children and adolescents distribute resources in contexts of inequality when they themselves are potential resource recipients. It is not yet fully understood how the first-person experience of advantaged or disadvantaged access to resources influence challenges to inequality. Similarly, we do not yet fully understand how intergroup processes (i.e., group membership, group status, and group norms) interact to guide the development of

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challenges to inequality. This is an essential topic to investigate given that many inequalities are based upon social group categorisations. In the final chapter of this thesis, for the first time, we examined children and adolescents' decisions about whether to rectify a resource inequality in a competitive intergroup context where both peer group norms and the advantaged or disadvantaged status of participants' own group were made salient.

Prior research in this area has primarily examined whether children reject resource inequalities in dyadic contexts where intergroup factors are not salient (Almås, Cappelen, Sørensen, & Tungodden, 2010; Williams & Moore, 2014). In these contexts children's ability to distribute resources in order to correct a pre-existing inequality emerges in early childhood. For example 5-year-olds share more resources with a recipient who has few, than a recipient who has many resources (Li et al., 2014; Paulus, 2014). By 7-8 years of age, children judge that correcting a pre-existing inequality is more acceptable than allocating resources strictly equally (Rizzo & Killen, 2016) and recognise need as a legitimate reason for distributing more resources to one individual than to another (Schmidt, Svetlova, Johe, & Tomasello, 2016). When reasoning about their decisions, children reference the importance of fair access to resources, and the need to rectify past inequalities (Kienbaum & Wilkening, 2009).

However, resource inequalities often occur in intergroup contexts (e.g., inequalities between racial, gender, or school-affiliated groups). Several lines of research demonstrate that children often allocate preferentially to their ingroup, whether this is based upon race, gender, or a minimal group manipulation (Benozio & Diesendruck, 2015; Dunham, Baron, & Carey, 2011; Renno & Shutts, 2015). In some cases when an existing inequality between such groups is made salient,

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children allocate resources in favour of those who have less (Elenbaas & Killen, 2016b). However, other research has shown this is not always the case, as children can also perpetuate an inequality between novel groups (Olson et al., 2011). Thus, children have the *capacity* to challenge resource inequalities between groups they perceive to be unfair, even if that means giving fewer resources to members of their own social group. However, they do not always *choose* to rectify such an inequality, especially when intergroup characteristics are salient. The present work seeks to provide an examination of one group process that may influence the decision to rectify in such contexts, namely, group norms.

While children develop the ability to rectify inequalities in middle childhood, little is known regarding how group norms influence children and adolescents' resource allocation in situations of intergroup inequality. Developmental research has shown how group norms regarding social exclusion and inclusion at the broad or local individual level of groups influence children's intergroup attitudes (McGuire et al., 2015) and resource allocation (Chapters Two to Five), yet the role of group norms in guiding resource allocation in a context of inequality is unknown. For example, a group might expect its members to share resources equally between recipients. Children understand and support such equality norms, preferentially evaluating those who adhere to them (Killen, Rutland, Abrams, Mulvey, & Hitti, 2013). However, children and adolescents also adhere to equity norms (Almås et al., 2010), expecting resources to be distributed according to recipient need. In this study we examine the influence of both an equality (all groups should receive the same amount) and an equity (those who have less to begin with should receive more now) group norm on the development of intergroup resource allocation in the context of inequalities between groups.

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Further, most developmental research examining intergroup resource allocation has asked children about third-party situations where the participant does not personally stand to gain any resources. In situations of intergroup inequality however, an individual's personal "stake" in the outcome of any given allocation often plays an important role in their decision-making. In this study, we inducted participants into simulated groups within a competitive intergroup context. Then we informed participants that their peer group either had a greater initial amount of resources than the outgroup, or vice versa. When resources are at stake, the intended use of these resources is an important factor to consider. Often, groups are competing for resources, which in turn can lead to resource inequalities. Given this, we chose to examine allocation within a competitive context where status and normative information must be considered simultaneously. Children and adolescents were therefore required to balance ingroup/outgroup considerations, personal advantage/disadvantage, and peer group norms all within a competitive intergroup context, when making decisions about resource allocation.

In the current study, participants learned that their group either had a lot of resources (advantaged) or few resources (disadvantaged) relative to another group at a local rival school. Then, for the between-subjects peer group norm manipulation, participants received a prescriptive peer group norm informing them that their group either wanted to allocate new resources between the two groups equally (same number to both groups) or equitably (more to the disadvantaged group). In a control condition, participants were not given any information regarding their peer groups' allocation norm. This control condition allowed us to examine whether participants would allocate equally or equitably in a situation where they are not given any normative information.

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The SRD perspective (Rutland & Killen, 2017; Rutland et al., 2010) predicts developmental trends between childhood and adolescence regarding the ability to coordinate normative and moral information when making decisions in intergroup contexts. Adolescents (13-year-olds) are more likely than children (9-year-olds) to consider both the issue of morality (e.g., to be fair to each group) and group functioning (e.g., to be loyal to my group and make it function effectively). This has been shown in research in which adolescents are more likely than children to consider the group goals of their ingroup and to recognise that groups would like someone who wanted to help the ingroup by distributing more resources to themselves (Killen et al., 2013). This age-related difference can in part be explained by adolescents' increased understanding of group processes through their experiences of group membership, developing group norms and social acumen skills (Abrams, Van de Vyver, Pelletier, & Cameron, 2015; Nesdale, 2013; Nesdale, Zimmer-Gembeck, & Roxburgh, 2014).

Given this shift in the ability to balance peer group normative information with moral concerns from childhood into adolescence (Rutland & Killen, 2017), we tested for differences between children (7 - 11-years old) and adolescents (13 – 16-years-old). Extending the SRD perspective, this chapter examined children and adolescents' decisions about how to distribute resources in a context of intergroup inequality involving their school and a local rival school, when their peer group was either advantaged or disadvantaged by a pre-existing resource inequality and endorsed equal or equitable allocation norms. In order to examine in detail why participants allocated resources in a given manner, we again assessed social reasoning justifications with the expectation that children and adolescents would use

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different social reasoning depending on their decision to rectify or perpetuate the inequality.

### 6.1.2. Aims

1. To examine whether children and adolescents' challenges to a resource inequality were dependent upon their ingroup norm.
2. To examine whether children and adolescents' challenges to a resource inequality were dependent upon their relative advantage status.
3. To examine children and adolescents' social reasoning justifications for their chosen resource allocation strategy.

### 6.1.3. Hypotheses

**H1a.** Given previous findings and the predictions of the SRD model we expected that children and adolescents would view perpetuating inequality as wrong.

**H1b.** Previous research has demonstrated that adolescents who are more aware of existing status inequalities are more likely to challenge inequality via social action (Diemer & Rapa, 2016; Hughes & Bigler, 2011). Adolescents were expected to be better able than children to consider information regarding peer group norms and group advantaged/disadvantaged status, and to employ this information when allocating resources. Therefore, when prescribed an ingroup norm of equity and personally disadvantaged by an inequality, we expected adolescents to allocate a greater share of resources to their ingroup than children in the same condition. When personally advantaged by a resource inequality, we expected adolescents and children to use equality as a resource allocation strategy. Equality both meets with expectations for fairness and expectations for group loyalty (i.e., not explicitly favouring the outgroup, particularly in a context of intergroup competition).

**H2.** We also expected to observe differences within the age groups when comparing the influence of the equity norm with the equality norm, for disadvantaged participants. Specifically, when disadvantaged by a resource inequality, we expected adolescents to allocate a greater share of resources to their ingroup when prescribed an equity norm than an equality norm. For children, we did not expect to observe a difference in resource allocation between these two norms. Children are less capable of coordinating intergroup and moral concerns, particularly in the complex intergroup competitive scenario used in this study. Given this, we expected the greatest difference between the equity and equality conditions amongst adolescent participants who were disadvantaged by the inequality. Again, we did not expect to observe differences between the norm conditions among participants whose group was advantaged by the inequality. Instead, we predicted that advantaged participants would use equality as a resource allocation strategy to meet fairness norms and group expectations.

**H3.** Further, we did not expect to observe differences between allocations in the equality and control conditions as a function of age or advantage. In the control condition we expected participants to use an equality strategy, given children's and adolescents' strong desire to allocate resources fairly. When the ingroup supported an equality norm, we expected participants to allocate resources equally between the groups regardless of their advantage. Again, this strategy meets both with the desire to be fair, and coheres with group normative expectations.

**H4.** Finally, we expected to observe differences in participants' reasoning dependent upon how they allocated resources. Amongst participants who rectified an inequality, we expected to see greater references to the unfair nature of perpetuating inequality and the need to use resources to rectify this disparity. By comparison,

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participants who allocated resources equally between groups were expected to focus predominantly upon equality as a general fair resource allocation strategy. Finally, participants who gave a greater share of the resources to the advantaged group were expected to justify this with reference to the group functioning benefits of doing so (i.e., to argue that their own group required a greater share of the resources in order to succeed in the competition).

### 6.2. Method

#### 6.2.1. Participants

Participants ( $n = 360$ ) were recruited from the London metropolitan area. Participants comprised 249 (129 female, 120 male) 7- to 11-year-old children ( $M^{age} = 10.16$ ,  $SD = .68$ ), and 111 (67 female, 44 male) 13- to 16-year-old adolescents ( $M^{age} = 14.31$ ,  $SD = .86$ ). Power analysis for an ANOVA with 12 groups was conducted in G\*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.95, and a medium effect size ( $f = .025$ ) (Faul et al., 2007). Based on these assumptions, the desired sample size was 322 participants. The sample consisted of approximately 42% White British, 27% Black British, 17% Asian British, and 14% other ethnic backgrounds (including Dual Heritage British, Chinese British and Eastern European participants). The ethnic mix of these schools reflected the population of the metropolitan area in which testing took place. Participants attended schools serving lower to middle-class socioeconomic (SES) populations. Parental consent and child assent were obtained for all participants.

#### 6.2.2. Design

The study used a 2 (age; children, adolescents) x 3 (ingroup norm; equity, equality, control) x 2 (advantage status; advantaged, disadvantaged) between-subjects design.

### 6.3 Procedure

All measures were completed individually on laptop or desktop computers using Qualtrics. Group membership was established using the same basic arts event procedure as in the preceding studies.

**6.3.1. Advantage Status.** In the Advantaged condition participants were next told that their school already had “*lots of materials (for example, paint and brushes) to use in the competition. These materials will help make better art, which is more likely to win the competition. [Local Rival School] do not have many of these art materials*”.

In the Disadvantaged condition participants were told that their local rival school already had “*lots of materials (for example, paint and brushes) to use in the competition. These materials will help make better art, which is more likely to win the competition. [Participants’ school name] do not have many of these art materials*”.

**6.3.2. Resources.** Next, the resources were introduced by informing participants that the student council of their school and the rival school had purchased materials (pictorially represented by 10 boxes of crayons, paints and paper) that could be shared between the two groups. Participants were informed that their team would discuss how to distribute the resources together.

**6.3.3. Ingroup Norm.** Ingroup norm was manipulated using the secret message procedure. Participants read the following: “*Hello, we’re really happy you’re going to be on our team for this drawing competition. We want everybody in the competition to have a good time...*”

[Equality Norm] “*We want to give the same amount to both teams*”

[Equity Norm] “*We want to give more to the team that has less to begin with*”

Participants in the *Control* condition read no further information about group norms. At the end of the message participants read: “*We’re really happy you’re going to be a member of the team, good luck!*”

After the secret message norm introduction, participants were shown how their team had voted to allocate the art supplies for this competition, in line with their norm. Thus, in the Equality Norm condition, the team voted to give 5 boxes of art supplies to the ingroup, and 5 boxes of art supplies to the outgroup. In the Equity Norm condition, the team voted to give 8 boxes to whichever team was disadvantaged (ingroup or outgroup) and 2 to the advantaged team. In the control condition participants did not receive any further information.

#### **6.4. Measures**

To establish attitudes towards perpetuating inequality, we assessed whether participants thought it was acceptable to favour an advantaged group when allocating resources. A hypothetical scenario was presented where a new group member decided how to allocate the resources. In this case, the individual wanted to give more to the advantaged team, because they had always had more in the past. Participants were asked, “*How okay or not okay would it be for this person to give more to (the advantaged school) because they had always had more in the past?*” (*resource inequality evaluation*). Answers to this question were recorded on a scale from 1 (‘really not okay’) to 5 (‘really okay’). Social reasoning was assessed in an open-ended format by asking participants why they thought this was okay or not okay (*resource inequality reasoning*).

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Participants then indicated how they would distribute 10 boxes of art supplies between the two groups (*resource allocation*) using the same procedure as in Chapter Five. They were asked to drag and drop pictures of each box to a column marked “Your School Group” or “Other School Group”. All 10 boxes had to be allocated in order to complete the task. For the analyses presented below, responses to this measure were coded in terms of the number of resources (from 0 to 10 boxes of art supplies) allocated to the disadvantaged group (varied as a function of advantage condition). After completing the allocation task, we assessed social reasoning in an open-ended format by asking participants to justify their proposed allocation (*resource allocation reasoning*).

### 6.5. Data Preparation

Responses to social reasoning justifications for both the resource allocation measure and the judgment of perpetuating measure were coded using categories adapted from Social Domain Theory (Turiel, 1983). The coding system assigned responses to five conceptual categories based on previous research (Killen et al., 2013) and theoretical formulations: (1) *Equity*, references to the need to correct inequality between the two groups (e.g. “*I’m giving them more because they had less to start with*”), (2) *Equality*, references to allocating resources equally between groups (e.g. “*So the supplies are equal*”), (3) *Fair Competition*, references to ensuring the competition is conducted on a level playing field (e.g. “*So every team has a chance to win*”), (4) *Fairness*, references to generic fair sharing (e.g. “*it’s fair*”), and (5) *Group Functioning*, references to group dynamics, norms or loyalty (e.g. “*because that’s what the rest of the team wanted to do*”). Responses that did not fit into one of these five conceptual categories were coded as “other”. Two coders, one of whom was blind to the hypotheses of the study, conducted the coding.

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Analysis of agreement between two coders (one of whom was blind to the hypotheses of the study) across 25% of the responses revealed strong inter-rater reliability (Cohen's  $\kappa = .81$ ).

In order to test our hypotheses regarding Perpetuating Inequality Reasoning, an "Inequality Agreement" variable was created. Participants who rated the perpetuation of inequality as "Okay" or "Really Okay" were classified as evaluating inequality as "Okay" (advantaged  $n = 38$ , disadvantaged  $n = 19$ ), those who rated inequality as "Not Okay" or "Really Not Okay" were classified as evaluating inequality as "Not Okay" (advantaged  $n = 119$ , disadvantaged  $n = 116$ ). Participants who evaluated inequality as "neither okay or not okay" were omitted from the analysis of perpetuating inequality reasoning ( $n = 43$ ).

Similarly, participants' chosen allocation strategy was included as a variable in reasoning analyses for those who provided a reasoning justification. Participants who assigned five boxes to each team were coded as Equality Strategists ( $n = 247$ ). Participants who assigned more boxes to the disadvantaged team were coded as Rectifiers ( $n = 47$ ); and those who assigned more to the advantaged team were coded as Perpetuators ( $n = 32$ ). Participants who did not complete the resource allocation measure were not included in the final analysis ( $n = 34$ ). The final analyses reported here included a total sample of 326 participants (children,  $n = 225$ ; adolescents,  $n = 101$ ).

### **6.6. Data Analytic Plan**

Participants' Resource Allocation (boxes allocated to the disadvantaged group) and Perpetuating Inequality responses were subjected to 2 (Age group: children, adolescents) x 3 (Ingroup norm: equity, equality, control) x 2 (Advantage status: advantaged, disadvantaged) univariate ANOVAs.

Our sample size did not allow for us to reliably test for gender effects in interaction with age or norm conditions. However, given that gender has not previously been shown to exert an effect on adherence to group norms (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale & Lawson, 2011) we did not expect differences in resource allocation or reasoning based on gender.

Follow up pairwise comparisons tests were conducted with Bonferroni corrections for multiple comparisons applied. One sample t-tests were used to assess ingroup bias in resource allocation by comparing participants' allocations to the midpoint of the scale (criterion value = 5 boxes).

We predicted differences in reasoning as a function of participants' chosen allocation strategy. Given the categorical nature of the reasoning data and the focus on participants' allocation strategy, these reasoning responses were analysed using chi-square tests of independence. The effect of Allocation Strategy (Equality, Ingroup Servers) on reasoning style was examined across five conceptual categories (equity, fairness, equality, fair competition, group functioning). Fewer than 5% of participants used the personal choice categories ( $n = 5$ ), and so these responses were omitted from the analyses, along with participants who used the "other" category ( $n = 51$ ).

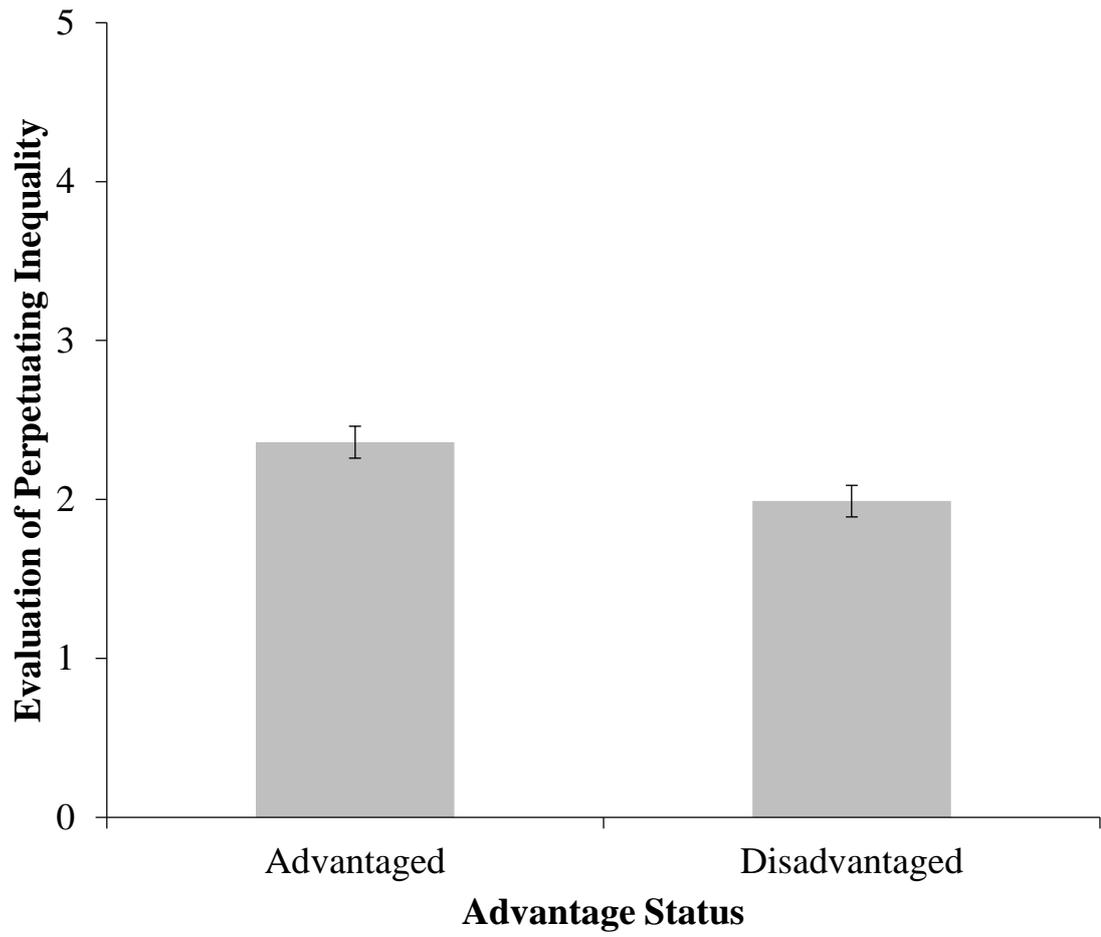
## 6.7. Results

### 6.7.1. Perpetuating Inequality

*(H1a) Participants will view perpetuating inequality as wrong.* On average, participants judged perpetuating inequality as unacceptable ( $M = 2.19$ ,  $SD = 1.28$ ; differed significantly from midpoint of the scale,  $t(332) = -4.39$ ,  $p < .001$ , Cohen's  $d = -.24$ ). Yet, this decision varied as a function of the status condition. Analysis of participants' evaluations of the perpetuation of inequality between groups revealed a

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main effect of Advantage Status,  $F(1, 309) = 7.72, p = .006, \eta^2 = .02$  (see Figure 6.1.). Participants in the Disadvantaged condition ( $M = 1.99, SD = 1.14$ ; differed significantly from midpoint of the scale,  $t(152) = -5.48, p < .001$ , Cohen's  $d = -.45$ ) rated the perpetuation of inequality as significantly more unacceptable than those in the Advantaged condition ( $M = 2.36, SD = 1.37$ ; did not differ significantly from midpoint of the scale,  $t(179) = -1.37, p = .17$ , Cohen's  $d = -.10$ ). That is, even though all participants viewed perpetuating inequality as wrong on average, participants whose ingroup was disadvantaged by an inequality evaluated giving more to an advantaged group more negatively than participants whose ingroup was advantaged.



*Figure 6.1.* Evaluation of the perpetuation of inequality as a function of advantage status with standard error bars

### 6.7.2. Reasoning

A chi-square test of independence was performed to examine relations between reasoning and participants' judgments about the perpetuation of inequality. Given that some of the reasoning categories included fewer than 5 responses, we report here the Fisher's exact test statistic. The relation between these variables was significant, Fisher's exact (4,  $N = 247$ ) = 55.01,  $p < .001$ . Follow up  $z$  tests with Bonferroni correction for multiple comparisons were used to examine differences in reasoning as a function of inequality agreement (see Table 6.1). All differences reported were significant at the  $p < .05$  level.

Participants who rated the perpetuation of inequality as not okay were more likely to make reference to *Equity* ( $M_{disagree} = .29$ ,  $M_{agree} = .03$ ). These participants argued, for example, that perpetuating an inequality was unacceptable "*as we had more supplies in the first place, and if they gave more to us we would still have more – this is not fair*". References to *Fair Competition* ( $M_{disagree} = .29$ ,  $M_{agree} = .06$ ) were also used more by participants who disagreed with the perpetuation of inequality. For example, one participant argued against the inequality "*because a competition isn't fair if one team runs out of materials and can't finish*".

By comparison, participants who rated the perpetuation of inequality as okay were more likely to justify this with reference to *Group Functioning* ( $M_{agree} = .67$ ,  $M_{disagree} = .10$ ). These participants were in favour of perpetuating the inequality to advance the relative position of the ingroup. For example, "*so we can have good equipment to win*".

Table 6.1.

*Frequencies and proportions of reasoning used by participants to justify perpetuation of inequality as a function of agreement with inequality*

Inequality Agreement	Equity	Fairness	Fair Competition	Equality	Group Functioning
Agree	1 (0.03)	4 (0.12)	2 (0.06)	4 (0.12)	22 (0.67)
Disagree	63 (0.29)	50 (0.23)	63 (0.29)	17 (0.08)	21 (0.10)

### 6.7.3. Resource Allocation

(H1b) *Adolescents will allocate more to their disadvantaged ingroup than children when prescribed an equity norm.*

Having established that participants rated the perpetuation of inequality as more unacceptable when their ingroup was disadvantaged, and referenced the unfair nature of giving more to those who had more to begin with, we next assessed how participants allocated resources in this context of a resource inequality. This analysis revealed a significant main effect of Age Group on boxes allocated to a disadvantaged group,  $F(1, 314) = 8.52, p = .004, \eta^2 = .03$ . Adolescents ( $M = 5.38, SD = 1.67$ ) gave significantly more boxes to a disadvantaged outgroup than children ( $M = 4.95, SD = 1.27$ ). Likewise, there was a significant main effect of Advantage Status,  $F(1, 314) = 19.56, p < .001, \eta^2 = .06$ . Disadvantaged participants gave significantly more boxes to their disadvantaged ingroup ( $M = 5.41, SD = 1.42$ ) than advantaged participants gave to a disadvantaged outgroup ( $M = 4.79, SD = 1.35$ ).

These main effects were qualified by a significant three-way interaction between Age Group, Advantaged Status and Ingroup Norm,  $F(2, 314) = 3.60, p =$

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.03,  $\eta^2 = .02$  (see Figures 6.2 and 6.3). As predicted by H1, there were key differences in how the two age groups utilised advantage status and group norm information in their resource allocation decisions. Specifically, disadvantaged adolescents who were prescribed an ingroup equity norm ( $M = 6.60$ ,  $SD = 2.03$ ; differed significantly from midpoint of scale,  $t(14) = 3.06$ ,  $p = .009$ , Cohen's  $d = .79$ ) allocated significantly more to a disadvantaged ingroup than children in the same condition ( $M = 5.49$ ,  $SD = 1.45$ ;  $p = .007$ ; differed significantly from midpoint of scale,  $t(36) = 2.05$ ,  $p = .05$ , Cohen's  $d = .34$ ). When prescribed an ingroup norm of equity *and* personally disadvantaged by a resource inequality, adolescents seek to rectify an inequality more than children do.

Inversely, when personally advantaged and prescribed an equity norm, adolescents' did not use an equality strategy, instead opting to allocate significantly fewer resources to the disadvantaged outgroup compared with a criterion level of 5 boxes ( $M = 4.38$ ,  $SD = 1.20$ ,  $t(20) = -2.36$ ,  $p = .03$ , Cohen's  $d = -.52$ ). Children, by comparison, did use an equality strategy when personally advantaged and prescribed an equity norm. Their allocations did not differ from the criterion level of 5 boxes ( $M = 4.73$ ,  $SD = 1.46$ ,  $t(54) = -1.39$ ,  $p = .17$ , Cohen's  $d = -.18$ ). Adolescents and children's allocations did not significantly differ in the advantaged equity norm condition ( $p = .31$ ). When prescribed an equity norm but personally advantaged by an inequality, adolescents favoured their ingroup and perpetuated an inequality, whereas children opted for equality.

*(H2) When disadvantaged, an equity norm promotes greater rectifying than equality in adolescents, but not children.*

To test H2, we looked for differences within the age groups regarding the influence of an equity norm compared with an equality norm when participants were

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disadvantaged by a resource inequality. For disadvantaged adolescents, an equity norm ( $M = 6.60$ ,  $SD = 2.03$ ) led to significantly greater allocations to the ingroup than an equality norm ( $M = 5.22$ ,  $SD = 1.40$ ,  $p = .004$ , did not differ significantly from midpoint of scale,  $t(26) = .83$ ,  $p = .42$ , Cohen's  $d = .16$ ). When their ingroup was disadvantaged by a resource inequality, adolescents prescribed an equity norm rectified this inequality more so than adolescents who were informed their group held an equality norm. Counter to our predictions regarding advantaged participants in H1, adolescents favoured their ingroup even when personally advantaged by a resource inequality and prescribed an ingroup equity norm. Interestingly, advantaged participants prescribed an equality norm allocated more resources to a disadvantaged outgroup than participants who were prescribed an ingroup equity norm ( $p = .008$ ). The most effective norm in encouraging rectifying allocation for adolescents differs depending upon their relative ingroup advantage.

Amongst children, however, there was no significant difference between participants who were prescribed an equity norm ( $M = 5.49$ ,  $SD = 1.45$ , although this did differ significantly from midpoint of scale,  $t(36) = 2.05$ ,  $p = .05$ , Cohen's  $d = .34$ ) and those who were prescribed an equality norm ( $M = 5.21$ ,  $SD = 1.18$ ;  $p = .99$ , did not differ significantly from midpoint of scale,  $t(28) = .95$ ,  $p = .35$ , Cohen's  $d = .18$ ). For disadvantaged children, there was no difference in allocation as a function of the type of ingroup norm prescribed. Even when disadvantaged by a resource inequality, they opted to use an equality strategy to allocate resources. Similarly, when advantaged by a resource inequality there was no difference in allocation between children who were prescribed an equity norm ( $M = 4.73$ ,  $SD = 1.46$ , did not differ significantly from midpoint of scale,  $t(54) = -1.39$ ,  $p = .17$ , Cohen's  $d = -.18$ ) and those prescribed an equality norm ( $M = 5.09$ ,  $SD = .83$ ;  $p = .65$ , did not differ

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significantly from midpoint of scale,  $t(33) = .62, p = .54$ , Cohen's  $d = .11$ ). Again, when advantaged, children opted for an equality strategy regardless of normative information.

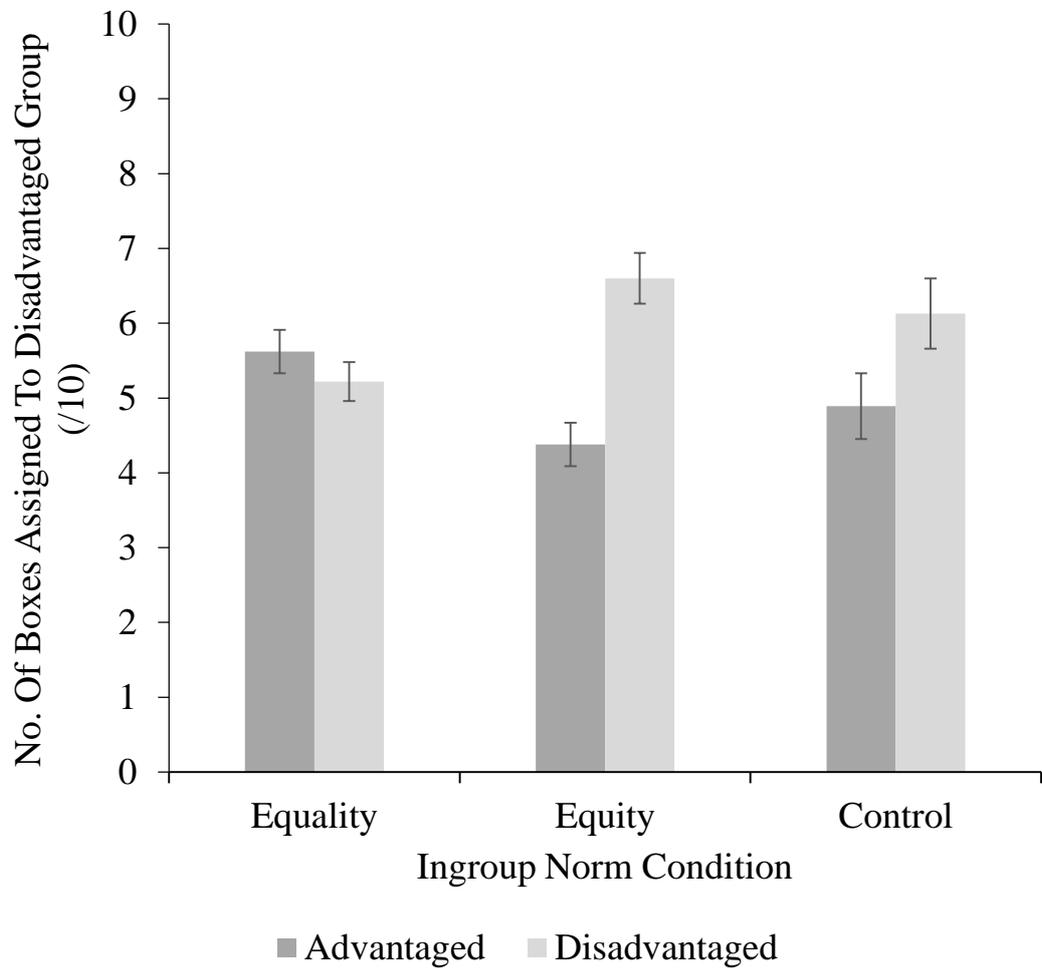
*(H3) Participants will use an equality strategy in the equality norm and control conditions.*

Counter to our predictions, and following on from the significant three-way interaction between age, advantage and ingroup norm reported above, we did observe differences in resource allocation between the equality and control conditions for adolescents and children. For adolescent participants, allocations in the equality condition did not differ significantly from the criterion value of 5 boxes to each group amongst either advantaged ( $M = 5.62, SD = 1.86; t(20) = 1.53, p = .14$ , Cohen's  $d = .33$ ) or disadvantaged participants ( $M = 5.22, SD = 1.40; t(26) = .83, p = .42$ , Cohen's  $d = .16$ ). Similarly, allocations in the control condition did not differ significantly from a criterion value of 5 boxes among either advantaged ( $M = 4.89, SD = .33, t(8) = -1.00, p = .35$ , Cohen's  $d = -.33$ ) or disadvantaged ( $M = 6.13, SD = 1.64, t(7) = 1.94, p = .09$ , Cohen's  $d = .69$ ) participants.

However, advantaged children in the control condition allocated significantly fewer resources to the disadvantaged outgroup compared with a criterion level of 5 boxes ( $M = 4.34, SD = 1.26; t(34) = -3.09, p = .004$ , Cohen's  $d = -.52$ ). Without normative information, children in the control condition sought to maintain the status quo against a disadvantaged outgroup by allocating a greater share of the resources to their ingroup. When disadvantaged, their allocations did not differ significantly from a criterion level of 5 boxes in the control condition ( $M = 4.97, SD = .86; t(34) = -.20, p = .84$ , Cohen's  $d = -.03$ ). In the equality norm condition, children's allocations did not differ from a criterion level of 5 boxes in either the advantaged

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( $M = 5.09$ ,  $SD = .83$ ;  $t(33) = .62$ ,  $p = .54$ , Cohen's  $d = .11$ ) or disadvantaged ( $M = 5.21$ ,  $SD = 1.18$ ;  $t(28) = .95$ ,  $p = .35$ , Cohen's  $d = .18$ ) conditions.



*Figure 6.2.* Boxes allocated to disadvantaged group as a function of advantage and ingroup norm condition with standard error bars (adolescents; 13 – 16 years)

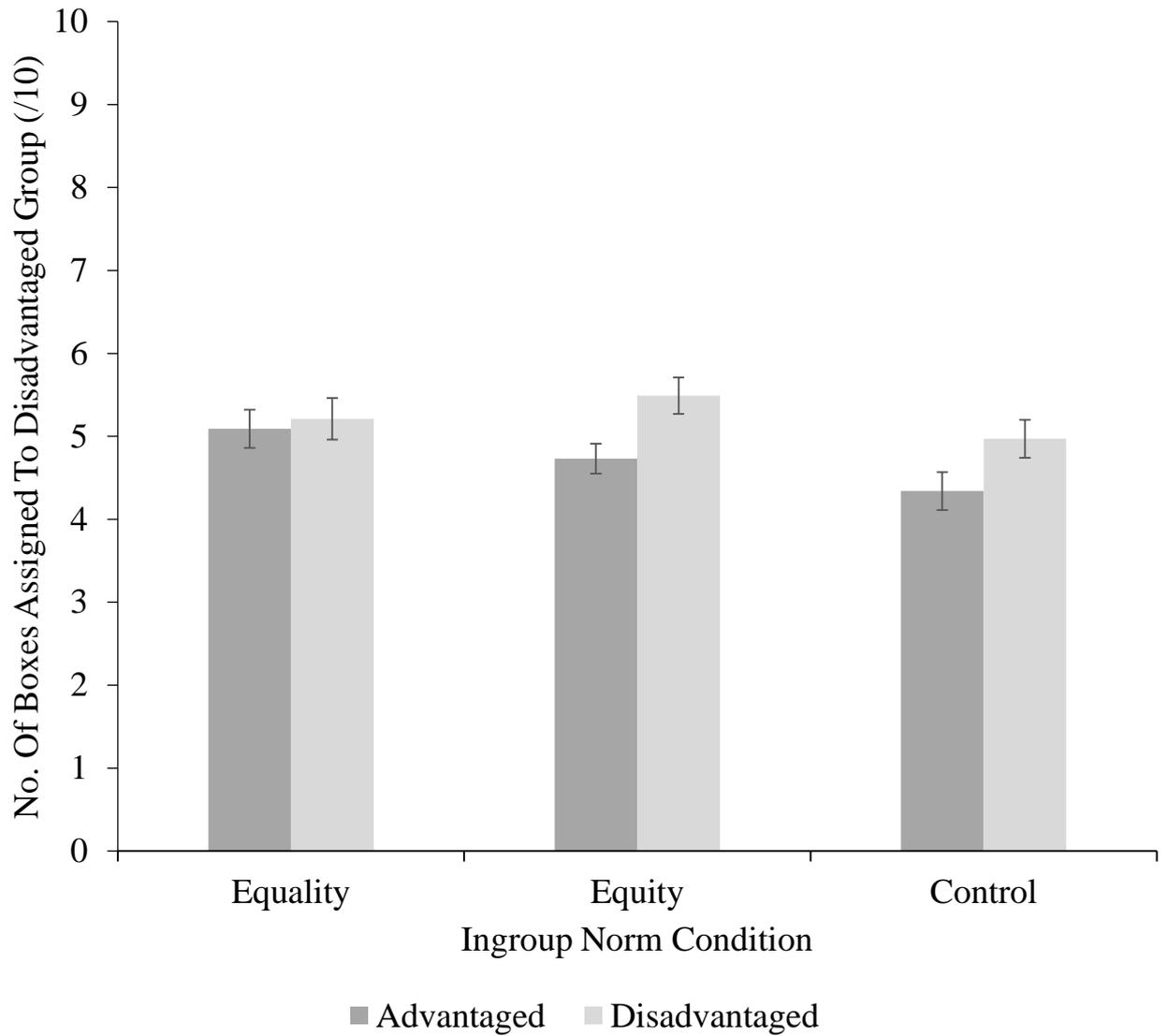


Figure 6.3. Boxes allocated to disadvantaged group as a function of advantage and ingroup norm condition with standard error bars (children; 8 – 11 years)

#### 6.7.4. Reasoning

(H4) *Reasoning style will differ as a function of participants' chosen resource allocation strategy.*

Finally, a chi-square test of independence was used to examine differences in reasoning as a function of resource allocation strategy. Again, given that some of the reasoning categories included fewer than 5 responses, we report here the Fisher's exact test statistic. The relation between these variables was significant, Fisher's exact (8,  $N = 302$ ) = 196.73,  $p < .001$ . Follow up  $z$  tests with Bonferroni correction for multiple comparisons were used to examine differences in perpetuating inequality reasoning as a function of inequality agreement (see Table 6.2). All differences reported were significant at the  $p < .05$  level.

Significantly more references were made to *Equity* amongst participants who rectified an inequality ( $M = .57$ ) than those who used an equality strategy ( $M = .01$ ). Participants who perpetuated the inequality did not make reference to equity. Those participants who rectified an inequality and made reference to equity emphasised the unfair nature of inequality and the importance of challenging it through resource allocation. For example, one participant allocated more resources to the outgroup "because they didn't have many from the start, but we already did so it would be fair to give them more, so we have equal amounts now".

Similarly, significantly greater reference was made to *Fair Competition* amongst participants who used an equality strategy ( $M = .33$ ) than those who rectified ( $M = .02$ ) or perpetuated an inequality ( $M = .04$ ). Participants who allocated resources equally between the two groups justified their decision in the context of the intergroup art competition. They made reference to the importance of establishing a level playing field between the two groups, independent of pre-

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existing inequality. For example, one participant gave both groups the same number of boxes “*because it would make the competition fair, the winner will win due to their skills – not the amount of supplies they have*”.

Finally, there was significantly greater reference to *Group Functioning* amongst participants who perpetuated an inequality ( $M = .78$ ) than those who used equality ( $M = .03$ ) or rectified an inequality ( $M = .29$ ). These participants justified their bias towards the advantaged ingroup with reference to the group functioning benefits of perpetuating the inequality. As one participant stated: “*We need the resources to win. If the other team don't have enough and want ours, then that's too bad*”.

Table 6.2.

*Frequencies and proportions of reasoning used by participants to justify resource allocation decisions as a function of resource allocation strategy*

Allocation Strategy	Equity	Fairness	Fair Competition	Equality	Group Functioning
Equality	2 (0.01)	54 (0.23)	79 (0.33)	94 (0.40)	8 (0.03)
Rectify	24 (0.57)	4 (0.10)	1 (0.02)	1 (0.02)	12 (0.29)
Perpetuate	0 (0.00)	2 (0.09)	1 (0.04)	2 (0.09)	18 (0.78)

### 6.8. Discussion

This final chapter was the first to explore the intertwined influence of peer group norms and advantaged status on children and adolescents' resource allocation from a first person perspective, in a context of intergroup inequality. Coherent with the evidence from Chapters Two to Five, norms were important in decisions to rectify an inequality in a competitive intergroup context. Adolescents allocated a greater share of resources to their disadvantaged ingroup when prescribed a peer group norm of equity than children did in the same condition. Understanding of peer group norms in conjunction with intergroup competition and relative advantage was apparent in adolescents' responses but not in children's responses. Similarly, we found support for the relative influence of different types of norm, as disadvantaged adolescents demonstrated greater rectifying allocations when prescribed an equity norm than an equality norm. Children's resource allocations did not differ as a function of the norm, even when they were members of a disadvantaged ingroup. Finally, we found support for the important link between allocation decisions and reasoning, as participants' justifications for their decisions differed as a function of their chosen allocation strategy. Specifically, references to the unfair nature of inequality were greatest amongst participants whose allocations challenged the inequality.

Taken together, these results suggest an age-related trend between middle childhood and adolescence. In situations of intergroup competition with non-essential resources, adolescents rectify an inequality under equity normative conditions, but only when their ingroup is personally disadvantaged. However, when their group was personally advantaged and the group held an equity norm, adolescents perpetuated the status quo of inequality by allocating more resources to

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their ingroup. By comparison, children predominantly rely upon an equality strategy across normative conditions, but also show evidence of sustaining a status quo of inequality when their ingroup is advantaged and no norm is made salient.

The normative expectations of an ingroup can directly influence adolescents' decisions to rectify an inequality in a competitive intergroup context. Adolescents in this chapter coordinated multiple competing concerns, considering intergroup dynamics and the relative advantage of their ingroup. When their peers argued for equity, adolescents sought to rectify an inequality. Crucially, adolescents demonstrated a clear understanding of the importance of group loyalty by only allocating a greater share of the resources to a disadvantaged ingroup than to a disadvantaged outgroup when their peer group held an equity norm. Children did not coordinate these factors in the same way, as their allocations across conditions did not differ from the midpoint of the scale. Children were predominantly concerned about maintaining equality (of supplies) between the two groups rather than rectifying a pre-existing inequality.

Adolescents in the equity norm condition who were advantaged by a resource inequality chose to perpetuate this inequality by allocating a relatively greater share of resources to their ingroup compared to the other conditions. Importantly, the present study is the first to examine participants' responses to resource inequalities in a competitive intergroup context. Children and adolescents become less prosocial towards outgroup members in competitive compared to non-competitive or interpersonal contexts (Abrams et al., 2015) and generally demonstrate concerns for group loyalty. Under such conditions, ingroup members may feel pressure not to display explicit outgroup favouritism by allocating them more resources, even if this means disadvantaging the outgroup in relative terms.

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Previous research examining challenges to resource inequalities has asked participants to make judgments from a third-party perspective (Elenbaas et al., 2016). It is possible that here, allocating resources from a position of first-person advantage exerted an effect on participants' challenges to inequality. Individuals that wield the power to allocate resources and effectively challenge resource inequalities in societies are often themselves in advantaged positions of power. Instead of seeking to rectify, those in positions to do so often preserve the status quo. So too advantaged adolescents cemented their relative advantage by allocating a greater share of resources to their ingroup. Likewise we did not observe challenges to inequality from disadvantaged participants when an equality norm was prescribed.

Ideas from system justification theory (SJT; Jost & Banaji, 1994; Jost, Banaji, & Nosek, 2004) may offer a potential explanation for the ingroup serving behaviour of advantaged adolescent participants. In order to reduce feelings of cognitive dissonance as a result of observing unjust systematic processes, SJT argues that individuals are motivated to see the status quo as justifiable and legitimate, particularly when they are members of lower status groups. Children too show evidence of system justifying behaviours from as young as 5 years old (Baron & Banaji, 2009; Dunham, Baron, & Banaji, 2006, 2007). One way in which the status quo is sustained is through unequal access to resources. In the present study, adolescents as members of an advantaged ingroup may have been motivated to sustain the resource inequality to maintain their position of power.

The relative advantage of an individual's ingroup matters, especially when considering inequality from a first-person perspective in a competitive intergroup context. Participants whose ingroup was disadvantaged by the inequality rated perpetuating the inequality (by allocating more resources to the advantaged group) as

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less acceptable than participants whose ingroup was advantaged. There were no differences as a function of participant age, indicating that both children and adolescents were more accepting of inequality when it benefitted their group. Likewise, advantaged participants who judged that perpetuating was “okay”, were more likely to use reasoning related to group functioning when justifying their evaluation (e.g., “so we can have good equipment to win”). That is, they focused more on the benefits of this strategy for their own group, rather than focusing on the unfair nature of the ongoing inequality. However, it is also possible that the allocation strategy adopted by advantaged adolescents who were prescribed an ingroup equity norm is a demonstration of ingroup bias, rather than an attempt to support an existing inequality at the systematic level. Future work is required to examine these two explanations in more depth.

While children relied upon equality even in a situation of pre-existing disparity between groups, adolescents recognised that equity was a more proactive approach under conditions that did not violate ingroup norms or expectations of group loyalty. Participants who rectified the resource inequality made explicit reference to the unfair nature of the inequality and the fact that the fair thing to do would be to give more to the group who had less. Thus, moral reasoning about equality, inequality, need, and relative disadvantage were central to the participants’ reasoning about their allocation decisions. As an illustration, when their peers supported an equality norm, adolescents allocated resources equally between the groups independent of relative advantage. Adolescents in the equality norm condition may have adhered to their peer groups’ norm because equality as a general strategy met basic standards for fairness and adhered to the conventions of the group. Crucially, this equality norm also lead to more proactive allocation in favour of the

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disadvantaged outgroup compared to an equity norm when the participants' ingroup was advantaged.

This finding is particularly important to consider when introducing educational interventions that promote equality. For advantaged adolescents, a more general reminder of generic moral expectations for fairness may in fact be a powerful influence when issues of group loyalty, competition and status quo are coordinated in influencing advantaged groups. For disadvantaged children and adolescents, early educational policies about the importance of relative allocations depending upon structural inequality will be important. These messages are particularly important for young children, who when no norm is made salient, will perpetuate a resource inequality as a consequence of displaying ingroup bias. Educators and policy makers must take into account the varying relative advantage of groups in developing targeted interventions, rather than adopting a one-size-fits-all approach to reducing inequality and promoting fairness through the use of norms.

### **6.9. Overview**

While most research examining inequality has asked children to make decisions about how to distribute resources between individuals from a third-party perspective, this study manipulated group membership on a first-person basis and prescribed ingroup norms in a competitive intergroup context where participants allocated resources between groups. Having established that the ability to coordinate group normative influences and understanding of advantage are important in the development of proactive challenges to resource inequalities, an essential next step is to attempt to delineate the social-developmental processes underlying this ability. Adolescents have a more advanced understanding of the consequences of inequality when they are members of social groups who have faced societal and historic

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marginalisation (Diemer & Rapa, 2016; Hughes & Bigler, 2011). They are also able to balance multiple normative and moral concerns simultaneously. It would be interesting to explore how experience or pre-existing knowledge of inequality are important factors in this process. Perhaps children who have personally experienced inequality will have internalised norms of resource allocation equity in the same way adolescents appear to. Assessing how social understanding drives this process is a rich avenue for future research.

Further, the resources used in this study were art supplies needed for a city-wide art competition. Related work in this area has used diverse types of resources, from stickers and candy to educational or healthcare resources (Elenbaas et al., 2016; Rizzo et al., 2016). Whilst the art boxes were appropriate for the art competition scenario used in the current study, future work should explore whether ingroup favouritism, norms, and the relative worth or necessity of the resource in question interact to influence resource allocation decisions. It would also be interesting to explore further the conditions under which adolescents will challenge outgroup inequalities; crucially, to establish whether there is a point at which the disadvantage of an outgroup becomes more influential than the desire to adhere to an ingroup norm.

The present work extends previous research in two main directions. First, burgeoning work examining the influence of peer group norms upon intergroup resource allocation has not, until now, examined a situation where the participant allocated resources from a first-person perspective as a member of a disadvantaged or advantaged group. Peer group norms are important from middle childhood, but only by adolescence do individuals in complex intergroup settings make the distinction between expectations regarding equity and equality and take their relative

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ingroup advantage into consideration. Second, this study extended related work examining children's understanding of inequalities by including a sample of adolescents. Adolescents were more adept at balancing multiple factors such as group norms, status, and intergroup considerations when making allocation decisions in a competitive context. This is a crucial finding for targeting intergroup inequalities, emphasising that pre-existing normative expectations between and within groups, as well as the intergroup context, will continue to prove a powerful influence in childhood and adolescence.

## CHAPTER SEVEN

### *General Discussion and Conclusions*

#### **7.1. Introduction**

The central aim of this thesis was to provide a systematic examination of the influence of peer group and societal level norms on the development of fair resource allocation decision-making, as well as the ability to coordinate these multiple sources of normative information. Across five empirical chapters we have provided evidence demonstrating age-related differences between children and adolescents in this coordination of normative information. In children, an early understanding of the importance of group normative processes is countered in adolescents by a more nuanced coordination of both peer norms *and* contextual information. Children are highly influenced by ingroup norms when allocating resources, evaluating ingroup members and reasoning about these decisions. Adolescents simultaneously consider generic norms and contextual information (e.g., pre-existing inequalities between groups) when making these same decisions. This final chapter provides an overview of the findings of each empirical chapter. This is followed by discussion of the central aims of the thesis with a specific focus on the allocation and reasoning measures. This in turn is followed by an examination of the potential mechanisms that may be driving the observed behaviours. Finally, potential limitations and future directions for this work are discussed, before a general conclusion is drawn.

#### **7.2. Summary of Empirical Chapters**

**7.2.1 Chapter Two: Ingroup and Outgroup Norms.** In Chapter Two, participants were prescribed ingroup and outgroup norms of competition and cooperation and asked to allocate tokens in exchange for art supplies. We assessed participants' resource allocation decisions and reasoning justifications for their decisions. As expected, we did not observe age differences in the ability to

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coordinate peer-level ingroup and outgroup norms. Participants took both ingroup and outgroup normative information into consideration when deciding how to allocate resources between groups. Specifically, when both the ingroup and outgroup advocated competing with the other group, participants displayed significantly more ingroup bias than in a situation where one of the groups advocated cooperation. The influence of a cooperative ingroup norm was particularly powerful in terms of tempering ingroup bias.

The participants' age and their chosen allocation strategy were significantly related to the type of reasoning used to justify the allocation. Allocation strategy interacted with age, with adolescents varying the form of their moral domain reasoning to justify an equal allocation strategy (i.e. references to fair competition), compared with children who focused primarily on the importance of fairness.

**7.2.2 Chapter Three: Ingroup and Generic Norms.** In Chapter Two, children and adolescents attended to multiple norms at the intergroup level when allocating resources from a first person perspective in a competitive intergroup context. Chapter Three extended this first study by manipulating the generic normative context in which the allocation decision took place. Understanding the contextual normative demands of a resource allocation decision is an important factor that must be considered in tandem with group normative demands. We also extended our age range in an attempt to explore potential further age-related differences in these abilities between adolescence and young adulthood. The resource allocation decision took place in either a competitive or cooperative generic normative context. Again, participants were prescribed either a cooperative or competitive ingroup norm and asked to allocate £100 between groups for the purchase of art supplies.

Resource allocation differed as a function of age, ingroup norm and generic norm. When the generic context was cooperative (i.e. a charity art event), children allocated significantly more resources to their ingroup when the ingroup held a competitive norm, than when the group supported a cooperative ingroup norm. Whilst older participants displayed ingroup bias under competitive generic normative conditions, they did not adhere to a competitive ingroup norm when the generic normative context was cooperative. When both levels of norm were cooperative, all participants tempered their ingroup bias.

Significant effects of age group and allocation strategy were observed upon allocation justification reasoning. These main effects were qualified by an interaction with ingroup norm. When the ingroup norm was competitive and they allocated equally, older participants made greater reference to fairness as a direct challenge to the competitive ingroup norm. In contrast when the ingroup norm was cooperative, older participants also referenced the importance of a fair competition. In this case, there was less need to reinforce generic issues of fairness and participants referenced principles of fair competition. This again demonstrates that, with age, reasoning becomes a reflective process dependent upon the context of the allocation.

### **7.2.3 Chapter Four: Evaluating Deviant and Normative Ingroup**

**Members.** Resource allocation decisions are related to ingroup norms, outgroup norms, and generic normative contextual information. However, decisions regarding allocation can also serve as a guide for evaluative decisions of fellow group members. In Chapter Four we aimed to extend knowledge of intra-group evaluation on the basis of resource allocation by exploring these processes in competitive and cooperative contexts. Following the group induction in Chapter Three, participants were introduced to two of their fellow group members. They were informed that one

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of these group members wanted to allocate resources in the same manner as the rest of the group (i.e. a normative member). A second group member wanted to allocate resources in a manner counter to the rest of the group (i.e. a deviant member). We then asked participants to evaluate this individual from their personal perspective, the perspective of the group, and to justify their evaluation.

Adults and children evaluated normative targets more favourably than adolescents, who did not differ from the midpoint of the scale in their personal evaluations of normative targets. However, all participants, independent of age, perceived that their group would favourably evaluate normative behaviour. There were also differences as a function of ingroup norm condition. Normative cooperative behaviour was more favourably evaluated than normative competitive behaviour from both individual and perceived group perspectives.

When evaluating deviant targets, we observed an interaction between ingroup norm and age group for both individual and perceived group perspectives. From the individual perspective, children's evaluations of a competitive deviant were significantly less positive than both adolescents' and adults' evaluations. All participants personally favourably evaluated a cooperative deviant. From the perceived group perspective, children believed that their group would evaluate a cooperative deviant significantly more favourably than adolescents and adults, who believed their group would rate this individual significantly below the midpoint of the scale. In contrast, children believed their group would evaluate a competitive deviant significantly below the midpoint of the scale, whereas adults and adolescents believed their group would not negatively evaluate this individual.

Reasoning to justify participants' individual evaluations of a deviant member was dependent upon both the normative condition, and whether or not the individual

agreed with the deviant target. For example, participants who disagreed with cooperative deviancy justified this with relation to the group functioning consequences of relinquishing resources to the outgroup. Similarly to when challenging a competitive ingroup norm with equal allocation, participants who disagreed with a competitive deviant emphasised that this behaviour represented a breach of moral domain principles of fairness.

**7.2.4 Chapter Five: Performance and Learning Focused Norms.** In Chapter Three, children adhered to a competitive ingroup norm by allocating resources in favour of their ingroup, counter to a cooperative generic normative context. Chapter Five explored a possible alternative explanation for this finding. Specifically, to understand whether children and adolescents differentiate between cooperative generic contexts based on the outcome of the situation. We tested the possibility that children in Chapter Three interpreted the cooperative generic context as a situation where their group's performance would be assessed based on the amount of money raised for the charity. Chapter Five tested this by manipulating a generic norm at three levels. Participants were asked to distribute resources between groups in either a competition, performance-focus (charity art event where achievement was measured based on money raised) or learning-focus (art exhibit where learning and fun were the outcomes) context, as well as being prescribed ingroup norms of competition and cooperation.

We observed a significant interaction between ingroup norm and generic norm, independent of age. Specifically, when the ingroup norm was cooperative, participants allocated significantly more resources to their ingroup in the performance-focus condition than either the competition or learning-focus generic conditions. When they believed their performance would be assessed, even in an

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ostensibly cooperative context, participants allocated resources in a competitive ingroup biased manner. However, when the ingroup norm was competitive, the generic context was less influential. In this case, participants demonstrated significantly ingroup biased allocation across the three generic contexts.

Reasoning was dependent upon age group, and how participants chose to allocate resources. Specifically, with age there were greater references to the importance of establishing a fair competition. Interestingly, we also saw greater reference to the generic context amongst adolescents than children. Whilst we did not observe age effects in the allocation measure, participants' justifications for their allocation differed with age, and came to include consideration of the generic context in adolescence.

**7.2.3 Chapter Six: Equity and Equality Norms.** In this final empirical chapter we extended our examination of norms and context from the preceding chapters to a situation of pre-existing inequality between the two groups. It is important to examine group normative processes under these conditions as inequality is often based upon intergroup characteristics. In this final study, participants were inducted into simulated groups that were either advantaged (i.e. had access to lots of resources) or disadvantaged (i.e. had access to few resources). Participants were prescribed an ingroup norm of equity (i.e. giving more to those who had less to begin with) or equality (i.e. giving the same to all groups) before allocating art supplies between the two groups.

Results revealed a significant interaction between age group, ingroup norm and advantage status. Adolescents rectified an inequality by allocating more resources to a disadvantaged group in line with an ingroup equity norm, but only when their own group was disadvantaged. Advantaged adolescent participants

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perpetuated an inequality by demonstrating ingroup biased allocation in this condition. Children showed a similar pattern by rectifying a resource inequality in the equity condition when their group was disadvantaged. However, they allocated significantly fewer boxes in this condition than adolescents in the same condition. All participants allocated resources equally between groups when prescribed an ingroup equality norm.

Participants' reasoning differed as a function of their chosen allocation strategy. Participants who allocated resources equally referenced fairness and fair competition. Participants who perpetuated an inequality, by comparison, justified this behaviour in reference to the group functioning benefits of increased access to resources. Finally, participants who allocated more resources to the disadvantaged group focused predominantly on the importance of challenging a pre-existing inequality.

Taken together these five empirical chapters demonstrate the development of an advanced understanding of group processes and their relation to moral expectations when allocating resources. In middle childhood, individuals are strongly influenced by group expectations, but also adhere to basic principles of fairness. Ideas of fairness and equality are repeatedly referenced in children's reasoning justifications for their allocations. In contrast, in adolescence a coordinated understanding of group norms, principles of fair competition, and contextual information emerges. Taking these elements together, adolescents adjusted their allocation across situations and varied their reasoning justifications accordingly. In the next section, we discuss these findings with reference to the broad aims of the thesis, and in relation to the existing literature and theory.

### 7.3. Central Aims

**7.3.1 To examine how norms directly influence resource allocation.** This thesis aimed to provide a systematic examination of how social norms at the peer and generic level guide resource allocation in childhood and adolescence. In Chapters Two, Three and Four we demonstrated how individuals take cooperative and competitive norms into consideration. Competitive ingroup norms were shown to lead to increased ingroup bias, but only in the context of a competitive outgroup norm. In Chapter Three, this methodology was extended to demonstrate that ingroup norms interact with generic level norms for cooperation and competition to exert an influence over this process. Specifically, in cooperative contexts, ingroup bias can be tempered when coupled with a cooperative ingroup norm. However, children's bias can also be exaggerated when the ingroup holds a competitive ingroup norm, even when the context is cooperative. In Chapter Four these norms were shown to also be integral to the process of evaluating peer group members from both an individual and group perspective. Chapter Five provides evidence that in a more concrete and specified form, children can take generic contexts into account when allocating resources. Finally, Chapter Six provided evidence that norms may be integral to challenging pre-existing resource inequalities – but that these norms cannot be considered in a vacuum, and instead must be examined in context.

Taken together, these studies demonstrate that peer and societal level norms are integral components of the resource allocation process. Research concerned with distributive justice and drawing from the behavioural economics literature has predominantly examined resource allocation in dyadic contexts. If nothing else, this thesis sets forth an argument that to fully understand how children, adolescents and

adults allocate resources, we must consider the group normative expectations of the individual, their sharing partners, and the context in which allocation takes place.

**7.3.2 To examine age-related differences in the coordination of group and moral factors in complex first-person resource allocation scenarios.** Specifically, we aimed to examine how the coordination of group norms, moral principles and contextual information differed as a function of age. In Chapter Two, we demonstrated that by middle childhood, participants coordinated ingroup and outgroup norms of competition by only displaying ingroup bias in a situation where both groups advocate competition. When norms are prescribed at the same level in an intergroup competition scenario, children from 8 years take this information into account. In Chapter Three however, there were age differences when participants were informed about the generic normative context in which their allocation would take place. In line with previous research demonstrating more advanced abilities in coordinating multiple norms with age (Abrams et al., 2009; Fitzroy & Rutland, 2010; Rutland & Killen, 2017), adolescents and adults tempered their ingroup bias when allocating resources in a cooperative generic context, even when the group held a competitive norm. Children, however, were significantly influenced by a competitive ingroup norm, displaying ingroup bias in line with this norm when this was counter to a generic cooperative context. With age, resource allocation is guided by an advanced coordination of normative prescriptions, contextual information, and a genuine desire for fairness in adulthood (Güth et al., 1982; Kahneman et al., 1986).

These developmental effects were not limited to resource allocation measures. When evaluating ingroup members we observed age-related differences between children, adolescents, and young adults. The most prominent difference between the age groups was an understanding of the distinction between the

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individual's own perspective, and that of the group. This has previously been observed in relation to equal and unequal allocation norms (Mulvey et al., 2014). Unlike in previous research, children did not make the distinction between their individual evaluation of a deviant target, and their group's evaluation of a deviant target. Instead they assumed that their group would, like themselves, favourably evaluate a deviant ingroup member who wanted to cooperate with the outgroup. Adolescents and adults by comparison believed that their group would negatively evaluate any act of deviancy, but particularly a deviant who sought to cooperate with the outgroup. Interestingly, adults positively evaluated cooperative deviancy relatively more so than adolescents did from their personal perspective. Crucially, however, adults applied their understanding of group processes to distinguish between their personal desire for cooperative equal allocation and the competitive normative stance of the ingroup. This chapter provides a novel extension of previous examinations of intragroup understanding in relation to resource allocation by extending this to more complex intergroup scenarios where descriptive norms are directly manipulated. Whilst norms have a clear impact upon intergroup resource allocation by middle childhood, the understanding of the influence of such norms on intragroup evaluative processes appears to still be developing into adolescence and beyond.

Chapter Five provided an extension of Chapter Three by examining resource allocation in two cooperative generic contexts that varied in their moral relevance. These contexts were Learning-Focused (a fun art exhibition with no measurable outcome) and Performance -Focused (a charity event where performance could be assessed based on funds raised). Interestingly, participants of all ages were capable of taking both ingroup *and* generic level norms into consideration when allocating

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resources. That is, when their ingroup prescribed a cooperative norm, children and adolescents used generic normative contextual information to guide their allocation decisions. Specifically, in a situation where their performance could be assessed in a charity event, they demonstrated ingroup bias. This seems to suggest that in specific cases where the norms and context are relevant to their experience and more concrete, children are capable of balancing ingroup and generic normative information. It is only by adolescence that consideration of more abstract competitive or cooperative generic normative contexts becomes a central part of individual's decision-making.

Finally, in Chapter Six, we presented children and adolescents with a situation where an inequality in access to resources existed between two groups. Rather than a generic contextual norm, participants had to take into account their own relative advantage in the situation and coordinate this with the norm of the ingroup. All participants were capable of rectifying a resource inequality when their ingroup was disadvantaged and they were prescribed an ingroup norm of equity. Adolescents allocated a significantly greater proportion of resources to their disadvantaged ingroup, and did so without the prompt of an ingroup norm. This study again demonstrated the advanced abilities in coordinating ingroup normative information with moral principles and context cues, as predicted by the SRD approach (Rutland & Killen, 2017; Rutland et al., 2010). By middle childhood individuals are taking tentative steps towards understanding that it is sometimes appropriate to give more to one group when they may have had less before. Adolescents reliably do so, but demonstrate significant ingroup bias in this ability, as would be expected by Social Identity approaches (Nesdale, 2007; Nesdale, 2004).

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Together, these empirical chapters provide a picture of a developmental trend in the coordination of group processes and moral principles from middle childhood into adolescence. Children predominantly use ingroup norms to guide their allocation, but also look to outgroup norm information (Chapter Two) and specific, relevant generic normative context cues (Chapter Five) when deciding how to allocate resources. Adolescents, by comparison, reliably use more abstract generic norms (Chapters Three and Five), take the perspective of their ingroup into account (Chapter Four) and use contextual information regarding structural hierarchical inequalities (Chapter Six) to guide their allocation. The examination of these processes in adulthood is more limited in the present thesis, but evidence suggests an emphasis upon issues of fairness and equality in young adults when allocating resources and evaluating their peers, despite their understanding that group loyalty is a requisite of group membership (Chapters Three and Four). These five empirical studies provide a promising avenue for future research. Whilst competitive ingroup norms and contexts are valuable cues for resource allocation, in general, moral principles of fairness and cooperation still provide a powerful pull on resource allocation from an early age into adulthood.

**7.3.3. *To analyse social reasoning data to complement behavioral resource allocation data.*** In the present thesis reasoning data emphasises the importance of age, normative information, and allocation behaviour in determining how children think about and justify their own behaviour. Predominantly, when allocating resources the age of the participant and their chosen allocation strategy dictated how they justified their resource allocation. The most important distinctions in age were observed amongst participants who allocated resources equally between groups. Young participants predominantly justified an equal allocation by stating that it was

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the fair thing to do. Equal allocation met with their understanding of fairness, which they took on face value as the appropriate way to behave. Adolescent participants began to take broader conceptual ideas of fair competition into consideration. These participants were not necessarily concerned about fairness as a general principle, but instead applied their understanding of fairness to the context of the competition in which they were being asked to allocate resources.

This shift from broad ideas of fairness to specific applied conceptions of what makes a fair competition is likely driven from two directions. We know that when faced with a complex intergroup resource allocation scenario in the context of competition, children predominantly use ingroup norms as a decision-making heuristic. Likewise when justifying this decision, referencing fairness is a shortcut that meets with generic expectations of fairness and alleviates self-presentational concerns. By comparison, adolescents take peer level and generic contextual norms into consideration when deciding how to allocate resources. Similarly, when justifying these decisions they include contextual information, such as the fact that they were allocating resources for use in a competition. References to the more abstract idea of a fair competition demonstrate a nuanced view of fair resource allocation as a contextual process where the reasons one might allocate resources equally are not always generalisable.

Interestingly, when evaluating a deviant ingroup member (Chapter Four) participants' reasoning was significantly influenced by ingroup norm and target agreement as opposed to the age effects seen in other chapters. For example, participants who disagreed with the behaviour of a cooperative deviant justified their negative evaluation of this target with reference to the group functioning consequences of their behaviour. It makes sense that different factors would be of

importance when reasoning about ingroup member evaluations than when thinking about resource allocation decisions.

In the case of resource allocation, the most important factor is the allocation strategy. Ingroup norm influences the direction of the initial allocation decision (i.e., the behavioural decision), but is less important in the case of post-hoc justification. Participants reference the ingroup norm condition in the group functioning category, but in a general sense related to adhering to group expectations rather than the specific descriptive instructions of the norm. In contrast, when reasoning about evaluations of an ingroup member who deviates from the norm, the direction of the norm is important, in conjunction with the participant's own agreement with it. The domain of the participant's reasoning is necessarily dependent upon whether or not they agree with the target, which in turn is driven by whether the target has turned away from a cooperative (arguably more moral) or a competitive norm (favouring the ingroup).

### **7.4. Towards a Coordinated Perspective**

When asked to allocate resources between groups, children take normative information at the level of the peer group into consideration from approximately 8 years of age. By adolescence, they coordinate this information with generic norms, context-specific information, and historical inequalities. It is worth examining the social-developmental changes during this age range that may be useful in explaining why children move from a singular focus on the peer group towards a coordinated perspective that takes multiple sources of information into consideration.

One key skill that emerges in middle childhood and into adolescence is a more advanced social perspective taking ability. In classic first order theory of mind (ToM) tasks young children come to understand that the mental states of others

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differ from their own (Premack & Woodruff, 1978; Wimmer & Perner, 1983). Beyond first-order ToM, more advanced perspective taking develops involving understanding of social and group processes. For example, Fitzroy and Rutland (2010) used a Theory of Social Mind (ToSM) measure to explore explicit intergroup bias in middle childhood. Participants who demonstrated more advanced ToSM abilities were tempered their explicit intergroup bias without having to be made accountable to classmates or teachers. By the age of 11 years most participants are capable of passing a ToSM measure. However, that is not to say that social perspective taking abilities stop developing in this pre-adolescent age group. Instead, it is likely that these abilities advance further to incorporate group understanding. For example, Selman's (1980) model of the growth of interpersonal understanding includes four central areas of understanding that develop into adolescence. Understanding of peer groups is one of the four main components of Selman's model. Longitudinal examinations of adolescents have demonstrated changes in conceptual understanding of these domains generally (Gurucharri, Phelps, & Selman, 1984; Gurucharri & Selman, 1982) as well as in the context of resource allocation (Güroğlu, van den Bos, & Crone, 2009).

In the present work it is likely that the ability to take the perspective of ingroup, outgroup and external individuals is important in the onset of coordinated allocation decisions. Understanding the desires of the ingroup is essential to maintaining a cohesive ingroup dynamic. However, it is also important to take into consideration how those outside of the situation might view your chosen allocation decision. In particular, when distributing resources between groups, the outgroup may be in a position to reward or punish decisions in the future. Children understand that reciprocity is often contingent on past decision-making (House, Henrich,

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Sarnecka, & Silk, 2013; Warneken & Tomasello, 2013). The more advanced perspective taking abilities proposed by Selman and others are likely required to appreciate how behaviour at the intergroup level will be evaluated at the generic level by individuals not directly involved in the decision. Future work is essential in order to examine how these individual differences in perspective taking may actually serve to moderate our age effects.

Beyond the ability to take the perspective of others both within the peer group and beyond, with age individuals become increasingly aware of their membership of a greater number of groups at the peer level and the societal level. This experience is essential in informing understanding of group dynamics and group processes (Killen & Rutland, 2011). The number of groups children belong to has been shown to predict measures of group nous, an understanding of intragroup inclusion and exclusion decisions (Abrams et al., 2009). It is highly likely that this factor also plays a role when allocating resources between groups. Specifically, greater experience of group membership is likely related to understanding of the consequences associated with allocating in favour of an outgroup, or including a deviant member who wants to do the same. Future work should seek to examine whether the effects of age examined in this thesis can in part be explained by membership and increasing knowledge of groups.

Finally, age is also related to an advanced understanding of the way in which resources have historically been allocated in broader society. This is of particular importance to the results of Chapter Six. Understanding how resources may have been distributed based on group characteristics in the past can help inform how they ought to be distributed going forward in order to challenge or sustain the status quo. Research has demonstrated that an understanding of structural inequality and the

holding of beliefs that society ought to be more equal are predictive of social action (Diemer & Rapa, 2016). This understanding of historical and structural inequality is likely to be important in determining how to allocate resources when the identities of sharing partners are made salient. Examining how an understanding of structural inequality feeds into behavioural decisions when in an advantaged position will be a rich avenue for future work on resource allocation.

Between childhood and adolescence individuals develop more advanced social perspective taking abilities that are tied in with their on-going experience of group dynamics and historical knowledge related to the actual distribution of communal societal resources. In tandem these factors are likely important in creating a foundation upon which adolescents come to coordinate their resource allocation decision-making. Children understand that it is important to consider how other people think and to avoid actively disadvantaging others in mutually cooperative situations, but lack the broader lens through which adolescents come to view these decisions. Future research is essential in order to explore these individual difference variables and model the possible explanatory factors.

### **7.5. Implications for Policy Makers and Educators**

Beyond their theoretical relevance, the findings of this thesis should also be considered in the context of potential future educational interventions. Taken together, these studies demonstrate that ingroup norms remain a consistently important influence across the developmental lifespan, and hold particular significance in middle childhood. This can be problematic in situations where there exists an inequality between groups. Those seeking to challenge ingroup biased resource allocation in schools should look to manipulating generic contextual norms

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as one way in which children and adolescents can be guided towards more egalitarian resource allocation strategies.

Work examining the efficacy of a school norms approach has shown positive outcomes in targeting demonstrations of negative outgroup attitudes (Nesdale & Dalton, 2011; Nesdale & Lawson, 2011). McGuire et al.(2015) showed that when an ingroup held an exclusionary norm, an inclusive school norm served to temper displays of ingroup bias. Similarly, a normative statement on behalf of the school to remind participants that they expect resources to be distributed using egalitarian principles could be a strong statement to counter competitive ingroup norms. Likewise, recent work by Brauer and Murrar (2017) tested a simple descriptive norm intervention where anti-prejudice posters outlining the attitudes held by fellow college students were shown to improve implicit attitudes on a campus university. A similar intervention would be straightforward to implement in a school setting, and hold potentially powerful results.

In tandem with this, it is essential that educators include information regarding inequality (historical and contemporary) into the curriculum, and also recognise that interventions to encourage challenges to inequality cannot adopt a “one size fits all” approach. In Chapter Six, a norm of equity was effective in encouraging challenges to inequality, but only when the participant was disadvantaged. When the participant was in a position of advantage, a broader equality norm led to participants allocating a fairer share to a disadvantaged outgroup. Educators should recognise that when discussing issues related to inequality, the group identity of the target audience of this message is important. For children and adolescents who are members of groups that have historically faced resource inequalities, a normative statement relating to the acceptability of

challenging such inequalities will provide a crucial framework for tackling such systematic inequality later in life.

## **7.6. Limitations & Future Directions**

Before drawing general conclusions from the present thesis, it is worth considering the potential limitations and caveats of the general methodology and protocol used across the five empirical chapters, as well as the further questions these limitations raise.

**7.6.1. Mechanisms.** In this discussion chapter we have examined the possible mechanisms that may help explain age-related differences between children and adolescents in resource allocation behaviour. However, the studies presented in this thesis did not measure three key factors that likely play an important role in the emergence of fair resource allocation; namely, perspective taking ability, experience of group membership and understanding of historical inequality.

Advanced social perspective taking ability has been shown to be essential in moderating explicit prejudice without external accountability (Fitzroy & Rutland, 2010). The ToSM measure developed by Abrams and colleagues (Abrams et al., 2009) may be of use to help understand differences in group normative understanding in middle childhood, but is likely to be of less use in adolescence and beyond. By young adolescence, most individuals will reliably pass this ToSM measure. Future work should attempt to develop a measure in the same vein that distinguishes between children's and adolescents' varying advanced social perspective taking abilities. This is likely to be tied in with their understanding of groups, as well as the number of groups they belong to. Nesdale and colleagues have begun to develop a measure of Social Acumen that may be a useful starting point for such work (Nesdale, 2013; Nesdale, Zimmer-Gembeck, & Roxburgh, 2014). Again

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however, this measure has been developed for use with children younger than those in our sample. An essential next step is to extend this work to explore how adolescents' and adults' understanding of other group members' perspectives influences their ability to coordinate normative information with moral domain concerns.

Likewise, adolescents by comparison with children have a more advanced understanding of historical resource allocation and the structural inequalities of the society they belong to (Diemer & Rapa, 2016; Hughes & Bigler, 2011). This is of particular importance when allocating resources between groups where there may exist a historical inequality. Understanding when this might be relevant to the present resource allocation scenario, and therefore when an ingroup desire to compete may be less important, is likely to be involved in coordinating group normative information with moral domain concerns. Future work should seek to replicate the findings of Chapter Six in combination with a measure of inequality knowledge. It is likely that this will serve as an important moderator of the relation between group norms of equity and resource allocation.

**7.6.2. Chosen Resources.** When deciding how to allocate communal resources, *what* is being allocated is as important as *who* is receiving the resources. In Chapter Two, participants allocated tokens that could be exchanged for art materials. In Chapter Three the token exchange was removed and substituted for money that could be spent on materials as the group decided. In Chapters Five and Six, the idea of exchange was removed altogether and participants were directly provided with the art materials to allocate between the groups. In Chapters Two, Three and Five the resource that was to be allocated was not essential for the group to participate in the art event. Participants were informed that all participating groups

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had access to the basic materials required to compete. However, with the money (or art supplies in the case of Chapter Five) they could gain access to luxury art supplies that would allow the group to produce art of a higher level. Children understand the important distinction between luxury and necessary resources from as young as 3-years old (Killen, Rutland, Rizzo, & McGuire, 2017). It is likely that the luxury nature of the resources used in the present thesis affords greater leeway in terms of benefitting one's ingroup. Children certainly understand that it is less morally permissible to restrict access to necessary resources.

Chapter Six provided a different examination of the luxury/necessary distinction. Whilst the resource was the same as in Chapter Five (art supply boxes), the existing distribution of these resources was skewed in favour of one of the two groups. The fact that children allocated a greater share of these resources to their own group when personally disadvantaged, but not to the disadvantaged outgroup, suggests that they do not consider art materials to be a necessary resource, even in the art competition context. Given our focus on multiple-level normative information, we did not manipulate the necessity of the art supplies in the present work. It is possible that children and adolescents alike would be less susceptible to a competitive ingroup norm (or competitive generic context) if the resource in question was necessary for the survival of the outgroup (e.g. food, education, healthcare). Future work should seek to explore whether the effects of a competitive peer group or context are diminished when the resource to be allocated is necessary, rather than luxury.

**7.6.3. “Simulated” Groups & Existing Norms.** Across the five empirical chapters, participants were inducted into simulated groups using an extensively replicated method that has been reliably shown to induce strong feelings of ingroup

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identification and preference in children (McGuire, Rutland, & Nesdale, 2015; Nesdale & Dalton, 2011; Nesdale, Durkin, Maass, Kiesner, & Griffiths, 2008; Nesdale, Griffith, Durkin, & Maass, 2005; Nesdale & Lawson, 2011; Nesdale, Maass, Durkin, & Griffiths, 2005). These studies inducted participants into simulated groups ostensibly based on artistic ability. We extended this by informing participants that these groups were based on school membership. For children and adolescents, their school group forms an important part of their identity and is essential for motivating behaviour in school (Goodenow, 1993). Children are also often involved in competitive situations in school (Butler & Kedar, 1990; Williams & Sheridan, 2010). Given this, we opted to use school membership as the boundary between ingroup and outgroup members. This protocol provides a midway point between minimal groups and the use of existing real world groups (where controlling other group-level variables is likely to be problematic). However, it remains possible that pre-existing peer and generic level school norms could have influenced participants' behaviour when allocating resources.

School norms are highly influential in tempering negative attitudes towards an outgroup when the ingroup holds an exclusionary peer level norm (McGuire et al., 2015; Nesdale & Dalton, 2011; Nesdale & Lawson, 2011). Similarly, schools are more likely to endorse generic cooperation than competition. This may feed into the peer level normative climate of the school. Future work should seek to examine the influence of the school norm in two ways. First, following on from existing work in the attitudes literature, school norm could be manipulated. As discussed above, it is possible that an explicitly cooperative school level norm could serve to extinguish the effects of a competitive peer level norm, by comparison to a situation where no school norm is made salient. Second, it would be interesting to examine whether

existing norms exert the same influence as those descriptively manipulated in the present thesis. Specifically, individuals could be asked to specify how their group would generally allocate communal resources, and how they think their school would expect them to do so. It would be interesting to see whether individuals who perceive their group to be naturally more competitive may behave competitively, or whether their perceptions of the school's cooperative ethos would temper this.

### **7.7. Conclusion**

The central aim of this thesis was to examine the influence of social norms on fair resource allocation between childhood and young adulthood. We examined the development of the ability to coordinate social norms related to resource allocation at multiple levels within a complex intergroup setting. Much research on resource allocation has examined how children, adolescents and adults alike allocate communal resources fairly in instances of dyadic exchange. Whilst important, this work does not examine the contexts in which resource allocation often takes place. Rarely are we asked to allocate resources without having access to information about the recipients of the resources. Bringing together ideas from social and developmental psychology, this thesis provides evidence for a developmental trajectory between childhood and adolescence where the coordination of multiple norms and contextual information becomes an imperative component of resource allocation decision-making.

It is important in closing to stress that despite the competitive context of the intergroup art event methodology used in the empirical chapters of this thesis, individuals showed a remarkable commitment to equality and fair sharing. Children from a young age are passionate about fairness. This thesis presents evidence regarding a number of select situations in which children and adolescents can be lead

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to less egalitarian decisions. Specifically, a competitive ingroup norm is a powerful influence upon children's decision-making. Reassuringly, with age adolescents develop the competence to balance their desire to adhere to this norm with both generic level norms, and historical resource allocation information.

This work also emphasises the importance of not only cooperation, but also competition. A long line of research has focused upon children's desire to cooperate with one another and to allocate resources based on jointly cooperative activity. The present work is amongst the first to explore how competitive motivations are equally important throughout the developmental lifespan. Educators in particular should consider the importance of these motivations in the classroom when seeking to promote justice and equality. Finally, social reasoning data collected here extends behavioural findings to draw attention to the increasingly sophisticated reasoning used by children and adolescents. Counter to traditional perspectives on children's morality, the Social Reasoning Development and Social Domain approaches give weight to children's perspectives on moral decisions. When thinking about how to allocate resources, adolescents in particular come to reason about their decisions based on the context of the allocation (e.g. whether a historical inequality is relevant) and broader ideals of justice (i.e. a fair competition).

Those who seek to promote justice and equality via the medium of equitable resource allocation should consider these findings promising. We now know that from early adolescence, individuals are capable of coordinating peer group norms with generic contextual and historical information to temper their allocation against prescriptions of explicit competition. Targeted descriptive norm interventions in schools promoting equality between groups and explorations of existing norms at the peer group level will prove important next steps. Similarly, educating young children

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with regard to historical inequalities and the importance of rectifying these is absolutely essential. Social norms play a crucial role in resource allocation decision-making from a young age; the next step is to use these norms to challenge injustice in resource allocation where it exists.

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Appendix A: Participant Numbers

Appendix A: Included and Excluded Participants

Chapter Two: Outgroup Norms

Table 7.1.

*Inclusion & Exclusion Cell Counts: Children*

Status	Included				Excluded			
Ingroup Norm	Competitive		Cooperative		Competitive		Cooperative	
Outgroup Norm	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative
<i>N</i>	37	29	33	32	14	14	9	21

Appendix A: Participant Numbers

Table 7.2.

*Inclusion & Exclusion Cell Counts: Adolescents*

Status	Included				Excluded			
Ingroup Norm	Competitive		Cooperative		Competitive		Cooperative	
Outgroup Norm	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative
<i>N</i>	20	27	32	19	13	4	1	11

Appendix A: Participant Numbers

Chapters Three & Four: Generic Norm

Table 7.3.

*Inclusion & Exclusion Cell Counts: Children*

Status	Included				Excluded			
Ingroup Norm	Competitive		Cooperative		Competitive		Cooperative	
Generic Norm	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative
<i>N</i>	27	28	24	24	7	8	12	12

Appendix A: Participant Numbers

Table 7.4.

*Inclusion & Exclusion Cell Counts: Adolescents*

Status	Included				Excluded			
Ingroup Norm	Competitive		Cooperative		Competitive		Cooperative	
Generic Norm	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative
<i>N</i>	29	22	18	21	3	3	10	10

Appendix A: Participant Numbers

Table 7.5.

*Inclusion & Exclusion Cell Counts: Adults*

Status	Included				Excluded			
Ingroup Norm	Competitive		Cooperative		Competitive		Cooperative	
Generic Norm	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative	Competitive	Cooperative
<i>N</i>	21	13	20	16	4	4	3	4

Appendix A: Participant Numbers

Chapter Five: Performance & Learning

Table 7.6.

*Inclusion & Exclusion Cell Counts: Children*

Status	Included					
Ingroup Norm	Competitive			Cooperative		
Generic Norm	Competitive	Learning	Performance	Competitive	Learning	Performance
<i>N</i>	38	29	28	30	34	31
Status	Excluded					
Ingroup Norm	Competitive			Cooperative		
Generic Norm	Competitive	Learning	Performance	Competitive	Learning	Performance
<i>N</i>	11	21	20	13	14	18

Appendix A: Participant Numbers

Table 7.7.

*Inclusion & Exclusion Cell Counts: Adolescents*

Status	Included					
Ingroup Norm	Competitive			Cooperative		
Generic Norm	Competitive	Learning	Performance	Competitive	Learning	Performance
<i>N</i>	27	26	27	24	24	26
Status	Excluded					
Ingroup Norm	Competitive			Cooperative		
Generic Norm	Competitive	Learning	Performance	Competitive	Learning	Performance
<i>N</i>	3	0	4	7	3	3

## Appendix B: Example Protocols

### **Appendix B: Example Protocol**

#### *Chapter Two: Outgroup Norms*

This is a survey designed by the Developmental Intergroup Processes Lab at the Goldsmiths, University London Psychology Department. This survey helps us to find out what students think about peer groups and friendships. There are no right or wrong answers and this not a test. We will not tell anyone your answers and if you do not want to finish the survey please let us know.

Please fill in the information on this page and then turn the page.

If you have any questions, please raise your hand and ask!

Today's date: \_\_\_\_\_

Your initials (e.g., Mark Smith is MS): \_\_\_\_\_

Birthday: Please write the day, month, and year you were born

(e.g., July 12, 1999): \_\_\_\_\_

Your age in years (e.g., 10): \_\_\_\_\_

Gender: \_\_\_\_\_

Your race or heritage (e.g. White British): \_\_\_\_\_

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## Appendix B: Example Protocols

For the next part, we would like you to imagine that there is going to be a drawing competition in your school. This competition is going to be between your school and some other schools in the area.

Each person in the school is going to be put on a team with some kids they've never met before. These teams are decided by a local artist.

The artist has decided that you are going to be on the "EXCELLENT DRAWING TEAM". Click on to the next page to see the kids who are on your team.



## The Excellent Team



## Appendix B: Example Protocols

There are another team in the competition. These kids are on the "GOOD TEAM".

The artist has decided that they should be in a team together because they are good drawers, but not quite as good as your team is.

Click on to the next page and you will see those kids. Take a close look at them because you will be asked about them later on.

# The "Good" Team



## Appendix B: Example Protocols

You will now read a message from the members of the EXCELLENT DRAWING TEAM. Read this carefully because it will be important for the competition!



### The Excellent Team



*"Hello, we're really happy you're going to be on our team for this drawing competition. We just have one rule if you're going to be on our team, and that is; if you want to be part of the team, you should try and make our team win, don't share with other teams, and don't support the other team in the competition. We want to win the competition. I hope you like being a member of the excellent drawing team, good luck!"*

Does your team want to share with other teams?

- Yes
- No

## Appendix B: Example Protocols

The "GOOD TEAM" also have rules for the competition. Your team overheard them saying how they were going to behave in the game, and this is what they said:

### The "Good" Team



"We want to win the competition, we're not bothered about the other team! We want to get the most out of all the teams. The most important thing to us is winning!"

Does the "Good" team care about winning the competition?

- Yes
- No

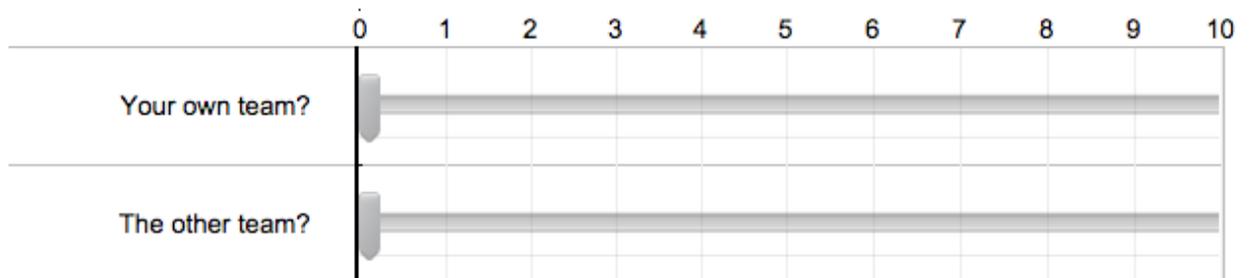
## Appendix B: Example Protocols

Now we're going to ask you to imagine that you have been put in charge of **TEN MORE TOKENS**. These tokens can be used in the competition to buy materials - pens, paper, pencils, stickers and other things you might use in your art.

You can split these tokens between your team (the *EXCELLENT* team) and the other team (the *GOOD* team) however you want.

**This time, the other team does not have a say in how you share the tokens.** You can give away or keep as many as you like. Think carefully about this, and then drag the slider to show how many tokens you want to keep for your team, and how many you want to give to the other team. Remember, you have TEN tokens to share.

How many tokens would you like to give to...



Why did you split the tokens the way you did?

## Appendix B: Example Protocols

### *Chapter Three & Four: Generic Norms*

This is a survey designed by the Developmental Intergroup Processes Lab at the Goldsmiths, University London Psychology Department. This survey helps us to find out what students think about peer groups and friendships. There are no right or wrong answers and this not a test. We will not tell anyone your answers and if you do not want to finish the survey please let us know.

Please fill in the information on this page and then turn the page.

If you have any questions, please raise your hand and ask!

Today's date: \_\_\_\_\_

Your initials (e.g., Mark Smith is MS): \_\_\_\_\_

Birthday: Please write the day, month, and year you were born

(e.g., July 12, 1999): \_\_\_\_\_

Your age in years (e.g., 10): \_\_\_\_\_

Gender: \_\_\_\_\_

Ethnicity (e.g. White British): \_\_\_\_\_

SCHOOL NAME: \_\_\_\_\_

SCHOOL TEACHER: \_\_\_\_\_

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© 2010, Joan Tycko, Illustrator

**Thank you! Please turn the page!**

**INTRODUCTION:**

You are going to see pictures of some kids and read a little bit about them. Then you will answer some questions about these kids. We are interested in finding out what children your age think about things kids do. There are no right or wrong answers. This is not a test. No one will see your answers, and we do not put anyone's name on any reports. We only record your age and whether you are a girl or boy.

When you see this type of line on the form:

Dislike a lot	Dislike	Neither like or dislike	Like	Like a lot
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

...this means that you will be asked to tick the circle that matches your answer to the question.

For example, if you **really** liked pizza, you would tick or cross the “like a lot” box like this –

*How much do you like or not like pizza?*

Dislike a lot	Dislike	Neither like or dislike	Like	Like a lot
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

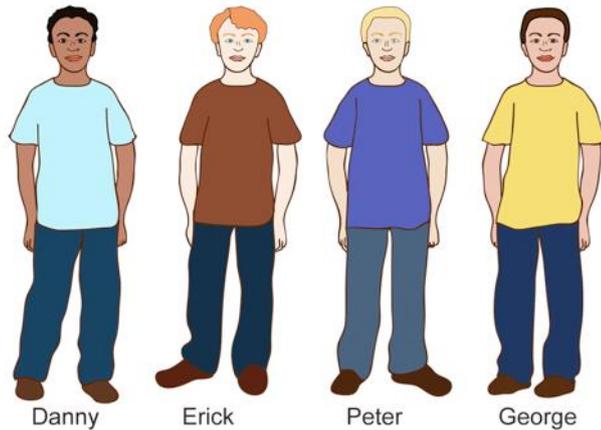
So just tell us what you think about the stories by filling out this survey!

THANK YOU!

## Appendix B: Example Protocols

First we would like you to imagine that you're going to take part in an **ART AND DRAWING COMPETITION**. This competition is going to be held between your school, and some other schools in the local area. You are going to be on a team with some other kids from your school.

This is your team:



© 2010, Joan Tycko, Illustrator

All these kids are members of your school.

Please now:

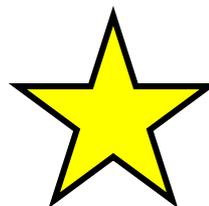
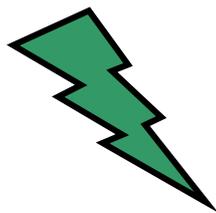
1 - Select a name for your group (ex. Superstars):

\_\_\_\_\_

2 – Pick a team colour:

\_\_\_\_\_

3 – Circle the symbol that you would like for your group:



## Appendix B: Example Protocols

The kids on **YOUR TEAM** have a secret message for the members of the team taking part in the art competition. This is the message from **YOUR TEAM**:

*"Hello, we're really happy you're going to be on our team for this drawing competition. We just have one rule if you're going to be on our team, and that is;*

***If you want to be part of the team, you should try and make our team win and never help the other teams in the competition.***

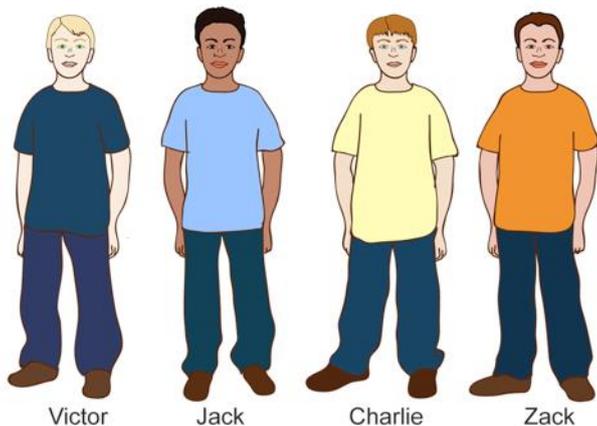
*We're really happy you're going to be a member of the SCHOOL NAME HERE team, good luck!"*

*1a. Does your team want to help other teams in the competition?*

YES      NO

In this round of the art competition, you are going to be competing against another school in your area, SCHOOL NAME HERE.

These are the kids on the team for X SCHOOL:



## Appendix B: Example Protocols

Whoever wins this competition between your school and X school will go on to take part in a **UNITED KINGDOM CHARITY ART EVENT**, where paintings and drawings will be sold to raise money so homeless animals are given somewhere to live and get enough food. This will be a big day where schools from all over the United Kingdom work together and help raise money for animals in need.



1b. What event will the winners of the event go on to take part in? (Please circle ONE answer)

- a. United Kingdom National Art Competition
- b. United Kingdom Charity Art Event

## Appendix B: Example Protocols

The Student Councils of your school and X school have raised **£100** to give out to the teams for purchasing extra materials they might want to use for the competition .

..



Both teams have already raised the money they need to buy enough **basic materials** (for example, pencils and paper) to take part in the competition.



The money that the student councils have raised is to buy **extra, more special materials** (for example, high quality paint and brushes). These extra materials will help make better art, which is more likely to win the competition.



Appendix B: Example Protocols

**Your team has talked about it, and they have voted to give £80 to your own team and £20 to the other team.**

YOUR TEAM:



THE OTHER TEAM:



**In the past, when the other school team has talked about it they have voted to give £50 to their own team and £50 to your team.**

YOUR TEAM:



THE OTHER TEAM:



## Appendix B: Example Protocols

**REMEMBER**, your team has **£100** to share between the two teams. Both teams already have enough money to buy basic materials – **this money is to be used to buy more special materials**, like expensive paints.

*Your team wants to split the money in favour of your team (£80 for your team and £20 to the other team).*

**YOUR TEAM:**



**THE OTHER TEAM:**



**REMEMBER**, the winners of the art competition will go on to take part in the **UNITED KINGDOM CHARITY ART EVENT**.



**You have been asked to make the final decision.**

Appendix B: Example Protocols

<b>If you give your team...</b>	<b>The other team will get...</b>
£100	£0
£90	£10
£80	£20
£70	£30
£60	£40
£50	£50
£40	£60
£30	£70
£20	£80
£10	£90
£0	£100

2a. How much money would you like to give to... (Remember, you only have £100, and whatever you don't give to your team will go to the other team)

**Your school team** \_\_\_\_\_ £ \_\_\_\_\_

2b. Why did you split the money the way you did?

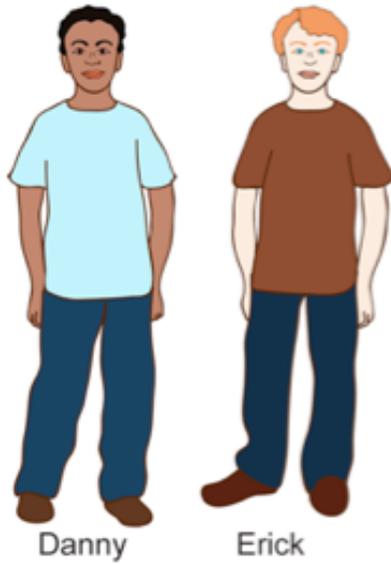
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## Appendix B: Example Protocols

Everyone in the team has a vote on what to do...



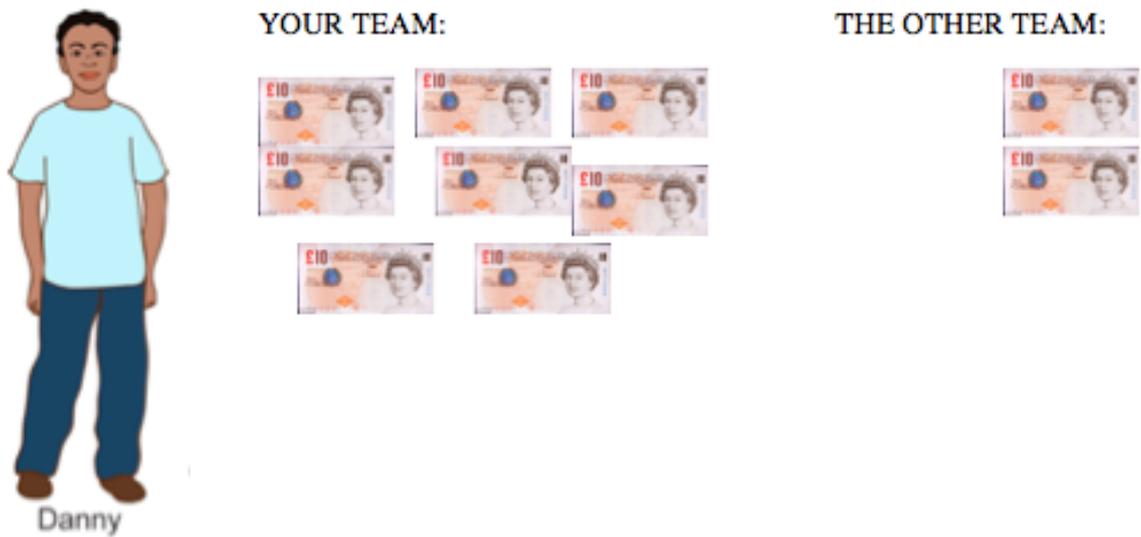
This is Danny and Erick; they are also on your school team. They have both voted to give £80 to your school team, and £20 to the other school team.

This is George; he is also on your school team. George wants to be different from the other members of the team. He has voted that your team should get £50, and the other team should get £50.



Appendix B: Example Protocols

*These questions are about DANNY. Remember, Danny voted to give £80 to your team and £20 to the other team, which is what the rest of your team also said.*



3a. How much do you think *the group* would like having Danny in your team?

Dislike a lot	Dislike	Neither like or dislike	Like	Like a lot
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3b. Why? (Please fill out the lines with your answer.)

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Appendix B: Example Protocols

3c. How much do you think *YOU* would like having Danny in your team?

Dislike a lot	Dislike	Neither like or dislike	Like	Like a lot
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3d. Why? (Please fill out the lines with your answer.)

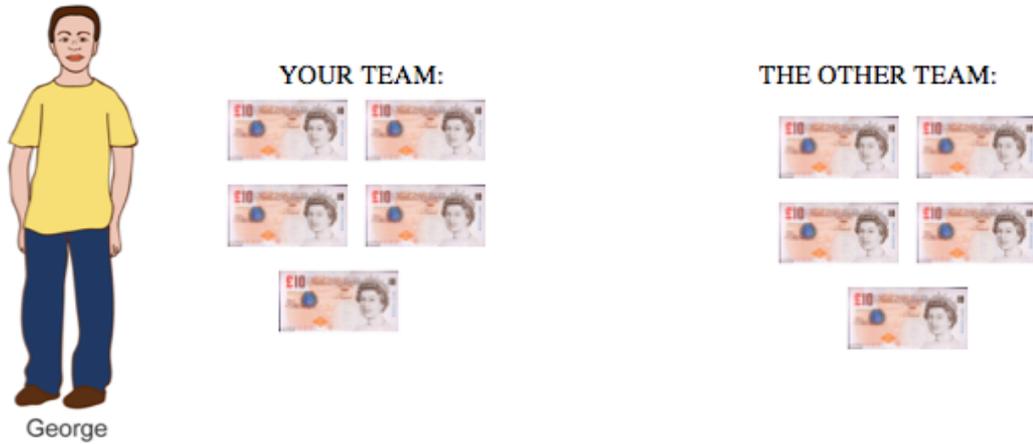
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Appendix B: Example Protocols

*These questions are about GEORGE. Remember, George voted to give £50 to your team and £50 to the other team, which is the opposite of what the rest of your team wanted to do.*



4a. How much do you think *the group* would like having George in your team?

Dislike a lot	Dislike	Neither like or dislike	Like	Like a lot
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4b. Why? (Please fill out the lines with your answer.)

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Appendix B: Example Protocols

4c. How much do you think **YOU** would like having George in your team?

Dislike a lot	Dislike	Neither like or dislike	Like	Like a lot
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4d. Why? (Please fill out the lines with your answer.)

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5a: Do you think **Danny** was okay or not okay to vote to split the money £80 to £20?

OKAY      NOT OKAY

5b: How okay or not okay was **Danny** to vote to split the money £80 to £20?

1	2	3	4	5	6
Really Not Okay					Really Okay

6a: Do you think **George** was okay or not okay to vote to split the money £50 to £50?

OKAY      NOT OKAY

6b: How okay or not okay was **George** to vote to split the money £50 to £50?

1	2	3	4	5	6
Really Not Okay					Really Okay

## Appendix B: Example Protocols

### *Chapter Five: Performance & Learning*

Before the art event takes place, we asked an award winning local artist to look at examples of the art from your school group and the other school group.

The artist decided that most of the artists in **your group** were ***OF A PROFESSIONAL STANDARD***, and *better than most examples* they see from people your age.

The artist decided that most of the artists from **the other school group** were ***OF AN AVERAGE STANDARD***, and *no better than most examples* they see from people your age.



2a. Based on what you just read, and according to the local artist, your group are of an:

- a. AVERAGE standard
- b. PROFESSIONAL standard

## Appendix B: Example Protocols

The kids in **your group** have a secret message for the members of the group taking part in the art event. This is the message from your group:

*"Hello, we're really happy you're going to be in our group for this drawing event. We just have one rule if you're going to be in our group, and that is;*

*If you want to be part of the group, you should try and make our school do better than the other school groups, **and never help the other groups in the event.***

*We're really happy you're going to be a member of the XXXX group, good luck!"*



2a. Based on what you just read; does your team want to help other teams in the art event?

- a. YES
- b. NO

As you read above, we want you to imagine you're going to be taking part in an art event between your school and some other schools in the area.

## Appendix B: Example Protocols

This is a message from your class teacher, telling you a bit more about the art event:  
*“You will be taking part in the United Kingdom Art Competition, which is the highest level of art competition in the country that schools can take part in. The idea here is for you to try your hardest to win by making the best art.”*



2b. My group will be taking part in:

- a. UNITED KINGDOM ART COMPETITION
- b. UNITED KINGDOM CHARITY ART EVENT
- c. UNITED KINGDOM ART EXHIBITION

## Appendix B: Example Protocols

The student councils of your school and OAKLANDS SCHOOL have bought some materials that can be shared between your school group and the other school group. These art supplies can be used in the event, and will help you to make better art.

Your group are going to talk about how to share the supplies between your group and the other school group.



Appendix B: Example Protocols

Remember, the Student Councils of your school and Oaklands School have bought materials that can be used in the competition.



Your group has talked about it, and they have voted to give **8 BOXES TO YOUR GROUP** and **2 BOXES TO THE OTHER SCHOOL GROUP**.

3a. How okay or not okay is it for your school group to split the supplies this way?  
(Tick One)

Really not okay	Not okay	Neither okay or not okay	Okay	Really okay
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix B: Example Protocols

3b. Why?

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**REMEMBER**, your group has **art materials** to share between the two groups. These materials will help the groups do better art for the competition.

***Remember, you're going to be taking part in the UNITED KINGDOM ART COMPETITION. The idea of the competition is for you to try your best to win and do the school proud.***

**How would YOU share the supplies for the competition?**

4a. How many of the boxes of supplies would you give to...

**Your school group** \_\_\_\_\_

**The other school group** \_\_\_\_\_

4b. Why did you split the supplies the way you did?

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**Chapter Six: Rectifying Inequality**

Your school already has **LOTS** of **art materials** (for example, paint and brushes) to use in the competition. These materials will help make better art, which is more likely to win the competition.

Oaklands School **does not have many** of these art materials.



2a. Based on what you just read, does your team have many art materials (e.g. paint and brushes) for the competition? (Circle one answer)

YES      NO

## Appendix B: Example Protocols

The student councils of your school and OAKLANDS SCHOOL have bought some materials that can be shared between your school team and the other school team. These art supplies can be used in the competition, and will help you to make better art.

Your team are going to talk about how to share the supplies between your team and the other school team.



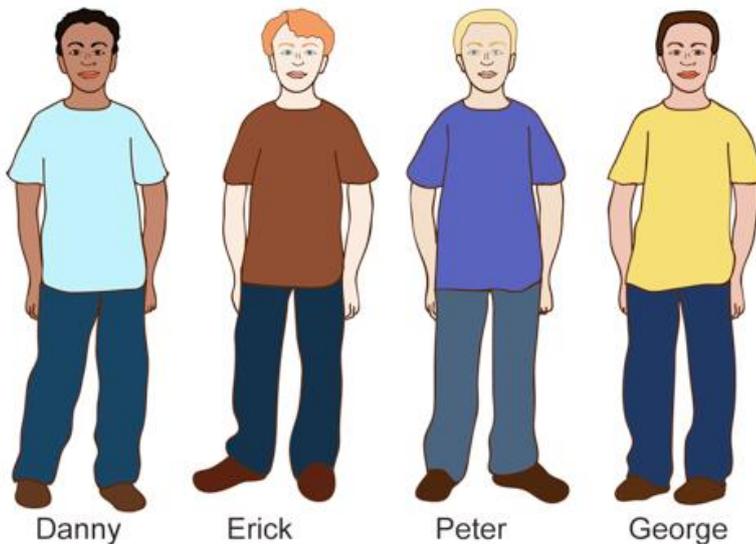
## Appendix B: Example Protocols

The kids on **your team** have a secret message for the members of the team taking part in the art competition. This is the message from your team:

*"Hello, we're really happy you're going to be on our team for this drawing competition.*

***We want to give more to the team that has less to begin with.***

*We're really happy you're going to be a member of the SCHOOL DRAWING team, good luck!"*



2b. Based on what you just read; team wants to...

- a. Give the same amount to both teams
- b. Give more to the team that has less

## Appendix B: Example Protocols

Remember, the Student Councils of your school and Oaklands School have bought materials that can be used in the competition.



Your team has talked about it, and they have voted to give **MORE SUPPLIES** to **THE OTHER SCHOOL TEAM** and **LESS SUPPLIES** to **YOUR SCHOOL TEAM**.

3a. How okay or not okay is it for your school team to give more supplies to the other team? (Tick One)

Really not okay	Not okay	Neither okay or not okay	Okay	Really okay
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix B: Example Protocols

3b. Why?

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**REMEMBER**, your team has **art materials** to share between the two teams. These materials will help the teams do better art for the competition.

*Your team wants to give more supplies to the other school team.*

*Your school wants to give more supplies to the team that has less.*

*How would you do it? You have **TEN** boxes in total.*

4a. How many of the boxes of supplies would you give to...

**Your school team** \_\_\_\_\_

**The other school team** \_\_\_\_\_

4b. Why did you split the supplies the way you did?

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Appendix B: Example Protocols

Let's think about the supplies for the competition again. Imagine that someone else on your school team got to decide how to give out the money.

What if Peter decided to give more supplies to your school, *because you'd always had more before?*



Peter

YOUR SCHOOL TEAM



OTHER SCHOOL TEAM



Appendix B: Example Protocols

5a. How okay or not okay would it be for Peter to give more to your school because you had always had more materials in the past?

Really not okay	Not okay	Neither okay or not okay	Okay	Really okay
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5b. Why?

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**Appendix C: Ethical Materials**

*Example Letter to Parents*

Dear Sir/Madam,

I write to you from Goldsmiths College Psychology Department, with a request for the time and help of your son/daughter.

As a part of my Doctoral studies I am hoping to conduct a study in your son/daughter's school. We are interested in their feelings and attitudes towards people from different social groups, and fairness. Your child will only take part if they want to, and will be given the opportunity to ask questions at any time. The children who participate will be made aware that they can stop at any time, and that their participation is completely voluntary. All researchers who are involved in the data collection will have full DBS (criminal record) checks and work under the supervision of teachers and myself.

The data that we gather from this study may at some point be presented at conferences or published in an academic journal as part of a broader research project – no child's data will be singled out, the sample will only ever be considered as a whole. Confidentiality will remain of the utmost importance, and only the researchers involved will ever have access to names of participants. If you have any questions about the reasons we are conducting this research, or you'd like to know more/raise any issues, please do not hesitate to contact us.

Given the school's consent, we are operating an opt-out procedure, such that, if you are happy for your child to participate, there's nothing further for you to do.

**However, if you do *not* wish for your child to take part in the study, please fill out the form overleaf and return it to the school.**

Kind Regards,  
Luke McGuire  
PhD Student  
(07540) 097204  
[l.mcguire@gold.ac.uk](mailto:l.mcguire@gold.ac.uk)

I do **NOT** want my son/daughter ..... from year ..... to  
take part in the research project conducted by Luke McGuire/Goldsmiths College.

Parent/Guardian Signature .....

Date .....

## Appendix C: Ethical Materials

### *Example Verbal Participant Brief*

‘Hi, my name is Luke and I am from Goldsmiths which is part of the University of London. A University is a type of school you can go to when you get older. What I do at the University is called research, which means I come into schools like yours and talk to children like you about what you think about the world.

The questions I ask aren’t like the questions you get in class because there aren’t any right or wrong answers. This isn’t like the tests you might get in class sometimes, I’m just interested in what you think.

Today I’m going to ask you to fill out this questionnaire on a computer for me. The first page has some instructions and asks you for some details about yourself. We never ask for your name, so no one will be able to tell which answers are yours. No one will ever look at your answers individually, we only look at them as part of a big group.

If you don’t want to take part in the questionnaire, you don’t have to. You are also free to stop at any time, without having to say why.

If you have any questions as we’re going through the questionnaire then please just put your hand up and someone will come and help you.

Does anyone have any questions before we start?

If you’re happy to take part, then please read the first page of the questionnaire, and when you get to the bottom, click on the blue arrow in the bottom right hand corner of the screen where the questions will begin.

Thankyou!”

## Appendix C: Ethical Materials

### *Verbal Debrief*

#### Debrief for Child Participants:

This will be delivered verbally at the end of the study to the entire class, and will include:

- Confidentiality reminder:  
“Remember, I’m the only person who will know your name, and no one else will be able to tell who gave your answers. Instead of your name we’re going to use the number on the booklet here. I’m going to keep a list of everyone’s names and numbers, but no one else will see it, and when we’re done I’ll make sure we get rid of the sheet.”
- Reminder of study aim:  
““This is an experiment where we want to find out about how children like you get on with their friends, and how they feel about children in other groups. Your answers will be put together with the answers of all the other children who take part, so there’s no way someone can pick your answers out.”
- Deception:  
“Earlier on, we asked you to imagine that these kids were in your group, and you were in a drawing competition against these other kids. Remember, this was all just a fun game, so don’t worry about the competition or the pictures of the kids here. They won’t read your answers, and neither will your teachers, we’re the only people who will look them over – remember what I said about how no one will be able to know the name of the kid who wrote the answers.”
- “Do you have any questions you’d like to ask me?”
- “You all did really well, thank you for taking part, you’ve been a great help!”

*Example Parental Debrief Letter – Chapter Two*

*Parental Debrief Form*

Firstly, I'd like to thank you for allowing your child to take part in this piece of postgraduate research conducted by Professor Rutland and myself here at the Goldsmiths Department of Psychology. It is incredibly gracious of you to allow your child to give us part of their time, and we hope they enjoyed the experience; it really is invaluable to us.

This study was an exploration into the development of decision-making and resource distribution in children aged between 7 and 15 years old. Research has previously shown increases in selfish sharing from age 7 onwards, and it is the group factors that cause this age-related difference that we find ourselves interested in.

Your child was initially put into a group based on their 'drawing ability' – in fact, this grouping was arbitrary, all children were told that they were "excellent" drawers. We then introduced them to their 'team members' – pictures of other children on a laptop computer, who were again, not really a part of the study. Throughout the experiment, participants were reminded that it was completely their choice as to whether they continued, and that they could leave at any time without being asked why. I would like to reassure you that their answer booklets will not be shown to anyone who is not directly involved in the research project – and that no names are included on these booklets; in fact, each child is only identifiable by a participant number. Given this information, should you now decide that you do not wish for your child's data to be included in the study, please do not hesitate to contact me at the email/phone number given below – only I have access to the participant number/name details, and can remove individuals from the study. Finally, each child was asked to play a 'sharing game', where they chose how to split tokens with a member of the 'other' team they were introduced to at the start of the study. The data collected here may be presented at conferences, in academic papers, and reports that we send back to schools. Your child's answers will be put together with a large sample of other children, and presented only in terms of broad findings – no individual's answers will ever be called into question. However, let me again stress that you may contact me if you are not happy for your child's data to proceed.

Finally, I'd like to thank you again for your co-operation, and provide you with contact details below for myself and my supervising professor, should you have any issues you'd like to raise.

Kind Regards,

Luke McGuire  
l.mcguire@gold.ac.uk  
07540097204

Professor Adam Rutland  
[a.rutland@gold.ac.uk](mailto:a.rutland@gold.ac.uk)  
020 7078 5442