The Emotional Benefits of Generosity:

Children's Experiences and Beliefs Regarding Giving and Happiness

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A dissertation

submitted in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

University of Washington

2018

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Program Authorized to Offer Degree:

Psychology

University of Washington

Abstract

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From a young age, humans frequently and spontaneously choose to help, comfort, and share with others (Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011; Paulus & Moore, 2012). Critically, these prosocial behaviors are not only beneficial to the recipients of these acts; those who perform good deeds also reap benefits, such that they experience positive emotions as a result of their generosity. While this phenomenon has been well established in adult populations (Aknin, Fleerackers, & Hamlin, 2014; Aknin, Mayrz, & Helliwell, 2017; Dunn, Aknin, & Norton, 2008; Dunn, Aknin, & Norton, 2014; Field, Hernandez-Reif, Quintino, Schanberg, & Kuhn, 1998; Lyubomirsky, Sheldon, & Schekade, 2005), few studies investigate the emotional benefits of giving from a developmental perspective. Thus, the current work investigates 5-year-olds' experiences of and beliefs about the emotional benefits of giving in order to begin understanding how emotional reward may function as a potential motivation of prosocial behavior in childhood. First, the current work conceptually replicates the finding that children (Aknin, Hamlin, & Dunn,

2012), like adults (Dunn et al., 2008), express more happiness after giving resources to others than after receiving resources for themselves (Chapter 2). Next, this work demonstrates that children's happiness from giving to others is rooted in their ability to witness the positive impact that they were responsible for providing to a beneficiary (Chapter 3). Finally, this work shows that, although 5-year-old children accurately believe people experience the most happiness when they can witness the positive impact they have provided to a beneficiary, they believe that people are relatively happier after receiving resources than after giving resources (Chapter 4). Together, these findings support the hypothesis that children's prosocial behavior is reinforced and perhaps promoted by the positive emotions they experience when they are responsible for a generous action that they see was beneficial to someone else (Aknin, Van de Vondervoort, & Hamlin, 2018). Although children at this age are somewhat aware of the emotional benefits of giving, their belief that receiving is even more rewarding may ultimately undermine their motivation to give. The theoretical and practical implications of these findings are discussed along with suggestions for critical future research.

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ACKNOWLEDGEMENTS

I would like to express the deepest appreciation to my committee chair, Kristina Olson, who has demonstrated tremendous mentorship by providing critical training and feedback as well as unwavering support and encouragement over the past five years. Her guidance and confidence in me have been critical in facilitating my growth and supporting my success.

I further thank the additional members of my committee, Jessica Sommerville, Cheryl Kaiser, and Ryan Fehr, whose comments on this work have refined my thinking on these questions. Their interest in this work has also reminded me to stay curious and has inspired me to continue investigating my curiosities with rigor.

In addition, thank you to members of the Social Cognitive Development Lab and Early Childhood Cognition Lab for their critical feedback on this work as well as their consistent personal support. I especially want to thank Arianne Eason, Elizabeth Enright, Lily Durwood, James Rae, Selin Gulgoz, and Eric Gomez. Further, thank you to the many research assistants and lab managers who have worked with me over the years, especially Maddy DeMeules, Gabrielle Lindquist, Riley Lowe, Daniel Alonso, Rachel Horton, and Sanjana Ravi.

This dissertation would not be possible without the assistance of the hundreds of participating parents and children as well as staff from several schools in the Pacific Northwest and Upstate New York. Further, this work was supported by the APF/COGDOP Graduate Research Fellowship, the Alcor Endowment, and the UW Graduate School Presidential Dissertation Fellowship.

Last, but certainly not least, I would like to thank my family and friends for their outpouring of love and guidance throughout these academic pursuits. In particular, I would like to thank my parents, Maria and Whitney Fast, and my brother, Mike Fast. I love you!

Chapter 1 – Introduction

"No one has ever become poor by giving." –Anne Frank

A central component of human social life is the tendency for people to engage in prosocial behavior, or actions that benefit others. That is, individuals frequently and spontaneously choose to provide their time, resources, and energy to others in order to help, comfort, or share with them. Although the existence of human goodness has been debated for centuries, individuals across cultures are quite willing to be prosocial and cooperative (Henrich et al., 2005). Adults will go to great lengths to help others (Becker & Eagly, 2004) and will even punish those who do not choose to be prosocial (Fehr & Fischbacher, 2004). Further, engaging in prosocial behavior leads to more happiness, greater life satisfaction (Aknin, Barrington-Leigh, et al., 2013; Dunn et al., 2008; Lyubomirsky, Sheldon, et al., 2005), and better physical health outcomes (Brown, Nesse, Vinokur, & Smith, 2003; Konrath, Fuhrel-Forbis, Lou, & Brown, 2012; Musick, Herzog, & House, 1999; Oman, Thoresen, & McMahon, 1999) for adults. Thus, prosocial behavior is not only beneficial to the recipient of generous acts, but also contributes to positive outcomes for a prosocial actor.

Given the prevalence and importance of prosocial behavior, it is critical to understand the origins and development of such behavior. Individuals begin to engage in prosocial actions as early as the second year of life, which become more frequent throughout the preschool years (Brownell, Svetlova, & Nichols, 2009; Dunfield et al., 2011). By the late preschool years, children's prosocial behavior is quite sophisticated in that they willingly give away resources, even when they could choose to keep them (Blake & Rand, 2010; Fehr, Bernhard, & Rockenbach, 2008). Several questions remain, however, concerning the emotional benefits of prosocial behavior in childhood, including whether and why children experience emotional

reward from giving as well as how emotional reward operates as a motivation for children's generous behavior. This dissertation explores these questions to provide a deeper understanding of the foundations and functions of human prosociality as well as a sense of how to promote acts of generosity from early in development.

The current work first explores whether and why children experience positive emotions from sharing with others. Two central questions are: 1) Do children express more happiness after giving resources to others than after receiving resources for themselves?, and 2) What are the sources of emotional reward from giving in childhood?. Then, the current work explores a third central question that is focused on one way in which emotional reward may motivate children's generous behavior. If children experience emotional reward from giving, they are likely motivated to give, in part, out of anticipation of feeling happy from engaging in prosocial behavior. Awareness of the emotional consequences of one's behavior may strengthen the link between the behavior and paired emotion, in turn reinforcing the desire to behave in ways that will either bring about or avoid certain emotional outcomes (Aknin, Dunn, & Norton, 2012; Baumeister, Vohs, DeWall, & Zhang, 2007). Following this logic, children's beliefs about whether and why they experience emotional reward from giving may in turn influence their motivation to give in future opportunities, an idea that has been of recent interest (Aknin et al., 2018; Paulus & Moore, 2017). Therefore, this dissertation also assesses children's beliefs about the relation between giving and happiness.

In the following sections, I first review work on the emergence of prosocial behavior and its motivations in order to illustrate when and how children display this behavior and to establish why it is important to study motivations for prosociality in childhood. In the subsequent sections, I review the literature relevant to each of my three central questions—the emotional benefits of

giving, the sources of emotional reward from giving, and people's beliefs about whether and how giving provides emotional benefits to the prosocial actor. Finally, I describe how the current work will begin to answer these three central questions.

Emergence of Prosociality

To determine when prosocial behavior emerges in ontogeny, researchers have conducted observational studies in which they record young children's spontaneous prosocial behavior in natural settings and experimental studies in which they provide children with structured opportunities to help, comfort, or share with an adult experimenter. Overall, this work indicates that simple prosocial actions begin to occur with frequency in the second year of life (Dunfield, et al., 2011; Paulus & Moore, 2012). For example, infants at this age spontaneously help adults with household chores (Rheingold, 1982) and willingly help adults complete their goals by picking up their dropped objects (Warneken & Tomasello, 2006). Later in the second year, infants will express concern and provide care for those in distress (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). And by two years of age, children will share resources with others if explicit cues of need are provided (Brownell et al., 2009). Thus, a tendency to act in ways that benefit others emerges quite early in development.

Children's prosocial behavior, especially their sharing behavior, becomes somewhat more prevalent throughout toddlerhood and into the preschool years (Benenson, Pascoe, & Radmore, 2007; Dunfield & Kuhlmeier, 2013; Fehr et al., 2008). For example, researchers found that 5- and 6-year-old children were twice as likely to donate at least one sticker to another child than 3-year-old children were (Blake & Rand, 2010). Children's prosocial behavior also becomes more sophisticated in the preschool years, generally turning more selective (directed toward certain individuals over others, such as when individuals have previously behaved morally

versus immorally; Kenward & Dahl, 2011) and strategic (intended to somehow benefit the self, such as in the case of reputation management; Silver & Shaw, 2018). As such, children will engage in prosocial behavior based on reciprocity with certain individuals (House, Henrich, Sarnecka, & Silk, 2013; Paulus, 2016; Warneken & Tomasello, 2013), will override other's desires by giving them what they need rather than what they want (Martin & Olson, 2013; Martin, Lin, & Olson, 2016), and will behave more generously when they know their actions are being observed (Engelmann, Herrmann, & Tomasello, 2012; Leimgruber, Shaw, Santos, & Olson, 2012).

Several studies suggest that children's developing prosocial behavior is rooted in their developing social-cognitive abilities and emotion understanding, such children become increasingly skillful at detecting the need and distress of other individuals (Brownell et al., 2009; Brownell, Iesue, Nichols, & Svetlova, 2013; Dahl, Schuck, & Campos, 2013; Dunfield & Kuhlmeier, 2013; Dunfield et al., 2011; Kenward & Dahl, 2011; Svetlova, Nichols, & Brownell, 2010; Warneken & Tomasello, 2007). While acquiring these skills is likely related to children's developing understanding of others' need, there is some preliminary evidence that infants are able to detect the needs of others as early as nine months of age, even before they begin engaging in helping or sharing actions (Koster, Ohmer, Nguyen, & Kartner, 2016). Moreover, even when infants clearly know that an individual is in need, they do not always choose to engage in prosocial behavior (Sommerville, Enright, Horton, Lucca, Sitch, Kirchner-Adelhart, 2018; Wynn, Bloom, Jordan, Marshall, & Sheskin, 2017). Therefore, it is important to consider other mechanisms (unrelated to merely detecting need or distress) that are relevant for informing children's early prosociality.

In order to help or share with another person, one not only has to recognize that the other is in a position of need (or at least that the other could be better off) and understand how one could benefit that other person, but must also be *motivated* to behave prosocially (Dunfield et al., 2011). That is, an individual must have a desire or willingness to engage in the prosocial act. Numerous studies have focused on this question of *why* young children are driven to act in ways that benefit others, revealing multiple factors that seem to promote children's prosocial behavior (for review, see Martin & Olson, 2015). In the next section, I will briefly describe some motivations underlying children's prosocial behavior with a focus on motivations related to emotional experiences, the topic of the current work.

Motivations Underlying Children's Prosocial Behavior

There are several possible explanations for why children are motivated to act prosocially toward others (see Martin & Olson, 2015) and by the late preschool years, these motivations often serve to benefit the actor as well as the beneficiary. For example, by five years of age, children are more generous when their generous actions can be seen by others compared to when they are in private (Engelmann et al., 2012; Leimgruber, et al., 2012) indicating that giving supports their desire to maintaining a good reputation. Around the same age, children selectively help and share with individuals whom they believe will be most likely to reciprocate generous acts in the future (Kenward, Hellmer, Winter, & Eriksson, 2015; Sebastian-Enesco & Warneken, 2015). These and other factors unrelated to emotional experiences have been widely studied in both adulthood and throughout development.

Some other work has examined the role of emotion in motivating prosocial behavior with a focus on the experience of empathy or sympathy for another's *negative* state (for review see Eisenberg & Miller, 1987). That is, several studies suggest that children's prosocial behavior can

be motivated by a recognition of and concern for another person's distress (Malti, Gummerum, Keller, & Buchmann, 2009; Trommsdorff, Friedlmeier, & Mayer, 2007; Vaish, Carpenter, & Tomasselo, 2009; Williams, O'Driscoll, & Moore, 2014). Importantly, however, if children themselves are experiencing distress from viewing another's distress, they are less likely to engage in prosocial behavior compared to when they are simply aware of and concerned about another (Trommsdorf et al., 2007; Vaish et al., 2009; Williams et al., 2014). Therefore, the experience of empathic concern for others in need is one mechanism through which emotion can motivate children's prosocial behavior.

However, little work to date has examined a different mechanism through which emotion may motivate children's generous behavior—experiencing a boost in happiness from giving (i.e., emotional reward). Numerous studies have established the experience of emotional reward from giving in adults (for example, Aknin et al., 2014; Aknin et al., 2017; Dunn et al., 2008; Dunn et al., 2014; Field et al., 1998; Lyubomirsky, Sheldon, et al., 2005), including what might be the source of emotional reward from giving (Aknin, Dunn, Sandstrom, & Norton, 2013), and have indicated that adults' generous behavior may be motivated out of anticipation of experiencing happiness from doing so (Aknin, Dunn, et al., 2012; Manucia, Baumann, & Cialdini, 1984). But, this mechanism remains largely unexamined from a developmental perspective.

While adults have had decades of experience giving to others and have been involved in rich discussions about generosity (for example, in ethics courses or religious discussions), children naturally have had fewer of these experiences. Therefore, if accumulating these advanced experiences with giving and with discussing its significance is impactful on the emotional benefits one receives from giving, it is possible that emotional reward from giving is quite different for children than that of more experienced adults. On the other hand, it is possible

that feeling happier from giving does not require decades of rich experiences to develop. That is, humans may have an early-emerging reward system for prosocial behavior in order to sustain critical cooperative relations among individuals (Aknin, Hamlin, et al., 2012). Understanding whether or not children's experiences of emotional reward from giving—including the source of their emotional reward—are similar to that of adults will inform theories of human prosocial behavior by demonstrating whether this phenomenon is tied to years of rich experience and educational discussion or whether it can emerge with fewer and more simple experiences with giving to others.

In addition to having fewer giving experiences compared to adults, children perhaps have less frequently heard sayings about how it is "better to give than to receive". That is, children might be less aware of the emotional benefits that come along with giving to others. As mentioned above, people's awareness of this relation between giving and happiness may strengthen their motivation to give out of anticipation of experiencing emotional reward (Aknin, Dunn, et al., 2012; Aknin et al., 2018; Baumeister et al., 2007; Paulus & Moore, 2017). Therefore, it is also important to assess whether children believe giving leads to happiness even though they likely have had few experiences being taught about this relation. If children do not demonstrate an understanding that there are emotional benefits to giving and/or why giving leads to happiness for a giver, but do express greater happiness from giving, then perhaps their tendency to engage in generous behavior is not due to their beliefs about this relation.

Knowing how prosocial behavior is self-rewarding for children will also suggest how to promote acts of prosociality in early childhood. For example, by providing opportunities for children to give in situations that are known to bring them happiness or by pointing out the positive emotional experiences they have from giving. Moreover, research suggests that

experiencing positive emotions is beneficial for one's longevity (Brown et al., 2003; Danner, Snowdon, & Friesen, 2001), success (Lyubomirsky, King, & Deiner, 2005), and creative mindset (Fredrickson, 2001; Isen, Daubman, & Nowicki, 1987). Therefore, understanding whether and how prosocial behavior leads to positive emotion for children will inform our ability to promote children's broader well-being and success in life.

Thus, the goal of the current work is to investigate emotional reward as a motivation for giving in childhood. To do so, this work examines whether and when 5-year-old children express happiness from giving and 5-year-old children's beliefs about the relation between giving and happiness. The ability to report on how one would feel in hypothetical situations and how one believes others would feel requires certain social cognitive and verbal abilities. By age five, children demonstrate the social cognitive abilities required to explicitly reason about others mental states (Wimmer & Perner, 1983) and have the ability to both understand and report how behaviors or situations are generally related to emotions (Fabes, Eisenberg, McCormick, & Wilson, 1988; Strayer, 1986). For these reasons, all studies in the current work are conducted with 5-year-old children. The following three sections describe the extant research on emotional reward from giving, setting up three open questions regarding emotional reward from giving in childhood.

Emotional Benefits from Giving

It is clear from numerous studies that engaging in prosocial behavior is beneficial for adults' physical and mental health (Post, 2005). Adults who regularly provide others with support, whether it be instrumental or emotional, or regularly engage in volunteering activities with the goal of helping others show lower mortality risk years later compared to those who do not regularly support others or volunteer (Brown et al., 2003; Konrath, et al., 2012; Musick et al.,

1999; Oman et al., 1999). Researchers suggest that this relation between prosocial behavior and health is rooted in the fact that positive emotions elicited by performing prosocial actions could serve to repair the cardiovascular system (Brown et al., 2003). The positive emotions elicited by prosocial behavior seem to also protect against mental health issues, as those who more regularly engage in volunteering efforts demonstrate lower rates of clinical depression (Lum & Lightfoot, 2005; Musick & Wilson, 2003).

Correlational work suggests that engaging in prosocial and cooperative behavior is associated with greater positive affect (Aderman, 1972; Cunningham, Steinberg, & Grev, 1980; Rosenhan, Underwood, & Moore, 1974; Williams & Shiaw, 1999). Other work reveals a direct causal influence of prosociality on well-being (Field et al., 1998; Lyubomirsky, Sheldon et al., 2005). For example, Lyubomirsky and colleagues (2005) found individuals performing five acts of kindness a week over the course of six weeks were happier than those in a control group, suggesting that prosocial behavior does indeed increase happiness for adults.

Additionally, there has been extensive work on the relation between prosociality and happiness in the case of individual's *prosocial spending* (money spent on others). Dunn and colleagues (2008) found that adults' prosocial spending is correlated with their general life satisfaction and well-being. More specifically, people spending more money per month on charity organizations reported greater happiness, whereas the amount of money spent per month on oneself did not relate to happiness, even when controlling for income. Dunn and colleagues (2008) also found a causal influence of prosocial spending on happiness, such that when participants were asked to spend $5 or $20 on either themselves or another person, the amount of money spent did not influence happiness, but rather, spending money on others rather than on oneself resulted in greater happiness. This finding has been replicated across several different

cultures around the world, including economically diverse countries, such as Canada, India, South Africa, and Uganda (Aknin, Barrington-Leigh, et al., 2013). Finally, this effect is not solely based on participants' self-report, as there is evidence to suggest that third parties can easily detect the boost in happiness from spending money on others than from spending money on oneself (Aknin et al., 2014).

Although the amount of money given by participants in Dunn et al. (2008) did not differentially influence subsequent happiness, when participants had the choice of how much to give in a resource allocation task, the amount of money donated was correlated with the degree of happiness participants experienced afterward (Dunn, Ashton-James, Hanson, & Aknin, 2010). Moreover, those who gave less money away during the task also had higher cortisol levels and self-reported feelings of shame. Aknin and colleagues (2017) also found that adults who chose to donate a larger proportion of their winnings reported greater happiness, pride, and general positivity compared to participants who chose to donate a smaller proportion of their winnings. Critically, the group donating a larger proportion also experienced a decrease in negative affect while the less generous individuals experienced no change in negativity. Thus, adults' emotional experiences appear to be incrementally impacted for better or for worse by their decisions to act prosocially, or not. These findings are strong evidence of emotional reward from giving in adulthood and suggest that such experiences can have meaningful implications for one's happiness and health.

Some initial work suggests that young children also display emotional rewards after performing good deeds (Lennon & Eisenberg, 1987; Aknin, Hamlin, et al., 2012; Aknin, Broesch, Hamlin, & van de Vondervoort, 2015). For example, Aknin, Hamlin, and Dunn (2012) found that even before two years of age, children express greater happiness when they give treats

to someone else, compared to when they get treats for themselves (a finding that has been replicated among children ages two through five in a small rural society, Aknin, Broesch, et al., 2015). Further, toddlers express the greatest amount of happiness when asked to share one of their own treats (costly-sharing) versus one "extra" treat that did not belong to them (non-costly sharing). In this way, young children similarly experience differing degrees of emotional reward upon performing differing degrees of prosociality. Further, toddlers demonstrate elevated body posture and more smiles when they are able to help someone in need compared to when they are unsuccessful in helping someone else (Hepach, Vaish, & Tomasello, 2017).

Interestingly, other work shows that toddlers' experience of emotional reward from giving does not differ when they give to someone who previously displayed good (helpful) actions and when giving to someone who previously displayed bad (harmful) actions (Van de Vondervoort, Aknin, Kushnir, Slevinsky, & Hamlin, 2017). One might have expected children to express less happiness upon giving to a bad individual since toddlers and infants indicate a preference for good individuals over bad individuals in several other ways (Burns & Sommerville, 2014; Geraci & Surian, 2011; Hamlin, Wynn, & Bloom, 2007; Hamlin, Wynn, Bloom, & Mahajan, 2011; Lucca, Pospisil, & Sommerville, 2018; Surian & Franchin, 2017). However, this finding perhaps indicates that giving is a particularly positive experience in early development, as it is just as emotionally rewarding when directed at antisocial individuals (Van de Vondervoort et al., 2017).

Thus, previous work has demonstrated that children, like adults, experience boosts in happiness from giving resources (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015; Van de Vondervoort et al., 2017) and express even greater happiness from giving than they do from receiving resources for themselves (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015).

However, since only a few studies have investigated children's experience of emotional reward and those studies tended to have relatively small sample sizes (Aknin, Hamlin, et al., 2012 Study 1: *N*=23, Study 2: *N*=20; Aknin, Broesch, et al., 2015 *N*=20), it is critical to replicate this finding prior to further investigating the phenomenon. Therefore, Study 1 of the current work sought to replicate what seems to be a clear pattern – that children express greater happiness from giving than from receiving resources.

Sources of Emotional Reward from Giving

Given the evidence indicating that adults experience increased positive affect from giving and that this pattern seems to be emerging early in development, researchers have begun investigating the source of emotional reward from giving. That is, why do individuals experience happiness from giving? Understanding the factors related to when individuals are most likely to experience happiness from giving will further specify the source of emotional reward and thus why individuals engage in prosociality. Moreover, acquiring this knowledge may support the goal of promoting prosocial behavior. There are several potential reasons why individuals are happy after they give; however, two sources that have been frequently established among adults include 1) being able to witness the positive impact on a beneficiary of a generous act, and 2) being the person who performed a generous act.

Witnessing the impact on the beneficiary. Being able to witness the beneficiary of a generous act boosts people's happiness because they are able to experience a particular kind of empathy, defined as sharing the emotional experience of others (Batson et al., 1991; Eisenberg & Miller, 1987; Feshbach & Roe, 1968; Stotland, 1969). More specifically, they are able to experience a type of empathy called "vicarious-joy", where they are empathizing with the *positive* emotion displayed by a beneficiary of a generous act (Morelli, Lieberman, & Zaki,

2015). Smith and colleagues (1989) hypothesized that individuals perform prosocial acts out of anticipation of experiencing happiness upon witnessing the happiness of a beneficiary. That is, the desire to share positive affect with another individual perhaps motivates individuals to engage in prosocial behavior when they are in a social context where they are able to witness their prosocial impact.

There are several studies supporting this theory that being able to see the positive impact of generous behavior is critical for the experience of emotional reward. For example, adults are more likely to help when they believe it is likely they will see the positive outcomes of their help, compared to when they are told it is not likely they will see positive outcomes (Smith et al., 1989; Batson et al., 1991). Relatedly, Aknin, Dunn, et al. (2013) found that adults report higher levels of happiness when they were able to directly deliver the money to a recipient compared to when an intermediary delivered the money, suggesting that they were more happy when they had an opportunity to see their benefit to the recipient. In a follow-up study, adults were asked to spend a Starbucks gift card in one of three ways: (1) give the gift card to someone else and do not accompany them to Starbucks, (2) go with someone else to Starbucks and spend the gift card on both themselves and the other person, or (3) go to Starbucks alone and spend the gift card on just themselves. The authors found that participants were happiest after the second of the three experiences—when they went to Starbucks with someone else and spent the money on themselves and the other person. Given that this situation was not the most generous of the three experiences, but was the only instance involving witnessing the beneficiary enjoying the gift, perhaps emotional reward elicited by giving is not necessarily rooted in the amount of help one provided, but rather the ability to witness the positive impact on a beneficiary of generous behavior (Aknin, Dunn, et al., 2013; see also Aknin, Dunn, Whillans, Grant, & Norton, 2013;

Grant et al., 2007). Taken together, this work suggests that adults' prosocial actions are motivated by a desire to empathize with a beneficiary's positive emotions.

Being responsible for the generous action. Moreover, this evidence and additional work also suggests that being the person who performed the good deed is critical to experiencing emotional reward. That is, adults' experience of emotional reward has a lot to do with their own causal role in the generous act. Individuals enjoy being responsible for generous actions (Andreoni, 1989; Crumpler & Grossman, 2008). Some of the work described above as evidence that adults' emotional reward from giving is rooted in experiencing empathy for the positive emotions of a beneficiary (e.g., Aknin, Dunn, et al., 2013) could also be interpreted as support for the hypothesis that adults' emotional reward is rooted in experiencing a greater causal role in benefitting another person. For example, the finding that adults report greater happiness after directly delivering money to a recipient (compared to having an intermediary delivery the money) suggests that adding more steps in the causal connection between the individual's generous action and the beneficiary's outcome may cause mitigated emotional reward from giving.

Research in economics has also supported this hypothesis. For example, participants in a study by Crumpler and Grossman (2008) were told that they could donate money to a beneficiary, but that this beneficiary was going to receive $10 whether participants contributed to that pool of money or not. Some of the participants were told that they had already been "taxed" and therefore had contributed to this money for the beneficiary; however, others did not believe that they had been "taxed". The latter group was significantly more likely than the former to donate money to the beneficiary and did so even though they knew the beneficiary would not receive more than the $10. Therefore, people who did not feel that they had already done the

good deed of giving some money to a charity (through taxation) chose to donate their money, even though this did not matter for the overall outcome for the beneficiary. This finding suggests that emotional reward is not only the experience of sharing positive emotions of a beneficiary, but perhaps also the experience of playing a direct causal role in the generous act.

Sources of children's emotional reward from giving. While this body of work provides evidence for two sources of emotional reward among adults, there is no work to date investigating whether or not these factors play a role in children's expressions of happiness from giving. Although there is some work to suggest that even very young children experience emotional rewards upon behaving prosocially (Aknin, Hamlin, et al., 2012; Hepach et al., 2017; Lennon & Eisenberg, 1987; Van de Vondervoort, 2017), it is currently unknown if children express greater happiness when they are able to witness the positive impact of their generosity on a beneficiary and when they play a direct causal role in impacting a beneficiary. Therefore, the present work includes studies designed to determine whether witnessing the positive impact on a beneficiary and being the generous actor are also sources of the emotional reward that children experience.

These are interesting and important questions to ask because there has been some recent debate about whether and when children care about seeing someone benefitted by a prosocial act and when they begin to care about being the person who engaged in a prosocial act. More specifically, some researchers have argued that young children are motivated to see others helped or shared with (Hepach, Vaish, & Tomasello, 2013). That is, early in development children are thought to be solely concerned with the well-being of the other and are relieved when they witness someone being helped, even if they have not helped themselves (Hepach, Vaish, & Tomasello, 2012; Hepach, Vaish, Grossman, & Tomasello, 2016; Hepach, Haberl, Lambert, &

Tomasello, 2017)—though children do seem to care about being the helper when they caused the harm, Hepach, Vaish, & Tomasello, 2017). However, these studies utilized pupil dilation as the measure of sympathetic arousal in order to make the claim that it is rewarding for young children to see others helped and that they do not care about being the one to have helped. Since there are several possible explanations for what pupil dilation represents (Martin & Olson, 2015), converging evidence with other measures of emotional reward are necessary to further support this claim that children are rewarded by seeing positive outcomes for a beneficiary.

In a first step toward this goal, Hepach, Vaish, and Tomasello (2017) found that toddlers demonstrate elevated posture and more frequent smiling upon successfully helping another person (compared to when they are unsuccessful at helping someone). While this work indicates that children's emotional reward may be rooted in their ability to see the positive impact on a beneficiary, it is also possible that they were happy from being responsible for a generous act. Therefore, this previous study cannot conclusively indicate whether or not toddlers experience emotional reward from being responsible for a generous action. Further, although infants and toddlers may indeed not care about being responsible for generous acts, it is clear that at some point in development individuals do begin to care about being a generous actor given the findings with adults (Aknin, Dunn, et al., 2013; Crumpler & Grossman, 2008). However, it is unclear when in development children begin to display this motivation to be a giver and if they maintain a desire to see the positive impact on a beneficiary.

To contribute to answering these questions, Studies 2 and 3 of this dissertation will investigate how witnessing their positive impact on a beneficiary and being the actor of a good deed, respectively, influence children's expressions of happiness. These studies will demonstrate whether or not children are happier to see their positive impact on a beneficiary than not see their

impact and whether or not children are happier to be the giver than to watch someone else give. If these studies show that children's happiness is influenced by these factors, perhaps by age five, children are not solely concerned with the fact that others are benefitted, but are motivated to play an active role in benefiting others.

Beliefs about Emotional Reward from Giving

While it is important and interesting to document children's actual emotional expressions from giving in order to understand how the emotional benefits of generous behavior may motivate giving in early childhood, it is also useful to understand children's beliefs more generally about the relationship between giving and happiness, the third focus of the current dissertation. Even if children express happiness from giving, they may not have a conscious recognition of this link between their giving and positive emotion. They also may not be aware of when they are most likely to experience happiness from giving (e.g., when they witness a beneficiary, when they play a causal role). However, children's beliefs about whether and when giving leads to happiness, especially their own anticipated emotion from giving, could strengthen their motivation to act generously (Aknin et al., 2014; Aknin et al., 2018; Baumeister et al., 2007; Paulus & Moore, 2017). In this section, I describe why and how children's beliefs about emotional reward could contribute to their motivation to engage in generous behavior and review the extant literature related to this question.

Emotion shapes behavior through a feedback loop. The traditional account for how emotions motivate behavior posits that emotions directly cause behaviors. For example, a person fled because they were scared or a person punched the wall because they were angry. Therefore, this classic view focuses on how emotions precede behavior and primarily serve as a motivation to behavior by existing directly prior. However, there are numerous instances when our

emotional experiences are informed by the behaviors we perform. That is, emotions can also come *after* experiences. According to Baumeister and colleagues (2007)'s review of the evidence, even these emotional experiences that occur after behavior can serve to motivate future behavior. While this updated theory recognizes that emotions may certainly motivate behavior by directly preceding it (e.g., feeling afraid and then fleeing), the evidence suggests that emotions can shape behavior though a feedback system that uses emotional information learned from previous experiences to construct and motivate future behavior.

One clear example is the case of experiencing guilt after causing distress to a friend. After behaving poorly toward a friend, a person would feel guilt such that she was consciously aware of the feeling associated with her behavior. This awareness would theoretically provide her with an "if-then" rule, such that if a similar situation were to arise in the future, the person would anticipate that previous feeling associated with her poor behavior. Although in the moment the individual might not be consciously aware of the possible emotional consequences of her behavior, she would choose a different course of action based on the anticipation of feeling guilt that she had learned about before. A similar logic may be applied to the case of prosocial behavior, such that individuals are aware of the happiness they experience after engaging in generous behavior or when they think about instances of engaging in generous behavior and that awareness in turn strengthens their motivation to act generously by further developing their "if-then" anticipation of those emotions.

A study by Manucia and colleagues (1984) found support for the hypothesis that individuals engage in prosocial behavior because they anticipate feeling happier afterward. Previous work found that people in sad moods are more likely to help than those in neutral moods (Cialdini, Baumann, & Kenrick, 1981), but it was unclear from that work whether this

difference was because the sad people thought they could feel happier upon engaging in prosocial behavior. Manucia and colleagues (1984) implemented a "mood freeze" manipulation whereby half of the participants receive a placebo pill and are told that it would cause their mood to be unchangeable for about one hour. Among participants who did not receive this "mood freezing" pill and thus believed they could change their mood, sad participants were the most likely to help, a replication of previous work. However, they did not find this effect among those who believed their mood was unchangeable. Rather, in the "mood freeze" condition, the sad participants were the least helpful suggesting that individuals are motivated to help out anticipation of feeling more positive emotions afterward (Manucia et al., 1984, Baumeister et al., 2007).

Further evidence from Aknin, Dunn, and Norton (2012) supports the hypothesis that individuals are motivated to engage in prosocial behavior because their reflection on past experiences of emotional reward has led them to anticipate feeling happy from future generous activity. Adults were asked to report their happiness after reflecting on a previous experience where they either made a purchase for themselves or made a purchase for someone else. Then, they chose how much money they wanted to keep for themselves versus spend on someone else. The researchers not only found that higher donations came from those who had previously reflected on being prosocial, but more impressively that the amount of happiness participants reported from this reflection was positively associated with the amount of money participants donated. Thus, this work indicates that adults' reflection on giving experiences engenders greater happiness, which in turn motivates future generous behavior, and so on.

Based on these studies of prosocial behavior and happiness as well as several other studies on different action-emotion pairs, researchers have concluded that emotion indirectly

influences behavior through cognition, such that people are motivated to act out anticipation of experiencing (or not experiencing) an emotion that they recognize as having previously experienced because of their behavior (Baumeister et al., 2007). Therefore, the sequence of events is flipped from the traditional view. Individuals must first act, which triggers an emotion that is consciously recognized and reflected upon. This conscious reflection of how the behavior led to the emotion then influences the course of future behavior out of anticipation of that emotional experience which was tied to the previous behavior. Social psychologists have similarly described this phenomenon, claiming that individuals engage in *affective forecasting* such that they make decisions about what to do based on their anticipation of how they will feel from doing so (Wilson & Gilbert, 2005).

While previous studies hint that people believe they will be happier upon acting generously and that this belief strengthens their likelihood to do so, few studies have actually examined people's beliefs about the relationship between giving and happiness, including how they anticipate feeling after giving to others. Assessing people's beliefs about the emotional consequences of certain behaviors can shed light on whether they have engaged in this critical step of the feedback loop—the conscious processing of how their behavior creates certain emotional experiences. The few studies that have examined this question among adults have revealed mixed evidence. While some work suggests that adults do believe engaging in helpful acts elevates the prosocial actor's mood (Harris, 1977), other work suggest that adults believe that prosocial spending is not as emotionally rewarding as spending money on oneself (Dunn et al., 2008). A more recent study on adults' beliefs suggests that adults are more likely to recognize the benefits of prosocial spending when they are prompted to think more abstractly about the activity compared to when they think about more concrete instances of prosocial

spending (Aknin, Van Boven, & Johnson-Graham, 2015). Therefore, although there is some work to suggest that adults' generous behavior is motivated out of anticipation of experiencing emotional reward, the degree to which adults are consciously aware of these emotions is mixed.

Moreover, no work has examined whether individuals recognize the impact of seeing the positive impact on a beneficiary or being a giver on emotional reward, which are two of the factors that have been identified as sources of emotional reward from giving among adults. Investigating such questions will help to further describe how positive emotions serve as a feedback loop for motivating generous behavior. In the following sub-section, I review the extant literature on children's beliefs about prosocial behavior and emotion and describe the open questions tested in the current work.

Children's beliefs about prosocial behavior and emotion. In order to understand why children may be motivated to give, in part, because they anticipate experiencing positive emotion upon giving, it is useful to understand their beliefs about the emotions elicited from engaging in prosocial behavior (Paulus & Moore, 2017). Researchers suggest that children's awareness of the affective benefits of giving may strengthen their motivation to give out of anticipation of emotional reward (Baumeister et al., 2007; Aknin et al., 2018). Interestingly, children were subsequently more generous after recalling a previous time that they were generous to someone else, but their generosity was not promoted after recalling others' good deeds (Tasimi & Young, 2016). One possible explanation of this finding is that upon recalling their past deeds, children were aware of the happiness it brought them and thus they were motivated to give out of desire to experience that emotional reward again. However, there is mixed evidence regarding children's awareness of the emotional benefits of giving.

A large body of work has investigated children's developing understanding of how experiences relate to emotions. Children begin to understand that emotions are related to desired outcomes around 2 to 3 years of age, reporting that people are happy when they get what they want and sad when they don't get what they want (Stein & Levine, 1989; Wellman & Banerjee, 1991; Wellman & Woolley, 1990; Yuill, 1984). During the preschool years, children are better at considering an actor's mental states in situations (Thompson & Lagattuta, 2007; Wellman & Lagattuta, 2000). However, prosocial behavior may be quite complicated for children to reason about since it involves a desired behavior that results in a cost to the actor (for example, an individual wants to share her cookies, but will end up with fewer cookies from sharing). Thus, although preschool-age children become increasingly better at considering other's mental states when judging their emotion, they may have trouble understanding the emotional benefits of engaging in prosocial behavior specifically.

Interestingly, 3- to 6-year-old children who were more likely to say that "non-helpers" feel bad about not helping were those who subsequently shared more stickers (Gummerum, Hanoch, Keller, Parsons, & Hummel, 2010; Malti, Gummerum, Keller, & Buchmann, 2009), suggesting that children's beliefs about the emotional consequences of *not* acting prosocially may in turn inform their actual prosocial behavior. However, this work focused on situations about feeling worse from failing to act prosocially, which is different from predicting the emotional benefits of acting prosocially.

More recently, Paulus and Moore (2015) asked 3- to 6-year old children to anticipate their own and another person's emotions after being shared with or not being shared with. They found that children were able to anticipate that themselves and others would feel positive affect after being shared with and negative after not being shared with, suggesting that children

understand the emotional benefits of giving for a recipient. Interestingly, children's anticipation of another person's *negative* affect after not being shared with was related to their own sharing behavior. That is, the more children were able to understand that another person would be sad after not being shared with, the more likely they were to share with others. Therefore, preschool children seem to be aware that *not* sharing will cause others to feel negative emotions and it is plausible that their anticipation of seeing others feeling bad could serve to motivate their generous behavior.

While Paulus & Moore (2015) suggests that children are aware of the emotional consequences of giving (or not) on a recipient, it does not answer the question of whether children believe that giving has emotional consequences for the giver, the goal of the current work. When asked to choose which of two characters was happier—a helper or a non-helper—5-year-olds were more likely to pick the non-helper, a tendency that decreased with age (Perry, Perry, & Weiss, 1986). The authors view this finding as support for Cialdini and Kenrick (1976)'s hypothesis that individuals become more aware of the emotional benefits of giving with age through socialization mechanisms. That is, at this age children focus on the costs to the self and do not believe that giving will improve their mood, but as children grow older and gain more giving experiences, they are taught that giving is rewarding. However, contradictory evidence comes from a more recent study by Paulus & Moore (2017) that examined this question in 3- to 6-year-old children, finding that children expected themselves and others to be happier from sharing than from not sharing with another child. Also, children's beliefs regarding the emotional benefits of sharing for themselves was significantly related to their own willingness to share. That is, children who were more likely to think they would be happy from sharing were also more likely to share, perhaps suggesting that several years of socialization may not be necessary

for children to form these beliefs about emotional benefits of giving that in turn influence their behavior.

The mixed evidence across these studies with preschoolers could be due to methodological variance, such as differences in how the hypothetical situation stimuli were presented, the way in which the dependent measures were worded, or the type of prosocial behavior that was depicted (helping versus sharing). However, given the mixed evidence and the fact that no work has examined preschool children's beliefs about the impact of witnessing the positive impact on a beneficiary or being the giver on one's experience of emotional reward, Studies 4, 5, and 6 of the current work systematically examined 5-year-old children's beliefs about whether and when giving influences happiness. As mentioned above, the 5-year-old age group is most appropriate for this work given that children have developed the social cognitive and verbal skills necessary for completing such a task by this age.

The Current Work

Prosocial behavior need not be beneficial to only the recipient. Rather, engaging in such behavior can bring benefits to the actor as well. While studies with adults support this hypothesis (Dunn et al., 2008; Lyumbuirsky et al., 2005), few studies have demonstrated or probed this phenomenon among children. In order to better understand emotional reward as a potential motivator of children's generosity, the goals of this dissertation are to replicate previous work showing that children, like adults, experience boosts in happiness from giving, and to build on that work by testing the sources of children's experience of emotional reward as well as their beliefs about the emotional benefits of giving. Across six studies, I investigate three central research questions: (1) Are children happier giving resources than receiving resources?; (2) What

are the sources of emotional reward from giving in childhood?; and (3) What are children's beliefs about the relation between giving and happiness?.

In order to answer the first research question of whether children are happier giving resources than receiving resources, Study 1 examines whether 5-year-old children's facial expressions look happier after giving a resource to another child than after getting a resource for themselves. Given the previous work showing that both adults (Aknin et al., 2014) and toddlers (Aknin, Hamlin, et al., 2012) look happier after giving than after receiving, I predict that children in Study 1 will show a similar pattern of results. This finding would establish that children experience emotional reward from giving, and that these emotional benefits are even better than those associated with receiving.

Studies 2 and 3 are focused on the second research question regarding the sources of children's experience of emotional reward. Adults experience the greatest happiness from giving when they are able to witness the beneficiary of a generous act (Aknin, Dunn, et al., 2013) and when they are causally responsible for the giving action (Aknin, Dunn, et al., 2013; Crumpler & Grossman, 2008). However, no work to date has examined whether and how children's happiness is similarly influenced by these factors. Therefore, Study 2 examines whether 5-year-old children's facial expressions look happier after they give when they are able to witness the beneficiary receive the resources compared to when they cannot witness the beneficiary receive the resources. Then, Study 3 examines whether 5-year-old children's facial expressions look happier upon witnessing a beneficiary when they were the one who gave compared to when someone else gave to the beneficiary.

Finally, Studies 4, 5, and 6 are aimed at answering the third research question regarding children's beliefs about the relation between giving and happiness. Children's beliefs about

whether generous behavior makes one happy are useful to improving our understanding how emotional reward functions as a motivation for generous behavior. That is, children could be aware of their previous experiences with emotional reward, making them more likely to anticipate these positive emotions in future instances of giving, which in turn motivates their desire to do so (Aknin, Dunn, et al., 2012, Aknin et al., 2018, Baumeister et al., 2007; Dunn et al., 2008; Paulus & Moore, 2017). However, the evidence is mixed as to whether or not children understand the emotional benefits of giving and there is no work examining children's awareness of how the context influences emotional reward.

Therefore, Study 4 examines whether 5-year-old children believe that giving is more emotionally rewarding than receiving resources. Interestingly, although adults do recognize that generosity can lead to happiness (Harris, 1977), they also believe that spending money on oneself is more rewarding than spending it on another (Dunn et al., 2008). Therefore, children may believe that giving makes people happy, but that receiving makes them even happier. No previous work has examined adults' or children's beliefs about the impact of witnessing the beneficiary or being a giver on emotional reward. Therefore, Study 5 examines whether 5-year-old children believe that witnessing the beneficiary after giving to them is more rewarding than not witnessing the beneficiary and Study 6 examines whether 5-year-old children believe that being a giver is more rewarding than watching someone else give. These studies will provide insight into children's beliefs about giving and emotional reward, which may strengthen their motivation to give (Aknin et al., 2018; Baumeister et al., 2007).

Chapter 2 – Emotional Reward from Giving

Study 1: Do children express greater happiness after giving or receiving resources?

Several studies have established that adults are happier after giving to others than after receiving resources for themselves (Aknin et al., 2014; Aknin et al., 2017; Dunn et al., 2008; Dunn et al., 2014; Field et al., 1998; Lyubomirsky, Sheldon, et al., 2005). Although some work suggests a similar phenomenon in early childhood (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015), the few studies examining this question to date tend to be underpowered (Aknin, Hamlin, et al., 2012 Study 1: *N*=23, Study 2: *N*=20; Aknin, Broesch, et al., 2015 *N*=20). As a first step toward better understanding children's experience of emotional reward from giving, the first study attempts to replicate the finding that children are happier after giving than after receiving resources. To do so, Study 1 investigates whether 5-year-old children display greater happiness (as coded by condition-blind observers) after giving resources to others than after receiving resources for themselves. Critically, this study involves a within-sample design in which children experienced both giving resources and receiving resources, in counter-balanced order. In addition to the hypothesis, the general methodology and analysis plan were included in a pre-registration on aspredicted.org (http://aspredicted.org/blind.php?x=vb4hi2).

Method

Participants

Forty-eight 5-year-olds (24 females; M_{age} = 64.58 months, *SD* = 3.78) were recruited through a university database of volunteers. Children in the sample identified as White (*n* = 31), Hispanic/Latino (*n* = 1), Multiracial (*n* = 15), or Declined to Respond (*n* = 1). Parents of children were highly educated (85% reported having completed at least a Bachelor's degree), wealthy (90% reported an annual household income of $75,000 or more), and identified as politically

liberal[1] (M = 2.40, SD = 1.23). Parents gave informed consent for their children's participation in the study, children gave verbal assent, and children were compensated with a small toy prize in addition to the stickers they received in the experiment.

Design

Participants completed both conditions (receiving resources from an experimenter and giving resources to a confederate child) and the order in which they completed the conditions was counterbalanced. Participants were randomly assigned to one of the two counterbalanced orders and there were equal numbers of male and female participants in each order. The entire procedure took about five minutes to complete.

Procedure[2]

All participants were tested individually in a university lab. Participants were first told that they would be a part of an activity during which they would interact with another child and that this other child, who was matched on participant gender and age, was in another room at the time of the activity. Participants were told that they would be interacting with the other child via a video camera in the computer. Next, the experimenter acted as if she was setting up the video connection with those in the other room by starting the pre-recorded video of the confederate child in PowerPoint. After the confederate child said, "Hi, my name is Amy/John", the experimenter said "Hi, Amy/John" and waived at the screen. Once participants were introduced

[1] Measured on a scale of 1 (very liberal) to 7 (very conservative).

[2] A parent questionnaire measuring children's empathy was also included in Studies 1-3 to test the exploratory question of whether children's empathy is correlated with their expressed happiness in response to seeing a recipient get the resources participants had given them. The Empathy Questionnaire (EmQue; Rieffe, Ketelaar, & Wiefferink, 2010) included three scales assessing 1) children's emotion contagion; 2) children's attention to others' emotions; and 3) children's prosocial responses to others' emotions. The correlations between the second two scales and children's emotional responses to giving were not significant, ps > .408. The correlation between children's emotion contagion and their emotional responses to giver was marginally significant, p = .024, as an alpha correction is necessary for the multiple tests conducted (α = .017). Given the lack of significant effects and the exploratory nature of these analyses, the results are not discussed further.

to the confederate child, the experimenter introduced the participant to the chute that would be the method for giving resources to the confederate child.

Chute practice task. Participants were introduced to a red chute that they were told goes from their room to the other room where the confederate child is located (adapted from Martin, Lin, and Olson, 2016). To be sure participants understood this contraption and believe that the cute "sends" objects from one room to the other, the experimenter first pointed out the other end of the chute displayed in the video of the confederate child and then placed an object in the chute to display how resources can be "sent" to the other room. After the experimenter placed an object in the chute, she advanced the PowerPoint slide on the computer screen to show a video of the confederate child retrieving the object at the end of the chute to demonstrate the chute's capabilities of "sending" objects to the other room.

Receiving resources. In order to measure participants' emotion expression after receiving resources, the experimenter reached into her basket and said, "Look, I have something here for you" and placed six stickers on the table in front of the participant. The experimenter counted up all of the stickers and then said "These six stickers are for you; you can take them home with you today." Finally, the experimenter placed the stickers on the other side of the table for safe keeping during the rest of the activity.

Giving resources. In order to measure participants' emotion expression after giving resources, the experimenter reached into her basket and said, "Look, I have some extra stickers here in this cup" and then poured six extra stickers onto the table. The experimenter counted up all of the stickers and then said "There are six extra stickers. I think Amy/John likes these stickers, but I don't know if she/he has any in her/his room." Then, the experimenter advanced

the PowerPoint slide on the computer screen to show the confederate child saying that she/he really likes the stickers but doesn't have any in her/his room.

The experimenter then told the participants that if they can choose to give any number of stickers to Amy/John through the chute. It was made clear to participants that any stickers they did not choose to send to Amy/John were going to go away, back into the cup they came from, so that participants would not think they would get the stickers that were not shared. Participants chose how many stickers to "send" and placed them in the chute. All participants sent at least two stickers ($M = 4.85$, $SD = 1.44$) to the confederate child. The experimenter then advanced the PowerPoint slide to show the confederate child retrieving the stickers at the other end of the chute. In the video, after retrieving the stickers the confederate child says "Yay! Look at these stickers. These are so cool!".

Preference item. After both giving and receiving resources, participants were asked which aspect of the activity they liked to do more: giving stickers or receiving stickers. The two aspects of the activity were always presented in this item in the same order in which children completed them. Then, the experimenter asked why participants preferred that aspect of the activity. Lastly, the experimenter and participants said goodbye to the confederate child on the computer screen.

Emotion Expression Coding

Participants' emotion expressions were coded by two research assistants who were blind to condition and hypotheses. Coders rated participants' emotion expressions at four 10-second phases in the experiment: (1) first baseline phase; (2) receiving phase; (3) second baseline phase; (4) giving phase. Coders only watched these four 10-second clips (which were pre-determined by a third research assistant) and thus did not view how participants emoted or behaved at other

points during the study. The first baseline phase is when the initial instructions were told to participants, whereas the second baseline phase is when additional instructions were told to the participants between the two experimental phases. The receiving phase began when the experimenter showed the participant the stickers that he/she would be able to keep. The giving phase began when the participant could see the confederate recipient is picking up the stickers that the participant had "sent" to them. The coders rated participants' emotion on a 1 (very unhappy) to 5 (very happy) scale.

Results

Emotion Expression

As per the pre-registered analysis plan, a Pearson r correlation between the two coders' emotion expression ratings was calculated to assess reliability. The coders' ratings were highly correlated, $r = .88$, and thus deemed reliable according to the threshold described in the study pre-registration ($r = .80$). Further, the two coders were in exact agreement on 89.5% of codes. Therefore, the coders' ratings were averaged to create one emotion expression score per phase for each participant. As stated in the pre-registration, two independent-samples t-tests were conducted to test whether participants' emotion expression during the two baseline phases differed for the two between-subjects counterbalance orders prior to assessing the main question. These tests revealed that participants emotion expression did not differ according to counterbalance order during the first baseline phase, $t(46) = 1.20$, $p = .236$, $d = 0.36$, or the second baseline phase, $t(46) = .857$, $p = .396$, $d = 0.23$. See Table 1 for descriptive statistics.

Since participants' emotion did not differ according to counterbalance order at baseline, the main question was tested by assessing emotion ratings in a mixed-measures 2 (condition: giving vs. receiving) X 2 (counterbalance order: receiving first vs. giving first) ANOVA with

condition as a within-subjects factor and counterbalance order as a between-subjects factor. This analysis revealed a significant main effect of condition, $F(1,46) = 47.30$, $p < .001$, $\eta_p^2 = .507$, such that participants displayed greater happiness after giving resources ($M = 3.97$, $SD = .718$) than after receiving resources ($M = 3.27$, $SD = .437$), $g = 1.16$. There was no significant main effect of counterbalance order, $p = .825$, nor an interaction, $p = .610$, suggesting that the effect of giving versus receiving on happiness occurred regardless of whether participants experienced giving or receiving first during the procedure. These results did not differ when analyses were run on the ratings of each coder separately[3].

Some additional exploratory analyses (not included in the pre-registration) were conducted to further understand these data. First, one-sample t-tests revealed that participants' average expressed emotion after receiving resources was significantly greater than neutral (3), $t(47) = 4.29$, $p < .001$, $d = .62$, as was their average expressed emotion after giving resources, $t(47) = 9.35$, $p < .001$, $d = 1.35$. Additionally, the number of stickers participants chose to give to the recipient was not significantly correlated with their expressed happiness from giving, $r(48) = -.004$, $p = .976$.

Preference Item

When asked whether they preferred giving resources or receiving resources, 75% of participants reported that they preferred giving, a proportion significantly different from chance, binary test, $p = .001$. As stated in the pre-registration, additional analyses were run to understand whether participants' stated preference for giving versus receiving was related to their expressed

[3] Both baseline phase ratings from Coder 1 did not differ by counterbalance order (first baseline: $t(46) = 0.44$, $p = .662$; second baseline: $t(46) = 1.17$, $p = .247$). Both baseline ratings from Coder 2 did not differ by counterbalance order (first baseline: $t(46) = 1.45$, $p = .155$; second baseline: $t(46) = 0.49$, $p = .625$). The main analysis on the ratings of Coder 1 revealed a significant main effect of condition, $F(1,46) = 43.94$, $p < .001$, $\eta_p^2 = .49$, but not a significant main effect of counterbalance order, $p = 1.0$, nor an interaction, $p = .412$. The main analysis on the ratings of Coder 2 revealed a significant main effect of condition, $F(1,46) = 46.11$, $p < .001$, $\eta_p^2 = .50$, but no significant main effect of counterbalance order, $p = .668$, nor an interaction, $p = .847$. Therefore, the results using each of the coders' ratings separately do not differ from those using their averaged ratings.

happiness in the giving versus receiving conditions. That is, did participants who stated a preference for receiving resources tend to display greater happiness after receiving resources than after giving them and did those who stated a preference for giving resources tend to display greater happiness after giving than after receiving resources? To test this question, emotion ratings were analyzed in a mixed-measures 2 (condition: giving vs. receiving) X 2 (preference: giving vs. receiving) ANOVA with condition as a within-subjects factor and preference as a between-subjects factor. There was no significant interaction between condition and preference, $p = .633$; therefore, this study did not provide evidence to suggest that experiencing greater happiness after giving compared to after receiving resources is related to reported preference of giving versus receiving resources.

Further, two research assistants who were blind to hypotheses coded participants' responses to the question of why they preferred giving or receiving during the activity. If there were disagreements between the two coders (which occurred on 4% of codes), they were resolved by a third coder. Of the participants who preferred the giving event ($n = 36$), the most commonly mentioned reasons were that they liked using the chute ($n = 12$), they thought it was nice/good to give ($n = 5$), and that they liked to give ($n = 5$). Interestingly participants also occasionally mentioned that giving makes them happy ($n = 4$) and/or makes the recipient happy ($n = 4$). Of the participants who preferred the receiving event ($n = 11$), the most commonly mentioned reason was that they got to have something to keep ($n = 7$). See Table 2 for more a more detailed summary of participants' responses.

Finally, in order to explore whether children's enjoyment of the chute may have largely influenced their happiness from giving, the main analyses were re-run without the participants who mentioned that they liked the chute as a justification for their preference ($n = 12$). Even

without these participants included in the sample, children expressed significantly more happiness after giving resources (M = 3.93, SD = 0.70) than after receiving resources (M = 3.26, SD = 0.44), $F(1,34) = 42.67$, $p < .001$, $\eta_p^2 = .557$. Further, there was still no significant main effect of counterbalance order, $p = 1.0$, nor an interaction, $p = .420$. Thus, the main findings did not differ without those twelve participants who said they preferred giving because they liked the chute, perhaps providing support that children were not happier from giving primarily due to the chute.

Table 1

Means and SDs of Participant Emotion Expressions in Study 1

	All Participants	**Order 1: Receiving First**	**Order 2: Giving First**
Baseline Phase1	3.08 (.362)	3.02 (.179)	3.15 (.477)
Baseline Phase 2	3.49 (.588)	3.42 (.503)	3.56 (.665)
Receiving Phase	3.27 (.437)	3.23 (.416)	3.31 (.462)
Giving Phase	3.97 (.718)	3.98 (.667)	3.96 (.779)

Note. Emotion expression means are on a scale from 1 (very unhappy) to 5 (very happy). Standard deviations are provided in parentheses.

Table 2

Summary of Responses to Why Participants Preferred Giving or Receiving

	Chute	**Nice/Good**	**Like to Give**	**Makes Giver Happy**	**Makes Recipient Happy**	**Don't Know**	**Other**
Preferred Giving	12	5	5	4	4	5	5
	Keep Something	**Like Stickers**	**Don't Know**	**Other**			
Preferred Receiving	7	1	2	1			

Note. Number of mentions for each reason why participants preferred giving or receiving.

Discussion

In line with the preregistered hypothesis, 5-year-olds expressed greater happiness after giving resources to others than after receiving resources for themselves. This finding replicates

previous work with toddlers and adults (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015; Aknin, Barrington-Leigh, et al., 2013; Aknin et al., 2014; Dunn et al., 2008), suggesting that the experience of greater emotional reward from giving (than from receiving) is a robust phenomenon even in childhood. Young children's generous behavior tends to occur on a smaller scale than that of adults and young children do not engage in rich discussions about the significance of generous behavior as adults do. Therefore, this work indicates that individuals do not need to experience several years of giving for prosocial behavior to be self-rewarding. That is, emotional reward from giving is likely an early-emerging experience that does not rely on profound giving experiences or discussions, which perhaps serves to reinforce behaviors that will ultimately support adaptive cooperative efforts among individuals.

Further, we found that children were more likely to say that they preferred giving resources than receiving resources. This finding is at odds with a study investigating adults' beliefs about whether they would be happier from spending money on themselves or from spending money on others—adults are more likely to say that spending money on oneself is more emotionally rewarding (Dunn et al., 2008). While these findings could indicate a developmental difference among children and adults, it seems more plausible that this difference is explained by when participants were asked about their preferences. That is, in the current study, children were asked to indicate their preference among parts of the study that they had just experienced, whereas the previous work with adults asked them to indicate their preference among to behaviors they had not just experienced. Therefore, perhaps children tended to state a preference for giving over receiving because they had just experienced greater happiness from giving than from receiving. Another possibility is that children were simply stating that they

preferred giving over receiving in this particular set of tasks when they may actually think that receiving is generally better than giving.

In order to more directly compare children's beliefs about emotional rewards associated with giving versus receiving to that of adults', it is important to test their beliefs in an experiment that is removed from their actually giving and receiving experiences. Doing so will also mitigate the concern that their preference for giving over receiving in this particular task is perhaps not representative of their more general beliefs about the emotional benefits of giving versus receiving. Therefore, Study 4 of this dissertation investigates children's more general beliefs about how themselves and others would feel from giving and from receiving resources. In that study, children rated how happy or unhappy they expected themselves and others to be in various giving and receiving scenarios. Thus, their beliefs are removed from direct experiences with giving and receiving and are not tied to one specific form of giving and receiving (as it was in Study 1).

One limitation of this study is that children may have expressed more happiness in the giving condition than in the receiving condition (and may have indicated a preference for giving over receiving) because they enjoyed the way that they gave rather than giving per se. That is, perhaps using the chute was a particularly fun way to share with someone else, which in turn influenced their emotion expressions and stated preference in this study. Indeed, children did mention that they enjoyed using the chute as an explanation for why they preferred the giving condition. Importantly, many children provided other responses for their preference to give, such as that it made them or the recipient happy, they like to give, or it is nice/fun to give. Additionally, the emotion expressions were always coded when participants watched the recipient retrieve and react to receiving the resource, rather than when the participant was in the

act of using the chute, perhaps mitigating some of this concern about the influence of using the chute on participants' expressed emotion. Finally, the results did not differ when those who mentioned the chute were excluded from analyses. However, future work should focus on control studies that can rule out this concern about children enjoying the chute and not the giving, per se. Potential control studies are described in the General Discussion—Chapter 5 of this document.

It also should be noted that children's emotion expressions in response to receiving resources was similar to their expressions during the baseline phases. This finding may be surprising given lay intuition that children are thrilled to receive resources, particularly those included in the current sample who likely experience getting gifts from others on somewhat frequent occasions. One possible explanation for this finding is that children were quite happy or excited to do the study activities (causing their baseline emotion expressions to be happier than neutral, on average); thus, although they were happy from receiving resources, they did not demonstrate more happiness than the happiness they felt for doing activities in the first place. Another possibility is that they were not all that excited about the resource they were given (six stickers). This explanation is less likely given that, anecdotally, children of this age frequently mention about how much they enjoy stickers. However, future work should run pilot work to test which resource(s) children like the most and if this factor influences their expressions of happiness from receiving (compared to giving).

Although future work is necessary to rule out concerns about the chute paradigm influencing children's emotion expressions, Study 1 along with previous work (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015) provides preliminary evidence that children express greater happiness upon giving to others than they do upon receiving resources for themselves.

This finding begs the question of why prosocial behavior is so rewarding for children. That is, what are the sources of children's happiness from giving? Previous work with adults suggests that the emotional benefits of giving can stem from being able to see the positive impact on a beneficiary (Aknin, Dunn, et al., 2013) and getting to be the person who directly provided that benefit (Aknin, Dunn, et al., 2013; Crumpler & Grossman, 2008). However, no work has investigated these potential sources of emotional reward from giving among children, which are critical in gaining a more specific understanding of how this experience operates in motivating children's generous behavior.

The next chapter, Chapter 3, presents two studies that explore whether children express greater happiness when they are able to witness the beneficiary of the generous act (Study 2) and when they are able to be the giver of the generous act (Study 3). These studies will provide further insight about when and how children experience emotional reward from giving, which clarify how emotional reward may operate as a motivation for children's prosocial behavior and indicate how to promote prosocial behavior at this young age. Further, these studies will answer outstanding questions about how much children care about seeing a beneficiary and being the prosocial actor, which have been recently debated among researchers studying the development of prosociality.

Chapter 3 – Sources of Emotional Reward from Giving

Study 2:

Do children express greater happiness when seeing the outcome of their giving?

Although both children (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015; Study 1 of this document) and adults (Aknin, Barrington-Leigh, et al., 2013; Aknin et al., 2014; Dunn et al., 2008) express greater happiness from giving than from receiving resources, research with adults suggests that not all giving experiences are equally rewarding. Some work suggests that being able to see the positive impact of generous behavior is critical for the experience of emotional reward (Aknin, Dunn, et al., 2013; Smith et al., 1989). For example, adults tend to report greater happiness when they are able to witness the beneficiary of their generous act than when they cannot see them (Aknin, Dunn, et al., 2013) and are more likely to help if they believe they will be able to see the positive outcomes of their generous behavior (Smith et al., 1989). Seeing the positive impact on a beneficiary likely influences the experience of emotional reward because givers are able to empathize with the positive emotion of the beneficiary, or in other words, experience "vicarious-joy" (Morelli et al., 2015).

It is currently unknown whether seeing the positive outcome of one's generous behavior (compared to not seeing the beneficiary of one's generosity) is also a source of children's experience of emotional reward. Some studies with younger children suggest that toddlers' sympathetic arousal is reduced when they are able to see that someone has been helped as opposed to when they see someone not being helped, whether the child was the helper or not (Hepach et al., 2012). Further, toddlers display elevated body posture and more frequent smiling in response to successfully helping a beneficiary compared to when they were unsuccessful in their attempt to help (Hepach, Vaish, et al., 2017). Together, these studies suggest that perhaps

there are emotional benefits to seeing the positive impact on a beneficiary in early development. However, the critical difference between the conditions in these studies is that a recipient is benefitted or not. Therefore, it is still unknown whether children experience greater emotional reward from their successful giving when they are able to witness the positive impact on a beneficiary of their generosity.

Thus, Study 2 asks whether 5-year-old children express greater happiness after giving when they can see the outcome of their generosity compared to when they cannot see the outcome of their generosity. In this study, children give a resource to two different child recipients. In one case they are able to see the beneficiary receive the resource and in the other case, they are not able to see the beneficiary receive the resource. If seeing the positive impact on a beneficiary influences children's experience of emotional reward, they may express significantly greater happiness (as coded by condition-blind observers) when they are able to see the beneficiary compared to when they are not able to see the beneficiary. The general methodology and analysis plan were included in a pre-registration on aspredicted.org (http://aspredicted.org/blind.php?x=5hu86r).

Participants

Forty-eight 5-year-olds (24 females; M_{age} = 64.62 months, *SD* = 3.04) were recruited through a university database of volunteers. An additional two children were tested, but the data were discarded because the participant was missing a video recording due to computer issues (*n* = 1) and the participant chose not to give in one of the conditions (*n* = 1). Children in the sample identified as White (*n* = 35), Asian (*n* = 2), Multiracial (*n* =9), or Declined to Respond (*n* = 2). Parents of children were highly educated (92% reported having completed at least a Bachelor's degree), wealthy (88% reported an annual household income of $75,000 or more), and identified

as politically liberal[4] (M = 2.41, SD = 1.03). Parents gave informed consent for their children's participation in the study, children gave verbal assent, and children were compensated with a small toy prize.

Design

As in Study 1, this study was a within-subjects design with two conditions (seeing the outcome of their giving and not seeing the outcome of their giving). Again, the order in which they completed the conditions was counterbalanced. Further, half of the participants gave the recipient a sheet of stickers first and gave a packet of crayons second, while the other half of participants gave the recipient a packet of crayons first and a sheet of stickers second. Participants were randomly assigned to one of the four counterbalanced orders and there were equal numbers of male and female participants in each order. The entire procedure took about five minutes to complete.

Procedure

All participants were tested individually in a university lab. Participants were told that they would have the opportunity to share with two kids (matched on participant gender and age), who were going to be in other rooms at the time of the activity. Participants were told that they would be able to give resources to these other kids by placing them in a chute that would send the items to the other rooms where the other kids would get them (adapted from Martin, Lin, & Olson, 2016). Participants saw what they believed was a video feed of those other rooms, which showed where the chute emptied resources into the other rooms (presented in PowerPoint), and they were told that the experimenter would first demonstrate how the chute "sends" items to the other rooms.

Chute practice task. In this study, the top of the chute had two holes, one on the left and

[4] Measured on a scale of 1 (very liberal) to 7 (very conservative).

one on the right. Participants were told that the hole on the left would go to the room that was displayed on the left side of the computer screen and the hole on the right would go to the other room, which was displayed on the left side of the screen. Then, the experimenter demonstrated how the chute works by placing an object (purple plastic egg) in each side of the chute. After placing the object in the left hole of the chute, for example, the experimenter advanced the slide to show a video of another female adult experimenter walking into the room on the left and holding up the object stating, "Look, it worked, I got the egg." The experimenter then stated that the chute was clearly working and that if one puts an object in the left hole, for example, it will go to the room on the left side of the screen. The experimenter then completed the same demonstration with the other hole in the chute, which went to the other room. Half of the participants saw the demonstration for the room on the left first, while the other half of the participants saw the demonstration for the room on the right first. The order in which participants were introduced to the rooms was yoked to participants' assigned condition order. The room on the left was always used for the 'no outcome' condition and the room on the right was always used for the 'see outcome' condition.

See Outcome Condition. In order to measure participants' emotion expression when they could see the outcome of their giving, the experimenter took out a resource and said, "Look, I have an extra [sheet of stickers, pack of crayons]" and held up the resource for the participant to see. The experimenter said "I know that [Emily/John] really likes these [stickers/crayons], but there aren't any where she/he is going to go, which is the room on the right." The experimenter then told the participants that they could choose to give the resource to Emily/John by putting it through the right hole in the top of the chute. It was made clear to participants that if they did not choose to send it to Emily/John it would go away, so that participants would not think they

would get the resources that were not shared. Participants chose whether or not to give the resource and if they did want to give, they placed it in the right hole of the chute. All participants chose to give the resource to the confederate child in this condition. The experimenter then advanced the PowerPoint slide to show the confederate child retrieving the resource at the other end of the chute. In the video, after retrieving the stickers or crayons the confederate child says "Yay! These are so cool!".

No Outcome Condition. In order to measure participants' emotion expression when they could not see the outcome of their giving, the experimenter took out a resource and said, "Look, I have an extra [sheet of stickers, pack of crayons]" and held up the resource for the participant to see. The experimenter said "I know that [Sarah/David] really likes these [stickers/crayons], but there aren't any in the room where she/he is going to go, which is the room on the left." The experimenter then told the participants that they could choose to give the resource to Sarah/David by putting it through the left hole in the top of the chute. It was made clear to participants that if they did not choose to send it to Sarah/David it would go away, so that participants would not think they would get the resources that were not shared. Participants chose whether or not to give the resource and if they did want to give, they placed it in the left hole of the chute. All participants included in analyses chose to give the resource to the confederate child (one child, not included in analyses as per the pre-registered plan, did not give the resource in this condition). The experimenter then advanced the PowerPoint slide to show the other experimenter walking into the room and stating, "[Sarah/David] is not here yet [she/he] will come in later today. [She/he] will get these stickers when [she/he] comes in later today".

Preference item. After both the 'see outcome' and 'no outcome' conditions, participants were asked which part of the activity they liked to do more: the time they did see the outcome of

their generosity or the time they did not see the outcome of their generosity. The two parts of the activity were always presented in this item in the same order in which children completed them. Then, the experimenter asked why participants preferred that part of the activity.

Emotion Expression Coding

Participants' emotion expressions were coded by two research assistants who were blind to condition and hypotheses. Coders rated participants' emotion expressions at four 10-second phases in the experiment: (1) first baseline phase; (2) see outcome phase; (3) second baseline phase; (4) no outcome phase. Coders only watched these four 10-second clips (which were pre-determined by a third research assistant) and thus did not view how participants emoted or behaved at other points during the study. The first baseline phase is when the initial instructions were told to participants, whereas the second baseline phase is when additional instructions were told to the participants between the two experimental phases. The see outcome phase began when the participants saw the recipient retrieve and react to the resource. The no outcome phase began when the participants saw the confederate experimenter say that the recipient was not yet there. The coders rated participants' emotion on a 1 (very unhappy) to 5 (very happy) scale.

Results

Emotion Expression

As per the pre-registered analysis plan, a Pearson r correlation between the two coders' emotion expression ratings was calculated to assess reliability. The coders' ratings were correlated, $r = .67$, but not above the threshold described in the study pre-registration ($r = .80$). Therefore, according to the plan outlined in the pre-registration, a third coder blind to condition and hypotheses rated emotion expressions for all participants at each phase. The Pearson r correlations for this third coder's ratings with each of the other coders' ratings were $r = .69$ and r

= .68. Since the pre-registration states that the two coders with the highest Pearson r correlation would be used, the ratings from the coders with the highest correlation (r = .69) were averaged to create one emotion expression score per phase for each participant. Further, these two coders were in exact agreement on 67.7% of codes.

As stated in the pre-registration, two independent-samples t-tests were conducted to test whether participants' emotion expression during the two baseline phases differed for the two between-subjects counterbalance orders prior to assessing the main question. These tests revealed that participants emotion expression did not differ according to counterbalance order during the first baseline phase, $t(46) = 0.90$, $p = .372$, $d = .26$, and the second baseline phase, $t(46) = 1.15$, $p = .258$, $d = .12$. See Table 3 for descriptive statistics.

Since participants' emotion did not differ according to counterbalance order at baseline, the main question was tested by assessing emotion ratings in a mixed-measures 2 (condition: see outcome vs. no outcome) X 2 (counterbalance order: see outcome first vs. no outcome first) ANOVA with condition as a within-subjects factor and counterbalance order as a between-subjects factor. This analysis revealed a significant main effect of condition, $F(1,46) = 12.40$, $p < .001$, $\eta_p^2 = .54$, such that participants displayed greater happiness after giving when they could see the outcome ($M = 3.77$, $SD = 0.73$) than when they could not see the outcome ($M = 3.05$, $SD = 0.43$), $g = 1.18$. There was no significant main effect of counterbalance order, $p = .117$, nor an interaction, $p = .051$, suggesting that the effect of seeing versus not seeing the outcome on happiness occurred regardless of whether participants experienced seeing the outcome or not seeing the outcome first during the procedure. The results did not differ when analyses were run on the ratings of each coder separately[5].

[5] Both baseline phase ratings from Coder 1 did not differ by counterbalance order (first baseline: $t(46) = 1.19$, $p = .238$; second baseline: $t(46) = 0.83$, $p = .412$). Both baseline ratings from Coder 2 did not differ by counterbalance

Some additional exploratory analyses (not included in the pre-registration) were conducted to further understand these data. One-sample t-tests revealed that participants' average expressed emotion when seeing the outcome was significantly greater than neutral (3), $t(47) = 7.33$, $p < .001$, $d = 1.05$; however, participants' average expressed emotion when not seeing the outcome was not significantly different from neutral, $t(47) = 0.84$, $p = .404$, $d = .12$.

Preference Item

When asked whether they preferred seeing the outcome or not seeing the outcome after giving, 73% of participants reported that they preferred seeing the outcome, a proportion significantly different from chance, binary test, $p = .002$. As stated in the pre-registration, additional analyses were run to understand whether participants' stated preference for seeing the outcome versus not seeing the outcome after giving was related to their expressed happiness in the 'see outcome' condition versus 'no outcome' condition. That is, did participants who stated a preference for seeing the outcome tend to display greater happiness when seeing the outcome than when not seeing the outcome after giving and did those who stated a preference for not seeing the outcome tend to display greater happiness when not seeing the outcome than when seeing the outcome after giving? To test this question, emotion ratings were analyzed in a mixed-measures 2 (condition: see outcome vs. not see outcome) X 2 (preference: see outcome vs. not see outcome) ANOVA with condition as a within-subjects factor and preference as a between-subjects factor. There was no significant interaction between condition and preference, $p = .944$; therefore, this study did not provide any evidence that participants' stated preferences for seeing

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order (first baseline: $t(46) = 0.00$, $p = 1.00$; second baseline: $t(46) = 1.42$, $p = .163$). The main analysis on the ratings of Coder 1 revealed a significant main effect of condition, $F(1,46) = 41.98$, $p < .001$, $\eta_p^2 = .47$, but not a significant main effect of counterbalance order, $p = .250$, nor an interaction, $p = .623$. The main analysis on the ratings of Coder 2 revealed a significant main effect of condition, $F(1,46) = 34.27$, $p < .001$, $\eta_p^2 = .43$, but no significant main effect of counterbalance order, $p = 1.00$, nor an interaction, $p = .698$. Therefore, the results using each of the coders' ratings separately do not differ from those using their averaged ratings.

the outcome or not seeing the outcome after giving was related to their emotion expressions when seeing the outcome and not seeing the outcome.

Further, two research assistants who were blind to hypotheses coded participants' responses to the question of why they preferred seeing or not seeing the outcome of their giving. If there were disagreements between the two coders (which occurred on 1% of codes), they were resolved by a third coder. Of the participants who preferred seeing the outcome (n = 36), the most commonly mentioned reasons were that the participant liked that resource (n = 11) and that they got to see/hear the recipient (n = 7). Of the participants who preferred to not see the outcome of their giving (n = 12), the most commonly mentioned reasons were that the participant liked that resource (n = 4) and that they liked using the chute (n = 2). See Table 4 for more a more detailed summary of participants' responses.

Table 3

Means and SDs of Participant Emotion Expressions in Study 2

	All Participants	**Order 1: See Outcome First**	**Order 2: No Outcome First**
Baseline Phase1	2.93 (.40)	2.88 (.52)	2.98 (.23)
Baseline Phase 2	2.97 (.44)	2.90 (.39)	3.04 (.49)
See Outcome Phase	3.77 (.73)	3.56 (.68)	3.98 (.73)
No Outcome Phase	3.05 (.43)	3.05 (.39)	3.06 (.47)

Note. Emotion expression means are on a scale from 1 (very unhappy) to 5 (very happy). Standard deviations are provided in parentheses.

Table 4

Summary of Responses to Why Participants Preferred Seeing or Not Seeing the Outcome

	Participant Likes Resource	See/Hear Recipient	Like to Give	Recipient Got Resource	Recipient Likes Resource	Don't Know	Other
Preferred Seeing	11	7	3	2	2	7	12
	Participant Likes Resource	**Chute**	**Like to Give**	**Don't Know**	**Other**		
Preferred Not Seeing	4	2	1	2	4		

Note. Number of mentions for each reason why participants preferred seeing or not seeing the outcome after giving.

Discussion

In this study, 5-year-old children expressed greater happiness after giving when they could see the outcome of their generosity compared to when they could not see the outcome of their generosity, suggesting that seeing the positive impact on a beneficiary influences children's experience of emotional reward, as it does adults' experience of emotional reward (Aknin, Dunn, et al., 2013). This finding is consistent with previous work showing that children find pleasure in seeing others helped (Hepach et al., 2012; Hepach, Vaish et al., 2017); however, it expands on the previous work by demonstrating that even when children know that someone will benefit from their generous action, children's emotional experiences are even greater when they are able to see this positive impact on the beneficiary.

Children likely expressed greater happiness in the case when they could see the beneficiary of their generous act compared to when they could not see the beneficiary because they were able empathize with the positive emotion displayed by the beneficiary, an experience termed "vicarious-joy" (Morelli et al., 2015). Smith and colleagues (1989) hypothesized that individuals perform prosocial acts in part out of anticipation of empathizing with the happiness of a beneficiary. Children in this study were not clearly told whether or not they would see the

beneficiary prior to their decision to give to the recipient, so the current work cannot conclusively speak to whether they gave out of anticipation of vicarious-joy. Therefore, future work could investigate whether children (like adults, Smith et al., 1989) are more likely to give when they expect to see the positive emotion of a beneficiary.

As in Study 1, participants in this study tended to state a preference for the condition in which they demonstrated, on average, the most happiness. That is, a majority of children stated that they preferred when they were able to see the beneficiary, providing converging evidence that seeing the beneficiary was more rewarding for children. Unfortunately, children's justifications for why they preferred this part of the study are not tremendously useful in providing insight whether children were happier in this case because they were able to empathize with the positive feelings of a beneficiary. Although a good number of children justified their preference for the 'seeing' condition by saying that they liked seeing/hearing the recipient, many children tended to talk about the resource that they gave (stickers or crayons) as a means of justifying why they liked their preferred condition. Thus, it is difficult to take much away from this particular measure, so future work should be conducted to further test whether children prefer seeing the outcome of their giving because they want to see a beneficiary expressing happiness.

However, there are some limitations to the design of the current study that allow for alternate interpretations of these results. First, it is possible that children were happier in the case where they could see the beneficiary receive the resource because they had evidence that they successfully completed a goal (the beneficiary actually got the resource). Hepach, Vaish, and Tomasello (2017) found that children also demonstrated elevated body posture when they successfully completed a goal for themselves that did not involve helping someone else,

suggesting that children experience emotional benefits from successfully completing goals. This interpretation and suggestion for future research are further discussed in the General Discussion (Chapter 5).

A second possibility is that children were happier in the 'see outcome' condition because there was a direct causal chain between them giving the resource and the beneficiary receiving the resource. That is, in that condition children were directly responsible for the giving act whereas in the condition where children did not see the beneficiary it was also the case that an adult experimenter was an intermediary between the actor and the recipient. Of course, this interpretation rests on the assumption that children do care about being responsible for the generous act. Given the open question of whether being a giver per se is a source of emotional reward for children at this age, Study 3 examined whether children express more happiness when they give compared to when the watch someone else give.

Study 3:

Do children express more happiness from being a giver than watching giving?

Another potential source of children's emotional reward from giving is the fact that they were responsible for a generous act. Work in economics research suggests that individuals enjoy being the person who was responsible for a generous act (Andreoni, 1989). Adults experience greater happiness from giving when they are able to directly delivery the resource to a beneficiary compared to when someone else delivers their donation for them, suggesting that being directly responsible for a generous act influences adults' emotional reward (Aknin, Dunn, et al., 2013). Further, adults will even choose to contribute money toward a donation, even when they are told that their contribution will not change the overall amount that is given to a

beneficiary (Crumpler & Grossman, 2008). Therefore, it is important to adults that they contribute to a generous act and be directly responsible for that act.

Whether or not children similarly care about being a prosocial actor has been a question of interest in developmental psychology recently. In one study, toddlers demonstrated decreased sympathetic arousal (measured by pupil dilation) in response to seeing someone helped, even if they were not the ones to help (Hepach et al., 2012). The authors of this work argue that young children are not primarily concerned with being a prosocial actor themselves, but instead they desire to witness a beneficiary being helped or shared with, regardless of who is responsible for the generous act. However, it is unclear when in development children begin to care about being a prosocial actor. While Study 2 of the current work demonstrated that 5-year-old children still care about witnessing the positive impact on a beneficiary, it does not assess whether or not they would be equally likely to experience this happiness from seeing a beneficiary if they had been the one to give or not.

Therefore, Study 3 asks whether 5-year-old children express greater happiness when witnessing a beneficiary after they were the giver compared to when someone else gave. In this study, children give a resource to a child recipient and watch an experimenter give a resource to the child recipient. If being the giver influences children's experience of emotional reward, they will show significantly greater happiness when they were the giver compared to when they watched someone else give. The general methodology and analysis plan were included in a pre-registration on aspredicted.org (http://aspredicted.org/blind.php?x=aq4ag2).

Participants

Forty-eight 5-year-olds (24 females; M_{age} = 65.65 months, SD = 3.71) were recruited through a university database of volunteers. An additional four children were tested, but the data

were discarded because the participant did not complete the entire study (n = 2) or the participant was missing a video recording due to computer issues (n = 2). Children in the sample identified as White (n = 34), Asian (n = 3), Hispanic/Latino (n = 2), African American (n = 1), Multiracial (n =7), or Declined to Respond (n = 1). Parents of children were highly educated (92% reported having completed at least a Bachelor's degree), wealthy (90% reported an annual household income of $75,000 or more), and identified as politically liberal[6] (M = 2.19, SD = 1.11). Parents gave informed consent for their children's participation in the study, children gave verbal assent, and children were compensated with a small toy prize.

Design

As in Study 1, this study was a within-subjects design with two conditions (giving resources to a confederate child and watching an experimenter give resources to a confederate child). Again, the order in which they completed the conditions was counterbalanced. Further, half of the participants gave the recipient a sheet of stickers and watched the experimenter give a pack of crayons, while the other half of the participants gave a pack of crayons to the recipient and watched the experimenter give a sheet of stickers. Participants were randomly assigned to one of the four counterbalanced orders and there were equal numbers of male and female participants in each order. The entire procedure took about five minutes to complete.

Procedure

All participants were tested individually in a university lab. As in Study 1, participants were told that they would be a part of an activity during which they would interact with another child and that this other child, who was matched on participant gender and age, was in another room at the time of the activity. Participants were also told that they would be interacting with the other child via a video camera in the computer. The setup for the video-chat paradigm was

[6] Measured on a scale of 1 (very liberal) to 7 (very conservative).

identical to the procedures in Study 1; however, different actors were used as confederates in the videos for this study. Once participants were introduced to the confederate child, the experimenter introduced the participant to the chute that would be the method for giving resources to the confederate child. The chute practice task (adapted from Martin, Lin, and Olson, 2016) was identical to the procedures described in Study 1.

Giving resources. In order to measure participants' emotion expression after giving resources, the experimenter reached into her basket and said, "Look, I have an extra [sheet of stickers, pack of crayons] here in this cup" and held up the resource for the participant to see. The experimenter said "I think Emily/John likes these, but I don't know if she/he has any in her/his room." Then, the experimenter advanced the PowerPoint slide on the computer screen to show the confederate child saying that she/he really likes them but doesn't have any in her/his room.

The experimenter then told the participants that they can choose to give the resource through the chute. It was made clear to participants that if they did not choose to send it to Emily/John, it would go back into the cup, so that participants would not think they would get the resources that were not shared. Participants chose whether or not to give the resource and if they did want to give, they placed it in the chute. All participants included in analyses chose to give the resource to the confederate child (two children, not included in analyses as per the pre-registered plan, did not give the resource). The experimenter then advanced the PowerPoint slide to show the confederate child retrieving the resource at the other end of the chute. In the video, after retrieving the stickers or crayons the confederate child says "Yay! These are so cool!".

Watching experimenter give resources. In order to measure participants' emotion expression after watching the experimenter give resources, the experimenter reached into her

basket and said, “Look, I have an extra [sheet of stickers, pack of crayons] here in this cup” and held up the resource for the participant to see. The experimenter said “I think Emily/John likes these, but I don’t know if she/he has any in her/his room.” Then, the experimenter advanced the PowerPoint slide on the computer screen to show the confederate child saying that she/he really likes them but doesn’t have any in her/his room.

The experimenter then told the participants that the experimenter can choose to give the resource to Emily/John through the chute. It was made clear to participants that if the experimenter did not choose to send it to Emily/John, it would go back into the cup, so that participants would not think they would get the resource that was not shared. The experimenter gave the resource to the confederate child by putting it in the chute. The experimenter then advanced the PowerPoint slide to show the confederate child retrieving the resource at the other end of the chute. In the video, after retrieving the stickers or crayons the confederate child says “Yay! These are so cool!”.

Preference item. After both giving and watching the experimenter give resources, participants were asked which aspect of the activity they liked to do more: giving resources or watching the experimenter give resources. The two aspects of the activity were always presented in this item in the same order in which children completed them. Then, the experimenter asked why participants preferred that aspect of the activity. Lastly, the experimenter and participants said goodbye to the confederate child on the computer screen.

Emotion Expression Coding

Participants’ emotion expressions were coded by two research assistants who were blind to condition and hypotheses. Coders rated participants’ emotion expressions at four 10-second phases in the experiment: (1) first baseline phase; (2) giving phase; (3) second baseline phase;

(4) watching phase. Coders only watched these four 10-second clips (which were pre-determined by a third research assistant) and thus did not view how participants emoted or behaved at other points during the study. The first baseline phase is when the initial instructions were told to participants, whereas the second baseline phase is when additional instructions were told to the participants between the two experimental phases. The giving phase began when the participants saw the recipient retrieve and react to the resource after participants had given the resource. The watching phase began when the participants saw the recipient retrieve and react to the resource after participants had watched the experimenter give the resource. The coders rated participants' emotion on a 1 (very unhappy) to 5 (very happy) scale.

Results

Emotion Expression

As per the pre-registered analysis plan, a Pearson r correlation between the two coders' emotion expression ratings was calculated to assess reliability. The coders' ratings were correlated, $r = .70$, but not above the threshold described in the study pre-registration ($r = .80$). Therefore, according to the plan outlined in the pre-registration, a third coder blind to condition and hypotheses rated emotion expressions for all participants at each phase. However, the Pearson r correlations for this third coder's ratings with each of the other coders' ratings were $r = .69$ and $r = .67$. Since the pre-registration states that the two coders with the highest Pearson r correlation would be used, the first two coders' ratings were averaged to create one emotion expression score per phase for each participant. Further, these two coders were in exact agreement on 72.9% of codes.

Next, as stated in the pre-registration, two independent-samples t-tests were conducted to test whether participants' emotion expression during the two baseline phases differed for the two

between-subjects counterbalance orders prior to assessing the main question. These tests revealed that participants emotion expression did not differ according to counterbalance order during the first baseline phase, $t(46) = .711$, $p = .481$, $d = 0.20$, and the second baseline phase, $t(46) = .210$, $p = .834$, $d = 0.06$. See Table 5 for descriptive statistics.

Since participants' emotion did not differ according to counterbalance order at baseline, the main question was tested by assessing emotion ratings in a mixed-measures 2 (condition: giving vs. watching) X 2 (counterbalance order: giving first vs. watching first) ANOVA with condition as a within-subjects factor and counterbalance order as a between-subjects factor. This analysis revealed a significant main effect of condition, $F(1,46) = 12.23$, $p = .001$, $\eta_p^2 = .210$, such that participants displayed greater happiness after giving resources ($M = 3.98$, $SD = 0.60$) than after watching the experimenter give resources ($M = 3.72$, $SD = 0.63$), $g = 0.42$. There was no significant main effect of counterbalance order, $p = .406$, nor an interaction, $p = .333$, suggesting that the effect of giving versus watching giving on happiness occurred regardless of whether participants experienced giving or watching first during the procedure. These results did not differ when analyses were run on the ratings of each coder separately[7].

Some additional exploratory analyses (not included in the pre-registration) were conducted to further understand these data. One-sample t-tests revealed that participants' average expressed emotion after giving was significantly greater than neutral (3), $t(47) = 10.94$, $p < .001$, $d = 1.63$, as was their average expressed emotion after watching someone else give, $t(47) = 8.17$, $p < .001$, $d = 1.14$.

[7] Both baseline phase ratings from Coder 1 did not differ by counterbalance order (first baseline: $t(46) = 0.00$, $p = 1.00$; second baseline: $t(46) = 0.00$, $p = 1.00$). Both baseline ratings from Coder 2 did not differ by counterbalance order (first baseline: $t(46) = 1.03$, $p = .306$; second baseline: $t(46) = 1.63$, $p = .109$). The main analysis on the ratings of Coder 1 revealed a significant main effect of condition, $F(1,46) = 5.96$, $p = .019$, $\eta_p^2 = .12$, but not a significant main effect of counterbalance order, $p = .751$, nor an interaction, $p = .127$. The main analysis on the ratings of Coder 2 revealed a significant main effect of condition, $F(1,46) = 9.43$, $p = .004$, $\eta_p^2 = .17$, but no significant main effect of counterbalance order, $p = .160$, nor an interaction, $p = 1.00$. Therefore, the results using each of the coders' ratings separately do not differ from those using their averaged ratings.

Preference Item

When asked whether they preferred giving resources or watching the experimenter give resources, 92% of participants reported that they preferred giving, a proportion significantly different from chance, binary test, $p < .001$. As stated in the pre-registration, additional analyses were run to understand whether participants' stated preference for giving versus watching the experimenter give was related to their expressed happiness in the giving versus watching conditions. That is, did participants who stated a preference for giving tend to display greater happiness after giving resources than after watching the experimenter give and did those who stated a preference for watching the experimenter give tend to display greater happiness after watching than after giving? To test this question, emotion ratings were analyzed in a mixed-measures 2 (condition: giving vs. watching) X 2 (preference: giving vs. watching) ANOVA with condition as a within-subjects factor and preference as a between-subjects factor. There was no significant interaction between condition and preference, $p = .296$; therefore, this study did not provide any evidence that participants' stated preferences for giving versus watching someone else give was related to their emotion expressions after giving and watching someone else give.

Further, two research assistants who were blind to hypotheses coded participants' responses to the question of why they preferred giving or watching the experimenter give during the activity. If there were disagreements between the two coders (which occurred on 6% of codes), they were resolved by a third coder. Of the participants who preferred the giving event ($n = 44$), the most commonly mentioned reasons referred to getting to use the chute ($n = 10$) or getting to be the giver ($n = 8$). Of the participants who preferred the watching event ($n = 4$), there was no most common response. Participants who preferred watching explained their preference by saying that they did not have to be the one to give, that they did not do a good job using the

chute, or that they did not know why they had that preference. See Table 6 for a more detailed summary of participants' responses.

Finally, in order to explore whether children's enjoyment of the chute may have largely influenced their happiness from giving, the main analyses were re-run without the participants who mentioned that they liked the chute as a justification for their preference (n = 10). Even without these participants included in the sample, children expressed significantly more happiness after giving resources (M = 3.93, SD = 0.63) than after watching someone else give resources (M = 3.67, SD = 0.61), $F(1,36) = 9.48$, $p = .004$, $\eta_p^2 = .208$. Further, there was still no significant main effect of counterbalance order, $p = .496$, nor an interaction, $p = .444$. Thus, the main findings did not differ without those ten participants who said they preferred giving because they liked the chute, perhaps providing support that children were not happier from giving primarily due to the chute.

Table 5

Means and SDs of Participant Emotion Expressions in Study 3

	All Participants	**Order 1: Giving First**	**Order 2: Watching First**
Baseline Phase1	3.04 (.202)	3.06 (.268)	3.02 (.102)
Baseline Phase 2	3.46 (.339)	3.45 (.383)	3.47 (.298)
Giving Phase	3.98 (.601)	4.08 (.565)	3.88 (.630)
Watching Phase	3.72 (.627)	3.75 (.590)	3.69 (.673)

Note. Emotion expression means are on a scale from 1 (very unhappy) to 5 (very happy). Standard deviations are provided in parentheses.

Table 6

Summary of Responses to Why Participants Preferred Giving or Watching

	Chute	Being the Giver	Makes Participant Happy / Fun	Like the Resource	Like to Give	Don't Know	Other
Preferred Giving	10	8	5	5	3	9	7
	Didn't Have to Give	**Don't Know**	**Other**				
Preferred Watching	1	1	2				

Note. Number of mentions for each reason why participants preferred giving or watching.

Discussion

In this study, 5-year-old children expressed greater happiness while watching a beneficiary when they had been the giver compared to when someone else had given the resource. This finding is in line with a similar phenomenon that occurs among adults—that individuals not only wish to contribute to a generous act (Crumpler & Grossman, 2008), but importantly experience greater emotional reward from having a direct role in giving (Aknin, Dunn, et al., 2013). However, this finding is not consistent with previous work showing young children do not need to be responsible for the action in order to find pleasure in seeing someone benefitted (Hepach et al., 2012). That is, even watching someone else help a beneficiary was equally rewarding to toddlers than when they helped, whereas in the current study, being the giver was more rewarding for 5-year-olds than watching someone else give. These findings suggest that, by age five, children do care about being responsible for a generous action and perhaps do not only desire seeing others benefitted.

One explanation for why being a giver per se is rewarding for 5-year-olds, whereas no work to date has demonstrated a similar phenomenon in children younger, is that children have

developed a concern for their reputation by this age (Silver & Shaw, 2018). That is, they have started to care about having a positive reputation in the eyes of others and are driven to demonstrate that they are a good person by engaging in generous acts. This is evident by the fact that 5-year-olds are more likely to share when they know that others will be aware of their generous actions compared to when others will not know about their generosity (Engelmann et al., 2012; Leimgruber et al., 2012). However, toddlers do not demonstrate these concerns, as they are just as likely to engage in generous acts in situations where they cannot "get credit" for their generosity (Hepach, Haberl, et al., 2017). Therefore, the current work provides further evidence that a developmental shift occurs around or just before age five, such that children begin to care about being responsible for generous actions.

Not only did children express greater happiness when they were the giver, they also overwhelmingly stated that they preferred when they were the one to give resources to the recipient, providing converging evidence that children desire to be a prosocial actor. However, children's justifications for why they preferred being the giver again raise the concern that children (or at least some children) may have been happier to be the giver than to watch the experimenter give because the chute task is a fun activity for children. In justifying their reason why they preferred giving, children did mention reasons related to the chute; however, others specifically mentioned that they wanted to be the giver, that they were happier when they could be the giver, and that they liked to give. Further, as described in the discussion of Study 1, the emotion expressions were always coded when participants watched the recipient retrieve and react to receiving the resource, rather than when the participant was in the act of using the chute. Perhaps the timing of this emotion coding mitigates some concern about the influence of using the chute on participants' expressed emotion. Nonetheless, it is critical that future studies are

designed to rule out the possibility that the chute paradigm contributed to the results of Study 3 as well. The General Discussion—Chapter 5 of this document outlines some control studies that should be conducted to eliminate the chute interpretation of these results and replicate the finding that children's emotional reward from giving is rooted in being a giver per se.

Together, Studies 2 and 3 indicate that by age five children's experience of emotional reward from giving is impacted by two factors that also influence emotional reward in adults. That is, both children, by age five, and adults are happier when they are responsible for the generous act (Study 3) and when they get to see the impact of their generosity on a beneficiary (Study 2). Moreover, children are able to recognize these conditions that made them happier immediately after experiencing them. Thus, this work further specifies how emotional reward functions as a motivation for generous behavior in the late preschool years. Children may be motivated to give because they anticipate feeling happier when they get to see the positive impact it has on a beneficiary and when they were responsible for that generosity. Now knowing that these factors influence children's happiness by age five, efforts can be made to make sure children at this age receive ample opportunities to be generous actors and see the impact of their generosity in order to promote generous behavior in early childhood. Further, these experiences may not only promote children's likelihood to engage in prosocial behavior and further happiness, but may contribute to children's overall well-being and success, as positive emotions (especially those rooted in behaving prosocially) have several benefits (Brown et al., 2003; Konrath, et al., 2012; Musick et al., 1999; Oman et al., 1999; Fredrickson, 2001).

In these first three studies, children were successful at recognizing which conditions were most rewarding for them (giving over receiving in Study 1; seeing the outcome over not seeing the outcome in Study 2; being the giver over watching someone else give in Study 3). While

these findings provide important converging evidence that children experienced the most emotional reward in those conditions, they do not fully answer a third central question of this dissertation—whether and why children believe giving is rewarding. Since the preference items in the first three studies asked children to simply state which part of the study they liked the most and why they liked that part the most, the preference results are tied to the specific manipulations of those studies. Therefore, the preference results are not an adequate measure of children's more general beliefs about whether and why giving leads to happiness. Additionally, it is possible children enjoyed both parts of the experiment, but were not able to demonstrate this perspective due to the forced-choice nature of the preference items. In order to examine children's beliefs about the relation between giving and happiness (the third aim of this dissertation work), the second set of three studies explore children's beliefs about whether people are happier from 1) giving or receiving (Study 4), 2) seeing the outcome of their giving or not seeing the outcome (Study 5), and 3) being a giver or watching others give (Study 6). Thus, these belief studies are mapped onto the first three experience studies in order to demonstrate whether children are generally aware of the relation between giving and happiness, as they experienced in Studies 1, 2, and 3.

Chapter 4 – Beliefs about Emotional Reward from Giving

The studies presented in the previous chapters of this document provide important insights about children's experience of emotional reward from giving. They demonstrate that children express happiness after giving and that this happiness may be rooted in both 1) seeing their positive impact on a beneficiary, and 2) being responsible for the generous act. Therefore, it is possible that children are motivated to give because they anticipate experiencing emotional reward from being a giver, particularly in contexts when the can see the positive impact on a beneficiary. People's recognition of the relation between giving and happiness may increase the likelihood that they are motivated to give because they anticipate these emotional benefits (Aknin, Dunn, et al., 2012; Aknin et al., 2018; Paulus & Moore, 2017).

This idea is in line with an emotion theory suggesting that if people are to learn from emotional experiences and use them to guide their future behavior, they are more likely to be motivated by anticipation of emotional experiences if they have consciously processed how behaviors lead to subsequent emotions (Baumeister et al., 2007). That is, awareness of how behavior relates to emotional experiences can strengthen the feedback loop that allows emotions to reinforce and motivate future behavior, an idea that has been applied to the domain of prosocial behavior (Aknin, Dunn, et al., 2012; Aknin et al., 2018; Paulus & Moore, 2017). Therefore, a third central question of this dissertation is focused on investigating children's beliefs about the relation between giving and happiness (when they are removed from their actual experience with giving) in order to provide more evidence that they may be motivated to give out of anticipation of the emotional benefits.

To this end, it is critical to examine children's beliefs about the relation between giving and happiness in a more general sense, rather than how much they think they liked a particular

experience of giving. In the studies conducted in Chapters 2 and 3 of this dissertation, children were asked to indicate their preference for giving versus receiving (Study 1), seeing versus not seeing the beneficiary after giving (Study 2), and giving versus watching someone else give (Study 3). While children's self-reported preferences are useful for validating their emotional experiences in the context of those studies, they do not provide insight into children's broader awareness of how and when giving leads to emotional reward. That is, these preference items were worded such that children were asked to indicate which part of the study they liked to do the most (Study 1: giving vs. receiving; Study 2: seeing outcome vs. not seeing outcome; Study 3: giving vs. watching someone else give). Therefore, these questions are not actually an assessment of the emotions that children anticipate experiencing from giving more generally, rather they are assessing children's enjoyment of one particular instance of giving (compared to another condition).

This chapter, Chapter 4, describes three studies examining children's beliefs about emotional reward from giving, such that each study maps onto the previous emotion experience studies. That is, Study 4 is aimed at understanding children's beliefs about the emotional reward individuals experience from giving versus receiving resources (mapping onto children's experiences with giving versus receiving in Study 1). Study 5 investigates children's beliefs about how seeing the impact on a beneficiary or not influences emotional reward from giving (mapping onto children's experience with seeing a beneficiary or not in Study 2) and Study 6 examines children's beliefs about how being a giver versus watching giving influences emotional reward (mapping onto children's experiences with being a giver or watching someone else give in Study 3). These studies will demonstrate children's awareness of when and why they

experience emotional reward from giving, which likely serves to further impact the situations in which they anticipate feeling emotional reward and therefore are motivated to act.

Study 4:

Do children believe that people are happier from giving or from receiving resources?

In order to understand children's beliefs about how giving compares to receiving with respect to emotional reward, Study 4 investigated whether 5-year-old children believe that peers will express greater happiness after giving resources to others or after receiving resources for themselves and whether they anticipate that they would feel happier after giving resources to others or after receiving resources for themselves. To this end, children listened to stories and rated the affect of target characters who gave versus received resources and children predicted their own emotional responses in hypothetical giving and receiving scenarios. Based on previous work with adults (Dunn et al., 2008), I preregistered the hypothesis that children expect themselves and others to be happier after receiving than after giving. Such a finding would indicate that children, like adults, are mistaken in what actions will provide them with the greatest emotional benefits (given that children show greater happiness from giving in Study 1). In addition to the hypothesis, the general methodology, and analysis plan were pre-registered on aspredicted.org (http://aspredicted.org/blind.php?x=hu3wh8).

Method

Participants

Fifty-two 5-year-olds (25 females; M_{age} = 65.04 months, SD = 3.91) were recruited through a university database of volunteers (n = 35) and at schools (n = 18)[8]. An additional child

[8] As stated in the study pre-registration, 48 of these subjects completed every item of the procedure. An additional four subjects completed all of the emotion rating items and the preference item about themselves, but did not complete the preference item about peers. Therefore, these four subjects are included in analyses of the emotion ratings and the preference item for themselves.

was tested, but the data were discarded because the participant did not complete enough of the emotion rating items to be included in within-subjects analyses of the emotion ratings and did not complete either of the preference items. This decision was in line with the exclusion criteria outlined in the pre-registration. Children in the sample identified as White (n = 36), Hispanic/Latino (n = 3), African American (n = 1), Multiracial (n = 9), or Declined to Respond (n = 3). Parents of children who participated in the lab setting were highly educated (79% reported having completed at least a Bachelor's degree), wealthy (79% reported an annual household income of $75,000 or more), and identified as politically liberal[9] (M = 2.36, SD = 1.22). This demographic information was not provided for children tested in the school setting. However, the schools for this experiment consisted of public elementary schools in an upper-middle class community located in Upstate New York. Parents gave informed consent for their children's participation in the study, children gave verbal assent, and children were compensated with a small toy prize.

Design

Given the within-subjects design of this study, participants answered questions about all four different types of scenarios: (1) peers receiving resources; (2) peers giving resources; (3) themselves receiving resources; (4) themselves giving resources. The order in which participants completed the conditions was counterbalanced. Participants were randomly assigned to one of the counterbalance orders. The procedure took about ten minutes to complete.

Procedure

All participants were tested individually in a university lab or at their schools. Participants were first told that they would be a part of an activity in which they were going to hear stories about kids and then answer questions about how they think the kids feel (e.g., very

[9] Measured on a scale of 1 (very liberal) to 7 (very conservative).

good, a little bit bad, in the middle). Importantly, participants were told that there are no right or wrong answers to the questions and that they should just say what they think about the story characters' feelings.

Emotion scale training. Before they were told the stories, participants were trained on the emotion scale used throughout the study. The emotion scale depicted five faces showing emotions that were (1) very unhappy, (2) a little bit unhappy, (3) in the middle, (4) a little bit happy, and (5) very happy. Participants were then told four stories about other children that had nothing to do with giving or receiving resources. After each story, participants were asked to point to which emotion on the scale they think the character in the story was feeling. The stories were designed to elicit a range of emotion responses from participants so that they would have experience using both sides of the scale (both happy and unhappy) and experience choosing the non-extreme options on the scale (the "little bit" and "in the middle" options). The experimenter continued on to the next step of the procedure after the four practice stories if participants successfully identified at least one response on each side of the scale, at least one extreme response, and at least one non-extreme response. If participants did not successfully fulfill these criteria (or provided responses that were quite inconsistent with the stories presented), the experimenter presented one or two additional practice stories. The experimenter continued on to the next step of the procedure when the participant met the training criteria; however, the session was terminated if the participant continued to not meet the training criteria.

Peer items. Participants were presented with stories about other children, matched on participant age and gender, receiving and giving resources. Stories were presented to participants via pre-recorded audio in PowerPoint with accompanying images depicting the stories. Each story described a target child and his/her friend together at an event or location (e.g., museum,

park, movie theatre). Images of the target child and friend appeared on the screen when they were introduced in the stories. In both receiving and giving stories, the target child either was given or found a valuable resource (e.g., candy, stickers). Images of the resource appeared on the screen when they were introduced in the stories.

In receiving stories, the target child received a desirable resource and when his/her friend asked what he/she had, the target child described the resource he/she received. In giving stories, the target child found a desirable resource and when his/her friend asked what he/she had, the target child described the resource and then gave the resource to his/her friend (at this point the resource image moved across the screen from the target child towards his/her friend). There were two different receiving stories and two different giving stories. After each story, participants were asked to indicate how they think they target child was feeling on the 1 (very unhappy) to 5 (very happy) scale.

Self items. Participants were presented with hypothetical stories about themselves receiving and giving resources. Stories were presented to participants via pre-recorded audio in PowerPoint with accompanying images depicting the stories. Each story described a target child and his/her friend at an event or location (e.g., museum, park, movie theatre). Stick-figure drawings used to visually represent the participant and his/her friend appeared on the screen when they were introduced in the stories. In both receiving and giving stories, the participant hypothetically was given a valuable resource or hypothetically found a valuable resource. Images of the resource appeared on the screen when they were introduced in the stories.

In receiving stories, the participant hypothetically received a desirable resource and when his/her friend asked what he/she had, the participant hypothetically described the resource he/she received. In giving stories, the participant hypothetically found a desirable resource and when

his/her friend asked what he/she had, the participant hypothetically described the resource and then gave the resource to his/her friend (at this point the resource image moved across the screen from the participant towards his/her friend). There were two different receiving stories and two different giving stories. After each story, participants were asked to indicate how they think they would feel on the 1 (very unhappy) to 5 (very happy) scale.

Preference items. After identifying how they think peers and themselves would feel after receiving and giving resources, participants were asked directly which activity they think others and themselves like to do more: receiving or giving. These items were presented in the same order as the story items. That is, half of the participants were asked about others first and half were asked about themselves first. Further, half of the participants were presented with the order of receiving vs. giving and the other half were presented with the order of giving vs. receiving. Finally, the experimenter asked participants why they think that others and themselves would prefer giving or receiving.

Results

Emotion Expectations

A paired-samples t-test revealed that participants expect peers to be significantly happier after receiving resources ($M = 4.61$, $SD = 0.87$) than after giving resources ($M = 3.36$, $SD = 1.36$), $t(51) = 6.91$, $p < .001$, $g = 1.05$. Further, one-sample t-tests revealed that participants' average rating of peer emotion after receiving resources was significantly greater than neutral (3), $t(51) = 13.30$, $p < .001$, $d = 1.85$; however, their average rating of peer emotion after giving resources was not significantly different from neutral, $t(51) = 1.88$, $p = .065$, $d = 0.19$.

A paired-samples t-test revealed that participants expect to be significantly happier after receiving resources ($M = 4.35$, $SD = 0.98$) than after giving resources ($M = 3.72$, $SD = 1.20$),

$t(51) = 3.48$, $p = .001$, $g = .57$. Further, one-sample t-tests revealed that participants' average rating of their emotion after receiving resources was significantly greater than neutral (3), $t(51) = 9.88$, $p < .001$, $d = 1.38$, as was their average rating of their emotion after giving resources, $t(51) = 4.31$, $p < .001$, $d = 0.60$. Figure 1 represents these findings.

To examine whether the hypothesized main effect differs based on whether participants are responding about peers or themselves, a paired-samples t-test was conducted on the mean difference between giving and receiving ratings for peers and self. This analysis revealed that the difference in emotion ratings for giving and receiving was significantly larger when participants responded about peers ($M = 1.25$, $SD = 1.30$) than when they responded about themselves ($M = 0.63$, $SD = 1.29$), $t(51) = 3.88$, $p < .001$, $g = .47$, which suggests that participants believe that receiving is even more rewarding compared to giving for peers than it is for themselves.

Preference Items

A binomial test was conducted on the two preference items to test whether participants believe peers and themselves prefer giving resources or receiving resources. Analyses revealed that, although a greater proportion of participants responded that peers (.58) and themselves (.63) prefer receiving resources to giving resources, these proportions were not significantly different from chance, $p = .312$ and $p = .07$, respectively.

Further, two research assistants who were blind to hypotheses coded participants' responses to the question of why they thought other kids preferred giving or receiving resources and why they preferred giving or receiving resources. If there were disagreements between the two coders (which occurred on 6% of codes), they were resolved by a third coder. On the item about peers, of the participants who said peers prefer giving ($n = 20$), the most commonly mentioned reasons were that it is nice/good to give and that giving makes the giver happy. Of the

participants who said peers prefer receiving (n = 28), the most commonly mentioned reasons were that they got to keep/get something and that they like resources. On the item about themselves, of the participants who preferred giving (n = 19) the most commonly mentioned reasons were that it makes the recipient happy and that they like to give. Of the participants who said peers prefer receiving (n = 28), the most commonly mentioned reasons were that they got to keep/get something and that they like resources. See Table 7 and Table 8 for more a more detailed summary of participants' responses.

Figure 1

Participants' Emotion Expectations for Study 4

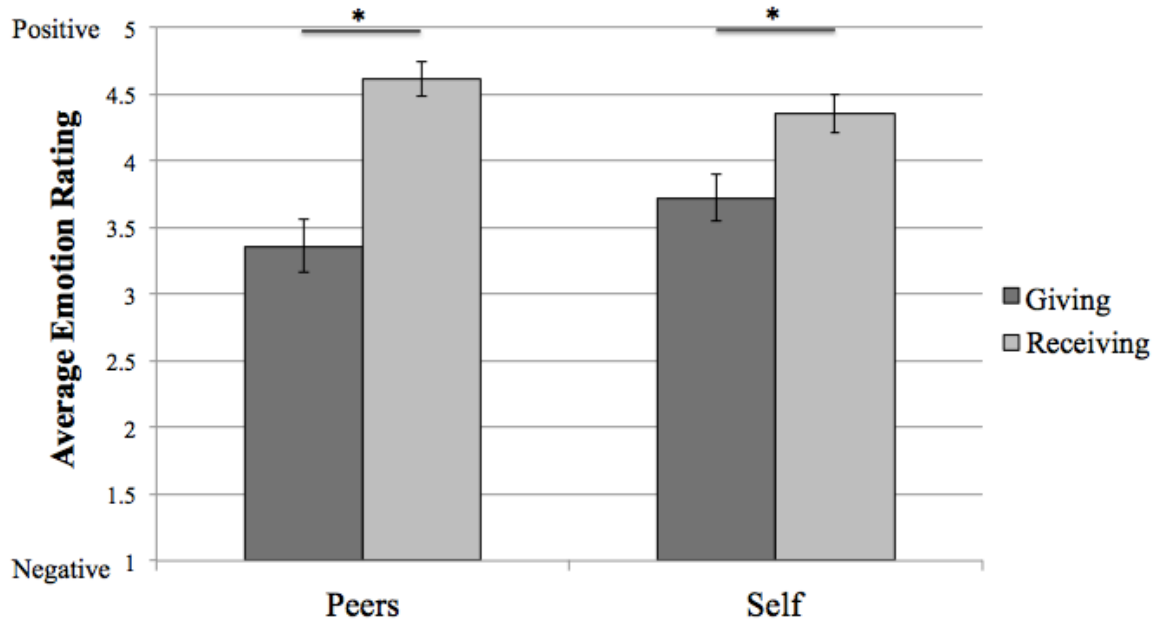

Table 7

Summary of Responses to Why Participants Think Peers Prefer Giving or Receiving

	Makes Recipient Happy	Like to Give	Nice/Good	Makes Giver Happy	Has a Lot to Give	Don't Know	Other
Preferred Giving	3	3	5	5	3	2	5
	Keep Something	**Like Resource**	**Happiness**	**Fun/Play**	**Don't Like to Give**	**Don't Know**	**Other**
Preferred Receiving	10	7	4	3	1	1	5

Note. Number of mentions for each reason why participants think peers prefer giving or receiving.

Table 8

Summary of Responses to Why Participants Prefer Giving or Receiving

	Makes Recipient Happy	Like to Give	Nice/Good	Makes Giver Happy	Has a Lot to Give	Other
Preferred Giving	5	4	3	2	2	7
	Keep Something	**Like Resource**	**Happiness**	**Fun/Play**	**Don't Know**	**Other**
Preferred Receiving	12	10	8	7	1	1

Note. Number of mentions for each reason why participants prefer giving or receiving.

Discussion

In line with the preregistered hypothesis, 5-year-olds believed that peers would experience greater happiness after receiving resources than after giving resources. Children also anticipated that they too would feel happier after receiving resources than after giving resources. Children's general expectation that individuals experience greater emotional reward upon getting something for themselves than from giving to others replicates a similar finding from a study that asks adults to report whether they think giving or receiving would provide them with greater happiness (Dunn et al., 2008). However, interestingly, both adults (Aknin, Barrington-Leigh, et

al., 2013; Aknin et al., 2014; Dunn et al., 2008) and children (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015, Study 1 of this document) show greater happiness upon giving than upon receiving resources. Therefore, at quite different time points in development, there is disconnect between people's experience of emotional reward from giving versus receiving and their beliefs about emotional reward from giving versus receiving.

One possible explanation for this disconnect between people's experiences and their beliefs about the degree to which giving versus receiving will provide one with emotional benefits has to do with whether people are approaching the question with an abstract or concrete construal. A recent study demonstrated that adults who adopt an abstract (rather than a concrete) construal of hypothetical or future giving opportunities, such that they are thinking about the scenario from a higher-level and more distanced perspective, are more likely to say that giving provides greater emotional benefits (Aknin, Van Boven, et al., 2015). Therefore, perhaps in the current study, children tended to say that people are happier from receiving than from giving because they were approaching the task with a narrowed and concrete focus on the scenarios presented. Future work should be conducted to test whether prompting children to use a more abstract construal in approach to the scenarios would in turn make them more likely to rate the giving scenarios as most emotionally rewarding.

However, it is critical to note that even though children believed that receiving resources would be more rewarding than giving them, they still demonstrated a belief that giving is emotionally rewarding. That is, when asked to rate their own anticipated emotion upon giving resources to other kids, their average emotion rating was significantly happier than the neutral rating. Therefore, children do believe that there are emotional benefits to giving even though they also demonstrate the mistaken belief that receiving resources will provide them with greater

emotional benefits than giving. Further, the finding from Study 1—that children preferred giving over receiving right after experiencing both giving and receiving—is additional support that children are aware of the emotional benefits that giving provides. Together, the findings of Study 1 and the current study, Study 4, support the theory that children may give to others in part because they anticipate feeling happy from doing so. Although they expect to feel even happier from receiving resources than from giving them, children are consciously aware that giving makes them happy and this awareness may strengthen their desire to give out of anticipation of feeling better upon giving (Aknin, Dunn, et al., 2012; Aknin et al., 2018; Baumeister et al., 2007; Paulus & Moore, 2017). Though, when presented with the option between giving and receiving, children may be more motivated to get something because they anticipate feeling even better in that case.

Interestingly, overall, children reported that this difference in happiness between receiving and giving would be greater for peers than for themselves. One possible explanation for why children reported a greater difference in happiness between giving and receiving for peers is that their own emotional experiences of giving are more salient to them than are peers' experiences from giving. That is, perhaps children have more experience attending to the emotions that peers experience while receiving resources than the emotions that peers experience while giving resources. For example, they may pay more attention to how happy the birthday kid is when opening her gifts and how happy they feel when giving the birthday kid a gift than how happy the other birthday attendees are when giving their gifts.

Another possible explanation has to do with the specific methods used to depict the different kinds of giving scenarios. When children rated their own emotion from giving, they were asked to imagine that they were giving an extra resource that they found to a friend of

theirs. Therefore, this procedure allowed them to picture any friend and did not control for the specific type of friend they were imagining. When children rated peers' emotion from giving, they were presented with pairs of children who were friends and they were told that one of the children gave an extra resource that she/he found to the other child. Therefore, it is possible that children imagined their recipient as a very good friend, whereas they may not have believed that the children were very best friends in the peer scenarios. Given that children of this age do base their giving behavior on their relationship with the recipient—giving more to friends than to acquaintances or disliked peers—and expect others to behave similarly (Moore, 2009; Paulus & Moore, 2014), it is possible that children also believe the emotional reward from giving depends on one's relationship with the recipient. Future work should test whether children believe that people experience greater emotional reward from giving to closer friends or family compared to less close friends or non-friends. This kind of study would perhaps shed light on whether the perceived closeness between giver and recipient explains why children in the current study reported a greater difference in happiness from giving and receiving for peers than for themselves.

Moreover, as mentioned previously, not all instances of giving are alike and children's experiences of emotional reward may depend on certain factors such as being able to see the beneficiary and being directly responsible for the giving act. For example, in Study 2 children were happier when they could see the outcome of their giving compared to when they did not have the chance to see the outcome of their giving. Also, in Study 3, children were happier when they were the giver compared to when they simply watched someone else give. While Study 4 demonstrated that children do recognize the emotional benefits they experience from giving to others (even though it is not considered as rewarding as receiving), it is unknown whether

children recognize how these factors impact the degree to which they are happy from giving. Study 5 and Study 6 were designed to test whether children are aware of how seeing a beneficiary (Study 5) and being the giver (Study 6) impact their own and others' experience of emotional reward.

Study 5:

Do children think people are happier when seeing the outcome of their giving?

Study 4 demonstrated that 5-year-old children believe they will experience happiness upon giving to others (even though they thought they would be significantly happier upon receiving resources), providing further evidence that children's decisions to give may in part be motivated in their anticipation of feeling happy from giving. However, this study did not address whether children understand the factors that influence these emotional benefits. As described in the introduction to this chapter, understanding whether children are aware of the factors that influence their experience of emotional reward—or in other words, the sources of their emotional reward—will provide further evidence that they may be motivated to give in part because they anticipate how those factors will influence their emotional reward.

For example, since Study 2 demonstrated that by five years of age children's experience of emotional reward is influenced by whether or not they were able to see the impact of their generosity on a beneficiary, understanding whether children are aware of this phenomenon would reveal whether children may be particularly motivated to give when they can see a beneficiary out of anticipation of experiencing maximal happiness in this case. Therefore, Study 5 examined whether 5-year-old children believe that peers will express greater happiness after giving resources when they are able to see the outcome compared to when they cannot see the outcome and whether they anticipate that they would feel happier after giving resources when

they are able to see the outcome compared to when they cannot see the outcome. Children rate the affect of target characters after they could see versus could not see the outcome of their generosity and predict their own emotional responses after seeing and not seeing the outcome of their generosity. If children's beliefs align with their experiences (as described in Study 2) they will tend to say that people are happier when they can see the outcome of their generosity. The general methodology and analysis plan were included in a pre-registration on aspredicted.org (http://aspredicted.org/blind.php?x=vn2ic3).

Method

Participants

Forty-nine 5-year-olds (24 females; M_{age} = 65.27 months, *SD* = 3.76) were recruited through a university database of volunteers (*n* = 32) and at schools (*n* = 17)[10]. An additional child was tested, but the data were discarded due to the participant failing to demonstrate proper emotion scale understanding during the scale training (based on the criterion outlined in the procedure section below). Among those participating in the lab, children in the sample identified as White (*n* = 25), Multiracial (*n* = 6), or Declined to Respond (*n* = 1). Parents of children who participated in the lab setting were highly educated (75% reported having completed at least a Bachelor's degree), wealthy (81% reported an annual household income of $75,000 or more), and identified as politically liberal[11] (*M* = 2.32, *SD* = 1.34). This demographic information was not provided for children tested in the school setting. However, the schools for this experiment consisted of private preschools and elementary schools in an upper-middle class community

[10] As stated in the study pre-registration, 48 of these subjects completed every item of the procedure. An additional subject completed all of the emotion rating items for the self-condition, but did not complete the emotion rating items for the peer-condition and did not complete the preference items. Therefore, this subject is included in analyses of the emotion ratings for the self-condition.

[11] Measured on a scale of 1 (very liberal) to 7 (very conservative).

located in the Pacific Northwest. Parents gave informed consent for their children's participation in the study, children gave verbal assent, and children were compensated with a small toy prize.

Design

Given the within-subjects design of this study, participants answered questions about all four different types of scenarios: (1) peers giving and seeing the outcome; (2) peers giving and not seeing the outcome; (3) themselves giving and seeing the outcome; (4) themselves giving and not seeing the outcome. The order in which they completed the conditions was counterbalanced. Participants were randomly assigned to one of the counterbalance orders. The procedure took about ten minutes to complete.

Procedure

All participants were tested individually in a university lab or at their schools. Participants were first told that they would be a part of an activity in which they were going to hear stories about kids and then answer questions about how they think the kids feel (e.g., very good, a little bit bad, in the middle). Importantly, participants were told that there are no right or wrong answers to the questions and that they should just say what they think about the story characters' feelings.

Emotion scale training. As in Study 4, participants were first trained on the emotion scale used throughout the study. The emotion scale depicted five faces showing emotions that were (1) very unhappy, (2) a little bit unhappy, (3) in the middle, (4) a little bit happy, and (5) very happy. The training was the same as in Study 4, such that participants were told four stories about other children and were asked to rate the emotion of the character in each story. The stories were the same as those used in the previous study and again, the experimenter continued on to the next step of the procedure after the four practice stories if participants successfully identified

at least one response on each side of the scale, at least one extreme response, and at least one non-extreme response. If participants did not successfully fulfill these criteria (or provided responses that were quite inconsistent with the stories presented), the experimenter presented one or two additional practice stories. The experimenter continued on to the next step of the procedure when the participant met the training criteria; however, the session was terminated if the participant continued to not meet the training criteria (n = 1).

Peer items. Participants were presented with stories about other children (matched on participant age and gender) giving resources, where they sometimes get to see the outcome of their giving and sometimes do not see the outcome of their giving. Stories were presented to participants via pre-recorded audio in PowerPoint with accompanying images depicting the stories. Each story described a target child who was with another child at an event or location (e.g., museum, park, library). Images of the children with their backpacks, and the resources given (e.g., candy, stickers, erasers) appeared on the screen when they were introduced in the stories.

In 'see outcome' stories, the target child found a desirable resource and wanted to give the resource to his/her friend. Since the friend had gone elsewhere and the target child had to go home, the target child gave the resource to the friend by putting it in his/her backpack (at this point the resource image moved across the screen from the target child into the friend's backpack). But, before the target child left, the friend came back and got the resource out from his/her backpack in front of the target child. In 'no outcome' stories, the target child found a desirable resource and wanted to give the resource to his/her friend. Since the friend had gone elsewhere and the target child had to go home, the target child gave the resource to the friend by putting it in his/her backpack (at this point the resource image moved across the screen from the

target child into the friend's backpack). After the target child left, the friend came back and got the resource out from his/her backpack and the target child was not there to see. Each participant heard two different 'see outcome' stories and two different 'no outcome' stories. After each story, participants were asked to indicate how they think they target child was feeling on the 1 (very unhappy) to 5 (very happy) scale.

Self items. Participants were presented with hypothetical stories about themselves giving resources, where they sometimes get to see the outcome of their giving and sometimes do not see the outcome of their giving. Stories were presented to participants via pre-recorded audio in PowerPoint with accompanying images depicting the stories. Each story depicted a target child (the participant) with another child at an event or location (e.g., museum, park, movie theatre). Stick-figure drawings used to visually represent the participant and other child appeared on the screen when they were introduced in the stories. Similarly, images of the children's backpacks and the resources given (e.g., candy, stickers, erasers) appeared on the screen when they were introduced in the stories.

In 'see outcome' stories, the participant hypothetically found a desirable resource and wanted to give the resource to his/her friend. Since the friend had gone elsewhere and the participant had to go home, the participant hypothetically gave the resource to the friend by putting it in his/her backpack (at this point the resource image moved across the screen from the participant into the friend's backpack). But, before the participant left, the friend came back and got the resource out from his/her backpack in front of the participant. In 'no outcome' stories, the participant hypothetically found a desirable resource and wanted to give the resource to his/her friend. Since the friend had gone elsewhere and the participant had to go home, the participant hypothetically gave the resource to the friend by putting it in his/her backpack (at this point the

resource image moved across the screen from the participant into the friend's backpack). After the participant left, the friend came back and got the resource out from his/her backpack and the participant was not there to see. Each participant heard two different 'see outcome' stories and two different 'no outcome' stories. After each story, participants were asked to indicate how they think the target child was feeling on the 1 (very unhappy) to 5 (very happy) scale.

Preference items. After identifying how they think peers and themselves would feel after seeing the outcome of their giving and not seeing the outcome of their giving, participants were asked directly which activity they think others and themselves like to do more: seeing the outcome or not seeing the outcome. These items were presented in the same order as the story items. That is, half of the participants were asked about others first and half were asked about themselves first. Further, half of the participants were presented with the order of seeing outcome versus not seeing outcome and the other half were presented with the order of not seeing outcome versus seeing outcome. Finally, the experimenter asked participants why they think that others and themselves would prefer the option they provided.

Results

Emotion Expectations

A paired-samples t-test revealed that participants expect peers to be significantly happier after giving when they are able to see the outcome ($M = 4.42$, $SD = 0.98$) than when they cannot see the outcome ($M = 2.92$, $SD = 1.20$), $t(47) = 6.49$, $p < .001$, $g = 1.35$. Further, one-sample t-tests revealed that participants' average rating of peer emotion from seeing the outcome was significantly greater than neutral (3), $t(47) = 10.01$, $p < .001$, $d = 1.45$; however, their average rating of peer emotion for not seeing the outcome was not significantly different from neutral, $t(47) = 0.48$, $p = .633$, $d = 0.07$.

A paired-samples t-test was conducted to test whether participants expect themselves to be happier from seeing the outcome of their generosity or from not seeing the outcome. This analysis revealed that participants expect to be significantly happier after giving when they are able to see the outcome ($M = 4.63$, $SD = 0.55$) than when they cannot see the outcome ($M = 3.05$, $SD = 1.17$), $t(48) = 8.31$, $p < .001$, $g = 1.69$. Further, one-sample t-tests revealed that participants' average rating of their emotion after giving when they could see the outcome was significantly greater than neutral (3), $t(48) = 20.87$, $p < .001$, $d = 2.96$; however, their average rating of their emotion after giving when they cannot see the outcome was not significantly different from neutral, $t(48) = 0.30$, $p = .762$, $d = 0.04$. See Figure 2 for representation of these findings.

To examine the question of whether the hypothesized main effect differs based on whether participants are responding about peers or themselves, a paired-samples t-test was conducted on the mean difference between 'see outcome' and 'no outcome' ratings for peers and self. This analysis revealed that the difference in emotion ratings for the 'see outcome' and 'no outcome' conditions was not significantly different when participants responded about peers ($M = 1.50$, $SD = 1.60$) than when they responded about themselves ($M = 1.61$, $SD = 1.33$), $t(47) = 0.53$, $p = .601$, $g = 0.07$.

Preference Items

A binomial test was conducted on the two preference items to test whether participants believe peers and themselves prefer seeing the outcome or not seeing the outcome of their giving. Analyses revealed that participants were significantly more likely than chance (0.50) to respond that peers (.94) and themselves (.90) prefer to see the outcome after giving, ps $< .001$.

Further, two research assistants who were blind to hypotheses coded participants' responses to the question of why they thought other kids preferred seeing or not seeing the outcome of their generosity and why they preferred seeing or not seeing the outcome of their generosity. If there were disagreements between the two coders (which occurred on 4% of codes), they were resolved by a third coder. On the item about peers, of the participants who said peers prefer seeing the outcome (n = 45), the most commonly mentioned reasons were that it makes the giver happy (n = 10) and that people like/want to see the recipient receiving (n = 9). Several participants also mentioned that peers could know that the recipient actually got the item (n = 6) and that they could be thanked for giving (n = 6). Of the participants who said peers prefer not seeing the outcome (n = 3), participants did not know why (n = 2) or stated that peers would have more time to themselves (n = 1). On the item about themselves, of the participants who preferred seeing the outcome (n = 43) the most commonly mentioned reasons were that they like/want to see the recipient receiving (n = 11) and that it made them happy (n = 7). Several participants also mentioned that they could know that the recipient actually got the item (n = 6) and that they could be thanked for giving (n = 6). Of the participants who preferred not seeing the outcome (n = 5), participants mentioned that it could be a surprise (n = 2), that they didn't know why (n = 1), or another response (n = 2). See Table 9 and Table 10 for more a more detailed summary of participants' responses.

Figure 2

Participants' Emotion Expectations for Study 5

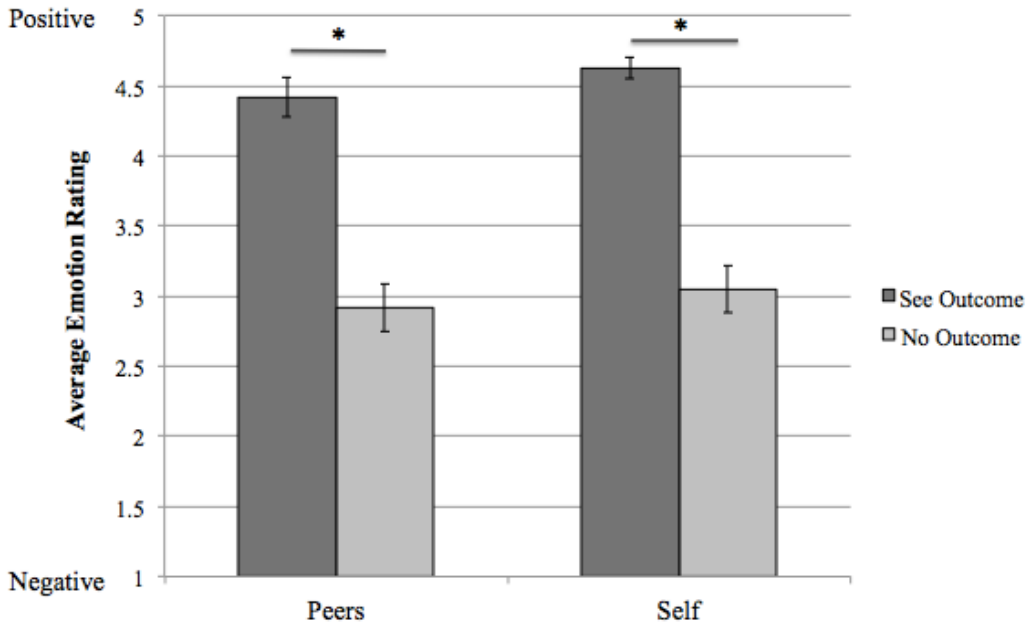

Table 9

Summary of Responses to Why Participants Think Peers Prefer Seeing or Not Seeing Outcome

	Make Giver Happy	Like/Want to See Recipient	Know Recipient Got It	Get A Thank You	Know Identity of Recipient	Don't Know	Other
Prefer Seeing	10	9	6	6	5	7	11
	Have Time to Oneself	**Don't Know**					
Prefer Not Seeing	1	2					

Note. Number of mentions for each reason why participants think peers prefer seeing or not seeing the outcome of their generosity.

Table 10

Summary of Responses to Why Participants Prefer Seeing or Not Seeing Outcome

	Like/Want to See Recipient	Make Giver Happy	Know Recipient Got It	Get A Thank You	Know Identity of Recipient	Don't Know	Other
Prefer Seeing	11	7	6	6	2	6	10
	It Could Be A Surprise	**Have Time to Oneself**	**Don't Know**	**Other**			
Prefer Not Seeing	2	1	1	1			

Note. Number of mentions for each reason why participants prefer seeing or not seeing the outcome of their generosity.

Discussion

This study found that 5-year-old children believe that peers would experience greater happiness after giving when they could see the outcome of their generosity compared to when they could not see the outcome of their generosity. Children also anticipated that they would experience greater happiness after giving when they could see the outcome of their generosity compared to when they could not see the outcome. This finding indicates that children are aware of one of the underlying sources of emotional reward from giving (as it aligns with the actual emotion experiences children displayed in Study 2), providing further evidence that they are in part motivated to give out of anticipation of emotional reward from seeing the positive impact on a beneficiary.

While the majority of children in Study 2 did say that they preferred seeing the outcome of their generosity to not seeing the outcome right after experiencing each of these events, that item was tied to the specific task and thus does not represent children's more general awareness of the relation between seeing a beneficiary and emotional reward. Further, the justifications children provided for why they preferred seeing the outcome in Study 2 were not frequently related to the fact that they got to see the beneficiary in that condition (e.g., liking that particular

resource, generally liking to give, I don't know). However, the current study was able to demonstrate children's general awareness that seeing a beneficiary of one's giving influences one's happiness from giving by assessing how happy they think themselves and others would be in those situations (perhaps a more sensitive measure, as it is continuous and does not force a choice between two options).

This study also highlighted some of the reasons children believe seeing a beneficiary influences emotional reward (e.g., like/want to see recipient, makes giver happy, know recipient got resource, giver gets a thank you, know identity of recipient), which were not mentioned as often or at all by participants in Study 2. Although participants in this study more frequently mentioned justifications that were relevant for the study manipulation (the beneficiary was there versus the beneficiary was not there), not all of these justifications were specifically about being able to being able to empathize with the positive emotions of the beneficiary. That is, although children did mention liking or wanting to see the positive impact on a beneficiary, there were reasons other than empathizing with a beneficiary, such as getting credit (a thank you) or knowing more about the situation (that the recipient actually got it or who the recipient was). Therefore, future work could more systematically test *why* children believe giving is more rewarding when one can see the a beneficiary in order to examine whether or not they think it is about their ability to empathize with the beneficiaries positive emotion.

According to past research (Aknin, Dunn, et al., 2012; Aknin et al, 2018; Paulus & Moore, 2017) and Baumeister and colleagues (2007)'s theory of how emotions reinforce behaviors through a feedback loop, children's conscious reflection on how they feel after giving when they can see the beneficiary (as opposed to when they cannot see the beneficiary) may in part drive their motivation to give in future instances when they have the opportunity to see the

outcome or mitigate their desire to give when they do not have the opportunity to see the outcome. In order to test whether this knowledge does indeed influence children's giving behavior, future work should investigate: 1) whether children (like adults; Smith et al., 1989) are more likely to give when they can see the outcome of their generosity, and 2) whether those who are more aware of the influence of seeing the outcome on emotional reward are also more likely to give when they can see the outcome. These studies would provide further evidence that children's awareness of the source of their emotional reward from giving reinforces their motivation to give in situations that would provide them with the maximal emotional benefits (i.e., when they are able to see their positive impact on a beneficiary).

Study 6:

Do children think people are happier from being a giver than from watching a giver?

Thus far, Chapter 4 has demonstrated that 5-year-old children believe people will experience happiness upon giving to others (Study 4) and that this happiness is rooted in seeing the positive impact on a beneficiary (Study 5). However, in order to claim that this awareness in turn reinforces children's desire to act prosocially, it is important to demonstrate that they think that emotional reward is rooted in being the giver (i.e., the one who caused the positive impact on the beneficiary) per se. In other words, it is possible that seeing that beneficiary of a generous act is more rewarding than not seeing a beneficiary of a generous act even when one was not the giver herself. Therefore, it is critical to demonstrate that children think being the giver is more rewarding than simply watching someone else give in order to provide further evidence that children's anticipation of emotional reward upon giving motivates their own decisions to do so.

Since Study 3 demonstrated that by five years of age children's experience of emotional reward is greater when they were the giver (compared to simply watching someone else give)

this final study examines whether 5-year-old children believe that peers will express greater happiness after giving resources to a recipient than after seeing someone else give resources to a recipient and anticipate that they would feel happier after giving resources to a recipient than after seeing someone else give resources to a recipient. Children rated the affect of target characters after they gave and after they watched another person give and predicted their own emotional responses to giving and watching others give. If children's beliefs align with their actual experiences (as described in Study 3), children will believe that individuals are happier being the giver. The general methodology and analysis plan were included in a pre-registration on aspredicted.org (http://aspredicted.org/blind.php?x=4je626).

Method

Participants

Forty-eight 5-year-olds (24 females; M_{age} = 66.42 months, SD = 3.01) were recruited through a university database of volunteers (n = 27), at schools (n = 17), and in a public park (n = 4). An additional two children were tested, but the data were discarded due to experiment error (i.e., the incorrect story audio played for one condition). Among those participating in the lab, children in the sample identified as White (n = 16), Asian (n = 1), Hispanic/Latino (n = 1), and Multiracial (n = 9). Parents of children who participated in the lab setting were highly educated (82% reported having completed at least a Bachelor's degree), wealthy (73% reported an annual household income of $75,000 or more), and identified as politically liberal[12] (M = 2.19, SD = 1.15). This demographic information was not provided for children tested in the school and park setting. However, the schools for this experiment consisted of private preschools and elementary schools in an upper-middle class community located in the Pacific Northwest. The public park was similarly located in an upper-middle class community in the Pacific Northwest. Parents gave

[12] Measured on a scale of 1 (very liberal) to 7 (very conservative).

informed consent for their children's participation in the study, children gave verbal assent, and children were compensated with a small toy prize in addition to the stickers they received in the experiment.

Design

Given the within-subjects design of this study, participants answered questions about all four different types of scenarios: (1) peers giving resources; (2) peers watching others give resources; (3) themselves giving resources; (4) themselves watching others give resources. The order in which they completed the conditions was counterbalanced. Participants were randomly assigned to one of the counterbalance orders. The procedure took about ten minutes to complete.

Procedure

All participants were tested individually in a university lab, at their schools, or in a public park. Participants were first told that they would be a part of an activity in which they were going to hear stories about kids and then answer questions about how they think the kids feel (e.g., very good, a little bit bad, in the middle). Importantly, participants were told that there are no right or wrong answers to the questions and that they should just say what they think about the story characters' feelings.

Emotion scale training. As in Studies 4 and 5, participants were first trained on the emotion scale used throughout the study. The emotion scale depicted five faces showing emotions that were (1) very unhappy, (2) a little bit unhappy, (3) in the middle, (4) a little bit happy, and (5) very happy. The training was the same as in Studies 4 and 5, such that participants were told four stories about other children and were asked to rate the emotion of the character in each story. The stories were the same as those used in the previous studies and again, the experimenter continued on to the next step of the procedure after the four practice

stories if participants successfully identified at least one response on each side of the scale, at least one extreme response, and at least one non-extreme response. If participants did not successfully fulfill these criteria (or provided responses that were quite inconsistent with the stories presented), the experimenter presented one or two additional practice stories. The experimenter continued on to the next step of the procedure when the participant met the training criteria; however, the session was terminated if the participant continued to not meet the training criteria.

Peer items. Participants were presented with stories about other children (matched on participant age and gender) giving resources and watching other people give resources. Stories were presented to participants via pre-recorded audio in PowerPoint with accompanying images depicting the stories. Each story described a target child who was with another child or other children at an event or location (e.g., museum, park, movie theatre). Images of the children and the resources given (e.g., candy, stickers, erasers) appeared on the screen when they were introduced in the stories.

In giving stories, the target child found a desirable resource and when his/her friend asked what he/she had, the target child described the resource and then gave the resource to his/her friend (at this point the resource image moved across the screen from the target child towards his/her friend). In watching stories, the target child saw two other kids who were standing a ways away from the target child. The target child saw that one of the other kids found an extra resource and when the second kid asked the first kid what he/she was holding onto, the target child watched the first kid describe the resource and then give the resource to the second kid (at this point the resource image moved across the screen from the first kid towards the second kid). Each participant heard two different giving stories and two different watching

stories. After each story, participants were asked to indicate how they think they target child was feeling on the 1 (very unhappy) to 5 (very happy) scale.

Self items. Participants were presented with hypothetical stories about themselves giving resources and watching other people give resources. Stories were presented to participants via pre-recorded audio in PowerPoint with accompanying images depicting the stories. Each story depicted a target child (the participant) with another child or other children at an event or location (e.g., museum, park, movie theatre). Stick-figure drawings used to visually represent the participant and other child(ren) appeared on the screen when they were introduced in the stories. Similarly, images of the resources given (e.g., candy, stickers, erasers) appeared on the screen when they were introduced in the stories.

In giving stories, the participant hypothetically found a desirable resource and when his/her friend asked what he/she had, the participant hypothetically described the resource and then gave the resource to his/her friend (at this point the resource image moved across the screen from the participant towards his/her friend). In watching stories, the participant hypothetically saw two other kids who were standing a ways away from the participant. The participant hypothetically saw that one of the other kids found an extra resource and when the second kid asked the first kid what he/she was holding onto, the participant hypothetically watched the first kid describe the resource and then give the resource to the second kid (at this point the resource image moved across the screen from the first kid towards the second kid). Participants heard two different giving stories and two different watching stories. After each story, participants were asked to indicate how they think they would feel on the 1 (very unhappy) to 5 (very happy) scale.

Preference items. After identifying how they think peers and themselves would feel after giving resources and watching other people give resources, participants were asked directly

which activity they think others and themselves like to do more: giving or watching people give. These items were presented in the same order as the story items. That is, half of the participants were asked about others first and half were asked about themselves first. Further, half of the participants were presented with the order of giving versus watching and the other half were presented with the order of watching versus giving. Finally, the experimenter asked participants why they think that others and themselves would prefer giving or watching other people give.

Results

Emotion Expectations

A paired-samples t-test revealed that participants expect peers to be significantly happier after giving resources (M = 3.55, SD = 1.30) than after watching other people give resources (M = 2.91, SD = 1.21), $t(47) = 2.74$, $p = .009$, $g = .50$. Further, one-sample t-tests revealed that participants' average rating of peer emotion after giving resources was significantly greater than neutral (3), $t(47) = 2.94$, $p = .005$, $d = .42$; however, their average rating of peer emotion after watching other people give resources was not significantly different from neutral, $t(47) = 0.54$, $p = .593$, $d = .07$.

A paired-samples t-test revealed that participants expect to be significantly happier after giving resources (M = 3.60, SD = 1.26) than after watching people give resources (M = 2.96, SD = 1.35), $t(47) = 2.65$, $p = .011$, $g = .48$. Further, one-sample t-tests revealed that participants' average rating of their emotion after giving resources was significantly greater than neutral (3), $t(47) = 3.31$, $p = .002$, $d = .48$; however, their average rating of their emotion after watching other people give resources was not significantly different from neutral, $t(47) = 0.21$, $p = .831$, $d = .03$. See Figure 3 for representation of these findings.

To examine the question of whether the hypothesized main effect differs based on whether participants are responding about peers or themselves, a paired-samples t-test was conducted on the mean difference between giving and watching people give ratings for peers and self. This analysis revealed that the difference in emotion ratings for giving and watching people give was not significantly different when participants responded about peers ($M = 0.65$, $SD = 1.63$) than when they responded about themselves ($M = 0.65$, $SD = 1.69$), $t(47) = 0.0$, $p = 1.0$, $g = .0$.

Preference Items

A binomial test was conducted on the two preference items to test whether participants believe peers and themselves prefer giving resources or watching people give resources. Analyses revealed that participants were significantly more likely than chance (0.50) to respond that peers (.67) and themselves (.67) prefer giving resources to seeing other people give resources, ps = .029.

Further, two research assistants who were blind to hypotheses coded participants' responses to the question of why they thought other kids preferred giving or watching others give resources and why they preferred giving or watching others give resources. If there were disagreements between the two coders (which occurred on 3.5% of codes), they were resolved by a third coder. On the item about themselves, of the participants who prefer giving ($n = 32$) the most commonly mentioned reason was that giving is nice/good ($n = 11$). Of the participants who said peers prefer watching ($n = 16$), the most commonly mentioned reasons were that they like seeing nice/good acts ($n = 4$) and that they do not like to give ($n = 2$). See Table 11 and Table 12 for more a more detailed summary of participants' responses.

Figure 3

Participants' Emotion Expectations for Study 6

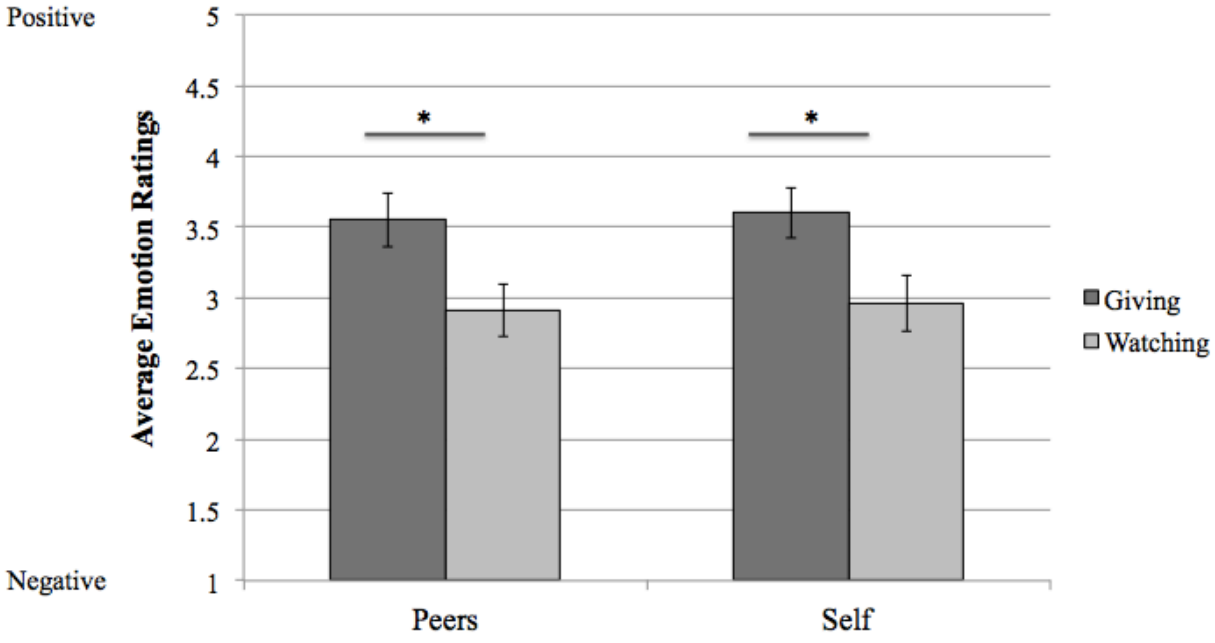

Table 11

Summary of Responses to Why Participants Think Peers Prefer Giving or Watching

	Nice/Good	Makes Recipient Happy	Makes Giver Happy	Like to Give	Don't Know	Other
Prefer Giving	11	4	3	3	11	4
	Like Seeing Good Acts	**Don't Like to Give**	**Feel Happy Seeing Good Acts**	**Don't Know**	**Other**	
Prefer Watching	4	2	2	6	2	

Note. Number of mentions for each reason why participants think peers prefer giving or watching.

Table 12

Summary of Responses to Why Participants Prefer Giving or Receiving

	Nice/Good	Makes Recipient Happy	Makes Giver Happy	Like to Give	Don't Know	Other
Prefer Giving	8	4	4	4	6	8
	Like Seeing Good Acts	**Don't Like to Give**	**Feel Happy Seeing Good Acts**	**Don't Know**	**Other**	
Prefer Watching	6	5	2	2	2	

Note. Number of mentions for each reason why participants prefer giving or watching.

Discussion

This study found that 5-year-old children believed that peers would experience greater happiness when they were the giver compared to when they watched someone else give. Children also anticipated that they would experience greater happiness after giving when they were the giver compared to when they were not the giver. This finding indicates that children are aware that there are emotional benefits associated with being a giver (as their beliefs align with the actual emotion experiences children displayed in Study 3), which provides further evidence that children may be motivated to give in part out of anticipation that doing so will provide them with happiness (Aknin et al., 2018; Baumeister et al., 2008; Paulus & Moore, 2017). Moreover, this study provides further evidence that being responsible for a generous action becomes of importance to children by age five. Although the researchers suggest that younger children experience similar reward upon seeing others helped when they are not responsible for the action as they do when they are the one to help (Hepach et al., 2012; Hepach et al., 2016; Hepach, Vaish, et al., 2017) and that younger children are not concerned about being a prosocial actor (Hepach et al., 2013; Hepach, Haberl, et al., 2017), the current work indicates that children are

aware of the benefits associated with being a prosocial actor by age five. Therefore, this finding along with that of Study 3 indicate a developmental shift from toddlerhood into the late preschool years, where children begin to experience greater emotional reward from being responsible for a generous action and are aware of this impact of being a giver on happiness.

While the majority of children in Study 3 did say that they preferred being the giver compared to watching someone else give right after experiencing each of these events, that item was tied to the specific task and thus does not represent children's more general awareness of the relation between seeing a beneficiary and emotional reward. Further, the justifications children provided for why children preferred being the giver in Study 3 do not speak to their beliefs about how being a giver or not impacts emotional reward. That is, children tended to say that they preferred being the giver because they got to use the chute (which they described as being rather fun) and just generally because they were the one to do it. However, the current study was able to demonstrate children's general awareness that being a giver leads to greater happiness than simply witnessing a generous act by assessing how happy they think themselves and others would be in those situations (perhaps a more sensitive measure, as it is continuous and does not force a choice). This study also highlighted some of the reasons children believe being a giver influences emotional reward (e.g., it is a nice/good thing to do, it makes the recipient happy, it makes the giver happy), which were not mentioned as often by participants in Study 3. Future work could more systematically test why children believe giving is more rewarding than simply watching other people give.

Since these studies are an early step toward understanding how awareness of emotional reward motivates children's generous behavior, future work is needed to examine whether children who are more aware of how being a giver influences happiness are also more likely to

engage in generous behavior. While Paulus & Moore (2017) started to answer this question by testing the correlation between children's expectations and their generous behavior, this study is underpowered. Since correlations are stable at around 250 participants (Schönbrodt & Perugini, 2013), it is critical that future work examine the correlation between children's beliefs about emotional reward and their giving behavior among a much larger sample of participants. Further, Aknin, Dunn, and Norton (2012) demonstrated a feedback loop in adults, such that when participants reflected on a previous giving experience, those who rated more positive emotions from that experience were subsequently more likely to give and more likely to be happy from that new giving experience. There is already evidence to suggest that children are more generous after thinking about a previous time they were generous (Tasimi & Young, 2016); however, future work should be directed toward examining whether this can be explained by their tendency to rate the previous giving experience as positive as well as their subsequent happiness from a new giving experience. This work would further describe how children's recognition of the emotional benefits of giving motivates their generous behavior.

Chapter 5 – General Discussion

The current work investigated three central research questions in order to better understand emotional reward as a potential motivator of children's generosity: (1) Are children happier giving resources than receiving resources?; (2) What are the sources of emotional reward from giving in childhood?; and (3) What are children's beliefs about the relation between giving and happiness?. To answer the first question, Study 1 demonstrated that 5-year-old children express more happiness after giving resources to others than after receiving resources for themselves—a replication of previous work with adults (Aknin et al., 2014; Aknin et al., 2017; Dunn et al., 2008) and younger children (Aknin, Hamlin, et al., 2012). After providing further evidence that children do experience emotional reward from giving in Study 1, the next two studies investigated two potential sources of children's emotional reward from giving—witnessing the positive impact on a beneficiary and being responsible for the generous action—to begin answering the second central research question. Study 2 demonstrated that 5-year-old children were happier after giving to another child when they were able to witness the other child receiving and reacting to the resources (compared to when they could not see the beneficiary). Then, Study 3 demonstrated that 5-year-old children were happier when they were responsible for the generous action (compared to when they saw someone else give). Together, these studies suggest that children's experience of emotional reward (as determined primarily by their facial expressions) is rooted in being responsible for a generous action and being able to see the positive impact of their generosity on a beneficiary.

Further, three additional studies were aimed at answering the third research question regarding children's beliefs about the relation between giving and happiness. These studies were mapped onto each of the three previous studies in order to understand whether 5-year-old

children are aware of the emotional benefits of giving and the sources of this emotional reward that had been demonstrated in Studies 1, 2, and 3. Children's expectations were mostly in line with their experiences; however, children failed to recognize the emotional benefits of giving relative to receiving. That is, in Study 4, children believed that giving does make people happy (emotion ratings were higher than neutral); however, they believed that people are even happier from receiving resources. This finding is at odds with 5-year-old children's own experiences as seen in Study 1, though they are consistent with adults' beliefs (Dunn et al., 2008). Potential explanations and implications for this difference are discussed later in this Chapter. Importantly, children in Study 4 did recognize that givers would be happy from sharing with others and the final two studies indicate that children even recognize the sources of this happiness. That is, in Study 5 children believed that givers are happier when they can see the positive impact on a beneficiary and in Study 6 children believed that people are happier to be responsible for a generous act than to watch someone else being generous. Thus, overall, 5-year-old children tend to demonstrate a belief that engaging in generous behavior is self-rewarding, though they do not believe this reward is as good as having things for oneself.

The following sections of this chapter describe the interpretations and implications of each finding as well as the limitations of the work. The first section will discuss the studies about children's emotional experiences (Study 1, 2, and 3) and the second section will discuss the studies about children's beliefs (Study 4, 5, and 6). The final sections will discuss general limitations and suggestions for future work as well as the overall conclusions from this dissertation.

Children's Experience of Emotional Reward from Giving

Previous research established that when adults engage in prosocial behavior they demonstrate greater happiness and life-satisfaction (Aknin et al., 2014; Aknin et al., 2017; Dunn et al., 2008; Dunn et al., 2014; Field et al., 1998; Lyubomirsky, Sheldon, et al., 2005), fewer negative emotions (Aknin et al., 2017), better mental health (Lum & Lightfoot, 2005; Musick & Wilson, 2003), and lower mortality rates (Brown et al., 2003; Konrath, et al., 2012; Musick et al., 1999; Oman et al., 1999). Moreover, giving resources to others provides adults with even more happiness than getting resources for themselves (Aknin et al., 2014; Aknin et al., 2017; Dunn et al., 2008). Recent studies with toddlers also suggest that this phenomenon occurs quite early in development; however, these developmental studies have generally been underpowered (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015). Therefore, Study 1 of the current work demonstrated a critical replication of this phenomenon in children a few years older. Not only did this study show that 5-year-old children's facial expressions look happier after giving a resource to another child than after getting a resource for themselves (as shown in prior work with toddlers, Aknin, Hamlin, et al., 2012), it also provided converging evidence that giving was more rewarding than receiving for children since the majority of participants verbally indicated that they preferred giving to receiving.

As described in the discussion of Study 1, this finding is an important replication of the previous work among a larger sample than those previously tested. Therefore, this finding further supports the perspective that the self-rewarding nature of prosocial behavior is an early-emerging experience that likely serves to reinforce cooperative behaviors that are a critical component of human social interaction (Aknin, Hamlin, et al., 2012). That is, the experience of positive emotions from giving is perhaps not derived from or dependent on numerous years of experience with giving, nor advanced conversations about the significance of generous behavior that exists

among adults. Rather, this mechanism may reinforce children's prosocial activities even when their prosocial actions are rather simple or short-lived. Although by age five children have likely had several experiences sharing with others in a moment—for instance sharing their toys during a play session—presumably, children of this age have had fewer experiences than adults with giving away resources to others. That is, while adults have had ample experience with giving away resources that they will not get back, such as gifts for friends or donations to charity, 5-year-old children (who have barely started schooling) likely have not had many of these experiences. However, investigating the frequency and way in which children do actually experience giving away resources in the real world are important questions for future research.

Nonetheless, Study 1 provided a critical replication of previous work showing that children experience happiness from giving and that the emotional benefits from giving are even greater than those from receiving resources for oneself. Therefore, individuals are reinforced for engaging in prosocial behavior from an early age, which may in turn increase the likelihood that individuals continue to engage in such behavior (Aknin et al., 2018). In order to further understand how this mechanism for prosocial behavior functions in early development, it is critical to investigate the sources of this emotional reward. That is, children might experience happiness from giving because they are able to empathize with the positive emotion displayed by the beneficiary, an experience termed "vicarious-joy" (Morelli et al., 2015) and/or feel good from being responsible for the generous action (Andreoni, 1989). Being able to see the positive impact that one has on a beneficiary (Smith et al., 1989) and being the person responsible for a generous action (Crumpler & Grossman, 2008) are factors that motivate adults' generous behavior, likely because these factors influence their experience of emotional reward (Aknin, Dunn, et al., 2013). Given that these factors may also influence children's experience of

emotional reward, Studies 2 and 3 tested the influence of witnessing the impact on the beneficiary and being the prosocial actor on children's happiness.

Witnessing the impact on the beneficiary. In line with adults' experiences (Aknin, Dunn, et al., 2013), 5-year-olds in Study 2 demonstrated happier emotion expressions after giving when they could see the positive impact on the beneficiary. Therefore, the emotional benefits associated with giving in childhood are at least in part rooted in children's ability to experience "vicarious-joy" (Morelli et al., 2015). That is, giving is more rewarding to children when they can experience empathy with the beneficiary's positive emotion. This finding is consistent with previous work showing children find pleasure in seeing others helped. In those studies, toddlers showed decreases in their sympathetic arousal (Hepach et al., 2012) as well as elevation in their posture and increased smiling (Hepach, Vaish, et al., 2017) from seeing a recipient of help being benefitted compared to when this recipient was not helped. Although subjects in those studies were younger than the children in the current work, together they suggest that seeing the positive impact on a beneficiary is critical to reinforcing children's prosocial behavior through emotional reward.

Given these findings and drawing on theorizing by previous researchers (Smith et al., 1989), it is possible that people are motivated to engage in prosocial acts in part out of anticipation of empathizing with the happiness of a beneficiary. Adults are more likely to behave prosocially when they believe they will be able to see the impact on a beneficiary (Smith et al., 1989). However, children in this study were not clearly told whether or not they would see the beneficiary prior to their decision to give to the recipient. Although the current work demonstrates that children's happiness from giving is rooted in seeing their positive impact on a beneficiary, it cannot conclusively speak to whether they chose to give out of anticipation of

vicarious-joy. Therefore, future work could investigate whether children are also more likely to give when they expect to see the positive emotion of a beneficiary compared to when they do not expect to see the positive outcome.

As in Study 1, the majority of children in Study 2 stated a preference for the condition in which they showed the happier emotional expressions (as coded by third-party observers). While this item provides converging evidence that seeing the beneficiary was more rewarding to children than not seeing the beneficiary, children's justifications for why they stated this preference are not particularly useful for interpreting this effect. For example, the most frequent description for why children preferred seeing the beneficiary had to do with the resource they sent in that condition (whether it had been crayons or stickers). Given that children gave interesting resources to the beneficiary in both conditions, this explanation seems more like a post-hoc justification than a relevant reason why children preferred the condition where they could see the beneficiary. Although that particular justification is less relevant, some children provided other justifications that are more connected to the manipulation of this study. For example, several children mentioned being able to see/hear the recipient and a few children mentioned that they knew the recipient got the resource or that the recipient liked the resource, better indicating that their preference had to do with seeing the beneficiary. Children's justifications for their preference to give when they could see the beneficiary may not conclusively speak to why seeing the beneficiary was preferred; however, it is clear from this study that children are most rewarded from giving when they are able to witness their positive impact on a beneficiary.

Being the prosocial actor. As indicated by the previous study, children's happiness from giving seems to stem from their ability to empathize with the positive impact on a beneficiary.

Although children in Study 2 were responsible for the generous action, theoretically one does not need to be the giver in order to experience "vicarious-joy". That is, if experiencing empathy for the positive emotions of a beneficiary is the source of emotional reward, then children may not need to be a giver to experience happiness—they can simply watch others engage in generous actions and reap the emotional benefits. In line with this idea, previous research indicates that toddlers experience similar intrinsic reward upon seeing others helped when they are not responsible for the action as they do when they are the one to help (Hepach et al., 2012; Hepach, et al., 2016; Hepach, Vaish, et al., 2017). Therefore, some researchers argue that young children are not as concerned about being a prosocial actor as they are with witnessing that someone has benefitted (Hepach et al., 2013; Hepach, Haberl, et al., 2017).

However, by adulthood, individuals care about being responsible for generous actions (Andreoni, 1989). For example, even when adult participants are told that their personal monetary donation to a person in need will not change the overall outcome for that beneficiary (the beneficiary will get a max of $10 whether the participant gives or not), they choose to donate some money (Crumpler & Grossman, 2008). Further, adults experience greater happiness from giving when they directly deliver their donation (and thus are solely responsible for the generous act) compared to when an intermediary delivers their donation (Aknin, Dunn, et al., 2013). Study 3 of the current work demonstrates that, by age five, children are similar to adults in that they do care about being responsible for a generous action. In this study, children expressed greater happiness on their faces while watching a beneficiary receive a resource after *they* gave it compared to when someone else gave the resource, and further, a large majority of children stated that they preferred being the giver compared to watching someone else give. Therefore, although younger children may be solely motivated and rewarded by seeing positive

outcomes for beneficiaries, by age five, children demonstrate greater reward from being the one who benefits others.

Critically, age five is the time at which children's prosocial behavior begins to be influenced by their reputational concerns (Silver & Shaw, 2018). That is, 5-year-olds are more likely to share when they know that others will be aware of their generous actions, presumably because they want others to think they are a good person (Engelmann et al., 2012; Leimgruber et al., 2012). However, toddlers do not demonstrate these concerns, as they are just as likely to engage in generous acts in situations where they cannot "get credit" for their generosity (Hepach et al., 2016; Hepach, Haberl, et al., 2017). Therefore, the current work provides further evidence that by age five children care about being responsible for generous actions. Relatedly, perhaps children demonstrate greater happiness from being a giver than when watching others give because they are happy to know that they have behaved in such a way that others will be pleased with. In other words, if children by age five are motivated to give because they want to look like a good person, it makes sense that they would be most happy when they were responsible for a generous act.

Although these studies on children's experiences of emotional reward provide important evidence that engaging in prosocial behavior is self-rewarding in early development, there are some limitations of the current work. The following sections describe the limitations for these studies and suggest critical future work that is necessary to strengthen the claim that children by age five are motivated to give because they are happy from *witnessing* the positive impact that *they* have provided for another person.

Limitations of the chute task. The emotion experience studies of the current work (Studies 1, 2, and 3) provided children with opportunities to give resources to recipient children

in order to measure their expressed happiness upon giving. Children were told that they could give a resource to another child who was in another room by "sending" the resource through a chute that would go from their room to the recipient's room. They were also able to see how the chute sends items to the other room and interact with the recipient by watching pre-recorded videos that were made to look like real-time. This paradigm had been used in previous work (Martin et al., 2016) as a means of providing a giving experience to children in a way that allows for maximal control over the interaction between each participant and the recipient. That is, having pre-recorded video of the chute delivery and recipient in the other room(s) removed variability in the giving experience across children by controlling the duration and nature of the interaction with the recipient. Further, since this paradigm did not require the presences of a live confederate child, there were fewer costs (e.g., time spent scheduling or training confederates) associated with running this paradigm.

While useful in providing a more realistic giving experience without necessitating the actual live presence of a confederate child, the chute task comes with methodological limitations. Upon starting data collection, it became apparent that the chute is quite fun for children to use. As indicated in participants' answers to why they liked giving, some children noted that they preferred giving because they liked using the chute or they had never used the chute before. Therefore, this design somewhat complicates what we have learned from the emotion experience studies. If the chute is a fun activity for children, it is possible that the positive emotion they display from giving could be related to their enjoyment of using the chute to "send" objects to another child and not purely the experience of giving itself. Therefore, although the chute task provided an ecologically valid experience compared to other tasks that do not allow children to

see or interact with a beneficiary in real time (i.e., anonymous giving tasks such as the dictator game), it also introduces this complicated limitation of being a fun task.

Importantly, emotion expressions after using the chute were always coded when participants watched the recipient retrieve and react to receiving the resource, rather than when the participant was in the act of using the chute. Perhaps this timing of the emotion coding minimizes some of this concern about the chute given that participants' expressed emotion was never tied to when they first learned about the chute or when they were in the process of putting items in the chute. Further, while participants did mention their enjoyment of the chute as a reason why they preferred giving (over receiving and over watching someone else give), many children provided other responses for their preference to give, such as that it made themselves or the recipient happy, they like to give, or it is nice/fun to give. Therefore, children were not overwhelmingly stating that their preference to give was due to the chute. Nonetheless conducting a conceptual replication without a chute is a high priority for future work.

It should also be noted that participants' enjoyment of the chute might be less of a concern in Study 2 (which assessed the impact of seeing versus not seeing the beneficiary on happiness). In this study, participants used the chute for both conditions with the critical difference between conditions being that they saw the recipient getting the resource versus saw an experimenter say that the resource was there but the recipient was not and would get it later that day. Therefore, the critical difference in this study was what they saw after giving through the chute. Moreover, almost no children in this study mentioned the chute as a reason for their preference to see the beneficiary ($n = 2$), suggesting that the chute limitation potentially had little influence on the effect revealed in Study 2.

However, the effects revealed in Studies 1 and 3 are certainly more impacted by the chute paradigm. One way to rule out the chute as an explanation for the finding of Study 1 (giving is better than receiving) would be to run a follow-up study where the receiving condition involves a chute as well. That is, participants could both give a resource to a beneficiary through a chute and receive a resource from an experimenter through a chute, which would better match the conditions in terms of the additional fun associated with using a chute. Therefore, the critical difference between the conditions would be whether the participant gave the resource or the resource was given to the participant. One way to rule out the chute as an explanation for the finding of Study 3 (giving is better than watching someone give) would be to run a follow-up study that completely eliminates the participants' use of the chute. Instead, the participants could make the choice to give (and how much to give) to the beneficiary, but then the experimenter rather than the child sends the resource to the beneficiary. This condition could be compared to the condition where the recipient watches the experimenter choose how much to give and sends the resource to the beneficiary. Therefore, the participant never uses the chute and the critical difference concerns whether the decision to give (and how much) came from the participant or the experimenter. However, it should be noted that such a follow-up study would also water down the participants' causal role in the giving, which could in turn reduce their happiness from giving even though it would be a better comparison of the question of being a giver versus watching giving.

Non-costly giving task. The giving action in the experience studies was always a non-costly act, such that children were provided with the opportunity to give a resource that did not already belong to them. Since children were excluded from analyses if they did not choose to give (admittedly, a rare occurrence), it was important to find ways to maximize the instances of

giving among participants. Therefore, in order to maximize the likelihood that children would give in this task, they were asked to give something that did not belong to them. It is important to note that research with toddlers suggests that children express happiness from giving resources that are not their own, but are even more happy upon giving something at a cost to themselves (Aknin, Hamlin, et al., 2012). Thus, although the current work did not examine costly-giving, the effects detected here are perhaps an underestimate of the effects that would be seen had children been asked to give resources that belonged to them. Work with adults similarly asks participants to give resources that never belonged to them or have only belonged to them for a short period of time and the authors of that work have similarly noted that providing non-costly giving tasks simply underestimates the effects of giving on emotional reward that one would see if the giving was costly (Aknin et al., 2017).

However, since real-world experiences of giving typically involve a cost to the giver, future work should further investigate children's expression of emotional reward when they engage in costly rather than non-costly giving. For example, it would be interesting to test whether the sources of emotional reward discussed in the current work (i.e., the impact of seeing a beneficiary or being a giver) are even more influential when giving is costly. Perhaps children are even happier from seeing a beneficiary or from being a giver when they choose to give away items that belong to them or that they believe are highly valuable compared to when they gave away items that were never and would never be theirs.

Further, the previous work that compared the impact of costly and non-costly giving on emotional reward in toddlers (Aknin, Hamlin, et al., 2012) perhaps underestimated the degree to which costly giving is more rewarding than non-costly giving. In that study, the costly condition involved giving treats that "belonged" to the participants; however, these treats had presumably

been given to participants not long before the giving action took place. Thus, although this was a more costly form of giving than giving extra treats that did not belong to the participants, the toddlers had not owned these treats for very long and had gotten the treats through a windfall (without "earning" them). Therefore, it is important to determine how children's emotional reward from giving is influenced by giving items that they perhaps earned through some work or had owned for a significant period of time. It would be interesting to manipulate work put into gaining resources and time since gaining resources to see how those factors influence children's emotional reward form giving.

Coding of emotion expressions. It is important to note that there may be some limitations associated with the decision to use children's emotion expressions (as interpreted by adult research assistant coders) in order to assess children's emotional experiences. The decision to do so was primarily based on the fact that other studies examining questions about emotional reward from giving with child samples had utilized similar coding schemes (Aknin, Hamlin, et al., 2012; Van de Vondervoort et al., 2017). In those studies, as in the current work, children performed giving actions and then adult research assistants coded their emotion expressions from video of participants completing the study. However, given that facial expressions can be regulated (i.e., even though one has an emotional experience, they have the ability to change how that experience is represented facially), it is possible that the coded emotion expressions do not fully describe children's emotional experiences.

Fortunately, researchers have studied children's ability to voluntarily display emotion expressions that do not align with their emotional experiences. Typically, researchers examine children's tendency to produce positive facial expressions in response to disappointing events (such as receiving a terrible prize). These studies indicate that preschool children are not very

adept at voluntarily changing their facial expressions (Ekman, Roper, & Hager, 1980), and more specifically, it is not until middle childhood that children start to become successful at displaying positive facial expressions in response to disappointing events (Saarni, 1984). Therefore, it is unlikely that 5-year-old children in the current work were voluntarily displaying positive emotion in response to giving (compared to receiving or watching someone else give) out of a desire to mask a negative emotional experience.

Further, evidence in adult samples suggests that people's self-reports of their experience of emotional reward align with their facial expressions (Ekman, Friesen, & Ancoli, 1980). Although most adult work related to this particular phenomenon of emotional reward from giving asks participants to self-report their emotional experiences from giving or receiving (Aknin, Dunn, et al., 2012; Aknin et al., 2014; Aknin et al., 2017; Dunn et al., 2008), at least one study has verified that adults' self-reported emotional experiences were highly correlated with the emotion ratings of third party individuals who coded participants' emotional expressions from video (Aknin et al., 2014). That is, there was a large amount of consistency in what adult participants said they experienced and what they seemed to experience based on their facial expressions. Thus, it seems likely that participants in the current work would self-report similar emotion experiences to what the coders rated from the video. Also, in all of the experience studies of the current work, the majority of participants reported that they preferred the condition in which they also expressed the most happiness, on average.

Future work could be conducted to mitigate the concern that children's facial expressions are not an entirely accurate or precise measure of children's emotion experiences. A first step would be to assess children's self-reported emotional experience in the moment (rather than just the measure of preference between parts of the experiment, as done in the current

work). Moreover, different measures of emotional experience and emotional reward specifically, such as physiological or brain activation measures, would be useful in providing converging evidence for the current findings. For example, Harbaugh and colleagues (2007) found greater activation in the ventral striatum—a brain region tied to the experience of pleasure and reward—when adults engaged in generous behavior. Using measures such as this would be useful in demonstrating that the current findings are not solely rooted in the fact that these studies implement facial expression as the key dependent measure, ultimately providing greater confidence in the current work.

Alternate explanations for Study 2. In Study 2, children expressed greater happiness after giving when they could see the outcome of their generosity compared to when they could not see the outcome. That is, they were happier when they could see the beneficiary receiving and reacting to the resource compared to when they did not see the beneficiary receive or react to the resource. The leading interpretation of these results is that children's emotional reward from giving is rooted in the vicarious-joy they experience upon witnessing the happiness of the beneficiary. That is, children experienced empathy for the positive emotions displayed by the beneficiary. However, due to the methodology of this particular study, there are other interpretations of the results. Those interpretations are described here with suggestions for future studies that can tease apart these different explanations for the findings of Study 2.

First, it is possible that children were happier in the case where they could see the beneficiary receive the resource because they had evidence that they successfully completed a goal (the beneficiary actually got the resource). Hepach, Vaish, & Tomasello (2017) found that children's posture is also impacted by completing a goal, such that children demonstrated elevated posture upon successful goal completion even when that goal does not involve helping

someone else. Importantly, children were aware that they successfully sent the resource to the other room in both conditions—in the case where they did not see the beneficiary, an experimenter instead pointed out that the resource made it to the other room and that the beneficiary would receive the resource later that day. However, it is still possible that children were less happy in this case because they did not have evidence of completing the more specific goal of getting the resource to the intended beneficiary.

A second possibility is that children were happier in the case where they could see the beneficiary receive the resource because there was a direct causal chain between them giving the resource and the beneficiary receiving the resource. That is, in that condition children were directly responsible for the giving act, whereas in the condition where children did not see the beneficiary it was also the case that an adult experimenter was an intermediary between the actor and the recipient. Given the results of Study 3—that children are happier and prefer to be responsible for the giving action—this break in the causal chain between the actor and the recipient could also account for the finding of Study 2.

Therefore, future work should be aimed at disentangling the possible interpretations of these results. For example, a study could manipulate how happy the recipient is from getting what the participant gave in order to test whether children's emotional reward from giving is truly rooted in the experience of empathizing with a beneficiary's positive state. If participants' emotional reward is rooted in this vicarious-joy, they should be happier when the recipient is happy than when the recipient expresses unhappiness or neutral reaction to getting the resource from the participant. Another possible follow-up study would be to hide the recipient's facial expression and reaction from the participant in such a way that the participant can see that the

recipient got it but not see the reaction itself. This, however, would be a less ecologically-valid experience than the previous suggestion.

A final suggestion for future work would be to develop a study that involves a non-social task with the chute paradigm. That is, participants could be tasked with sending things through the chute for a purpose other than benefitting a peer. If participants were equally happy or even happier in this non-social condition than in the social (giving) condition, perhaps they were more happy from seeing the beneficiary in the current study because they simply enjoyed knowing that they successfully completed the sharing task. If, on the other hand, participants in this non-social control are less happy than in the social (giving) condition, then perhaps their emotional reward is related to seeing the positive impact they had on the beneficiary. These important future studies will further elucidate the factors that influence children's happiness from giving in order to demonstrate the source of children's emotional reward from prosocial behavior.

Conclusions about children's experience of emotional reward from giving. As just described, there are several limitations of the current work that may be addressed by future studies. However, while speculative, the current work indicates that prosocial behavior is self-rewarding from an early age in that it provides prosocial actors with the experience of positive emotions. More specifically, by age five children experience positive emotions from *witnessing* the positive impact that *they* have provided for a beneficiary. These positive emotions contribute to motivating prosocial behavior even in early development by reinforcing prosocial acts and in turn making individuals more likely to repeat similar acts in the future (Aknin et al., 2018; Baumesiter et al., 2007; Skinner, 1938). There has been a long-standing discussion of why individuals are willing to benefit others at a cost to themselves; therefore, this work adds to the growing literature demonstrating that the emotional reward experienced from benefitting others

serves as a proximate mechanism sustaining prosociality (Aknin, Hamlin, et al., 2012; Aknin et al., 2018), as positive emotions have huge benefits to the self. Experiencing positive emotions is critical for well-being in that positive emotions promote mental and physical health (Post, 2005) as well as cognitive functioning (Fredrickson, 2001). Therefore, individuals may be highly motivated to engage in prosocial behavior from an early age because doing so will provide them with valuable benefits even if they incur other costs, such as giving up time, physical energy, or resources.

Although children experience positive emotions from giving earlier than age five (Aknin, Hamlin, et al., 2012; Van de Vondervoort et al., 2017), the current work suggests that there may be some changes in this experience from toddlerhood through the preschool years. The current work demonstrates that five-year-olds, like toddlers (Hepach et al., 2013; Hepach et al., 2012; Hepach, Vaish, et al., 2017), care about seeing positive outcomes of generous behavior. That is, children demonstrated greater happiness from seeing the beneficiary than from not seeing the beneficiary of their generosity (Study 2 of the current work). However, toddlers experience these emotional benefits even when they were not responsible for the generous action (Hepach et al., 2013), while five-year-olds are more likely to experience emotional reward when they are responsible for generosity (Study 3 of the current work). Although cross-sectional work testing multiple age groups is needed to provide further evidence in support of this claim, there seems to be a developmental shift such that children begin to care more about being responsible for generous acts by late preschool.

There are several possible explanations for why five-year old children would be more likely than younger children to experience positive emotions from being the one who was responsible for a generous act. First, children at this age are concerned with maintaining a

positive reputation in the eyes of others (Silver & Shaw, 2018); thus, they may be happy from being a giver because they behaved in such a way that will make them look good. Further, from toddlerhood into the preschool years, children's advancing physical abilities, autonomy, and sense of self could contribute to their ability to be responsible for generous actions, which then influence their desire to be prosocial actors. Future work could further examine the factors that contribute to children's developing desire to be responsible for prosocial actions. Nonetheless, if emotional reward functions as a mechanism supporting children's motivation to engage in prosocial behavior, it makes sense that children eventually develop the desire to be responsible for generous acts. If it were never the case that being responsible for generous acts is more rewarding than simply watching generous acts, it would be less likely that emotional reward could function as a proximate mechanism motivating prosocial actions by reinforcing their good deeds.

Finally, it is important to note that perhaps the emotional reward experienced from giving to others might not be specific to prosocial behavior per se. That is, the experience of vicarious-joy and the experience of being an agent of action are not only tied to prosocial actions. For example, individuals may experience vicarious-joy from viewing others kinds of positive outcomes, such as seeing loved ones unite after a long time apart. Additionally, there are several opportunities for children to be agents that are not prosocial, such as playing games or sports. Thus, vicarious-joy and being an agent may be sources of children's happiness in instances other than those involving prosocial behavior and it may just happen to be the case that prosociality also elicits these two sources of happiness. Paulus (2014) similarly made the argument that children are perhaps motivated to give for reasons not specifically about prosocial behavior. More specifically, children may be motivated to engage in prosocial behavior a means of socially

interacting with others, which is a pleasurable experience for them (Paulus, 2014). This dissertation work also suggests that children's prosocial behavior may not be motivated by a genuine concern for being prosocial per se, but rather the positive emotions experienced from vicarious-joy and from being a successful agent of action. Although the experience of happiness from vicarious-joy and the experience of happiness from being an agent may be applied to other types of behavior, it is clear from the current work that these two mechanisms may be the source of children's happiness from engaging in prosocial behavior.

Children's Beliefs about Emotional Reward from Giving

One's awareness that giving will bring them happiness is an indication that they are motivated to give out of anticipation of these positive emotions (Aknin, Dunn, et al., 2012, Aknin et al., 2018; Paulus & Moore, 2017; Perry et al., 1986). This hypothesis is in line with Baumeister and colleagues (2007)'s theory of how emotions function as a feedback loop to motivate future behavior. That is, if children *do not* think that giving will make them happy or even that giving will make them unhappy, they may be less likely to engage in generous behavior out of anticipation of the emotional benefits. While one study shows that children age five do understand the emotional benefits of prosocial behavior (and that this understanding is correlated with their actual sharing behavior; Paulus & Moore, 2017), another study demonstrates that 5-year-olds do not think that behaving prosocially is more rewarding than not behaving prosocially (Perry et al., 1986). Therefore, the final aim of the current work was to better understand children's beliefs about this relation in order to clarify the previous mixed results and further examine children's awareness of *why* giving leads to happiness.

First, the finding of Study 4 – that 5-year-olds believed that both peers and themselves would experience greater happiness after receiving resources than after giving resources —

replicates past work in adults showing that adults believe spending money on themselves will provide them with more happiness than spending money on others (Dunn et al., 2008). Since both children (Aknin, Hamlin, et al., 2012; Aknin, Broesch, et al., 2015, Study 1 of this document) and adults (Aknin et al., 2014; Aknin et al., 2017; Dunn et al., 2008; Dunn et al., 2010) demonstrate greater happiness from giving, the findings of Study 4 along with past work suggests that both children and adults misjudge the self-rewarding nature of giving compared to receiving. However, as described in the Study 4 discussion of Chapter 5, it is possible that people's beliefs about how happy they will be from giving relative to receiving depends on whether people are approaching the question with an abstract or concrete construal, as adults who approach the question with an abstract construal are more likely to say that giving provides greater emotional benefits (Aknin, Van Boven, et al., 2015). Future work could test whether prompting children to use a more abstract construal in approach to the scenarios would in turn make them more likely to rate the giving scenarios as most emotionally rewarding.

Although children indicated that they believe receiving is more rewarding relative to giving to others, critically, the current design also indicates that children believe that people are happy after giving. That is, since the main dependent measure was children's ratings of target characters' emotions after giving or receiving (rather than a forced choice option between giving and receiving), the results also suggest that children believe others and themselves are happy after they give (the means are significantly different from neutral). Thus, although children expect people to feel even happier from receiving resources, they do demonstrate an understanding that giving makes people happy. Taking the perspective of previous researchers (Aknin, Dunn, et al., 2012, Aknin et al., 2018; Paulus & Moore, 2017; Perry et al., 1986), children's expectation that people are happy (and not unhappy) after giving indicates that

children are likely to give out of anticipation of feeling good upon doing so. That is, children would likely not turn down the opportunity to give (by choosing to not give) since they do not think that giving would make them unhappy. Though, children may be less motivated to give if the alternate option is to receive resources for themselves.

Further evidence that children are aware of the emotional benefits of giving comes from Studies 5 and 6, which demonstrate that children recognize the sources of their emotional reward. In these studies, 5-year-olds believed that peers and themselves would be happier from 1) seeing the positive outcome on a beneficiary and 2) being responsible for a generous act. That is, while the children recognized that seeing a beneficiary does influence one's happiness (Study 5), they were also aware that being responsible for a generous act is rewarding beyond just witnessing the positive impact on a beneficiary (Study 6). These findings support those of Paulus & Moore (2017), which indicated that 3- to 6-year-old children expected themselves and others to be happier from sharing than from choosing to not share. Since choosing to not share eliminates both factors (cannot see positive impact on beneficiary and cannot be responsible for a generous act), it is unclear from the previous work whether one or both of these factors might play a role in children's understanding that choosing to not share is less rewarding than sharing. However, the current work clarifies that children are aware of how both being able to see the beneficiary and being responsible for a generous act influence the emotional benefits one receives. Thus, these studies are the first to demonstrate that children understand of the source emotional reward, given that children's happiness was influenced by these factors in Studies 2 and 3.

The current studies are at odds with an older study demonstrating that 5-year-olds believe non-helpers are happier than helpers (Perry et al., 1986). It is possible, then, that children think

differently about the emotional rewards associated with sharing resources with others (the focus of the current work and Paulus & Moore, 2017) compared to helping others complete their goals (the focus of Perry et al., 1986). Another explanation is that the Perry et al. (1986) study found different results because they utilized a forced-choice dependent measure (who is happier—the helper or non-helper) rather than a continuous emotion rating as used here and in Paulus & Moore (2017). However, this latter interpretation is less likely given that children in the current work also tended to say that people prefer to give (than watch someone else give) in response to the forced-choice items of Study 6. Future work could further investigate whether children's beliefs about emotional reward from prosocial behavior differs depending on the type of prosocial behavior. That is, do children believe that helping someone complete their goal makes individuals less happy than providing others with resources?

These studies also highlighted *why* children think that people are happy from seeing the outcome of their giving. In Study 5, children tended to think people prefer seeing the beneficiary of their generous actions because they like/want to see the beneficiary and that it would make the giver happy to see—justifications that are in line with the "vicarious joy" hypothesis (Morelli et al., 2015). Interestingly, some children also mentioned that seeing the beneficiary is preferred because they know that the beneficiary actually received the resource and that the giver could be thanked for the generous act. In Study 6, children tended to think people prefer being the giver because it is a nice/good behavior and it makes both the giver and recipient happy. These responses indicate that children understand that giving is highly valued and perhaps are motivated to give because they want to be seen as a good person who acts according to the values of society (Silver & Shaw, 2018). A more systematic test of children's beliefs on why these factors influence happiness should be a focus of future work.

In sum, the three current studies examining children's beliefs about the relation between giving and happiness suggest that children are overall quite aware that people are happy from giving and more specifically that this happiness is rooted in seeing the beneficiary receive the resource one gave and being responsible for the generous action. However, children did not demonstrate an understanding that giving resources to others provides people with even greater happiness than receiving resources, a mistaken belief that even adults demonstrate (Dunn et al., 2008). These studies on children's beliefs provide evidence that children are in part motivated to give out of anticipation of the emotional benefits they will receive from giving (Aknin, Dunn, et al., 2012, Aknin et al., 2018; Baumeister et al., 2007; Paulus & Moore, 2017; Perry et al., 1986). However, it is important to note that there are some limitations to the logic that children's awareness of the relation between giving and happiness is an indication of their anticipation of emotional reward. Therefore, the following section describes some critical alternate interpretations and implications of these findings.

Alternate interpretations of belief findings. There are some limitations to the previous evidence that has been used to suggest that conscious awareness of the emotional benefits of prosocial behavior supports people's motivation to give (Aknin, Dunn, et al., 2012, Aknin et al., 2018; Paulus & Moore, 2017; Perry et al., 1986). The logic is that if people believe giving will make them happy, this awareness should strengthen their anticipation of feeling good upon engaging in generous behavior. Alternatively, if people do not believe that giving will make them happy, they will be less likely to anticipate feeling good upon acting generously in turn decreasing their motivation to give. Thus, demonstrating that 1) people expect to be happy from giving and 2) individual differences in beliefs is predictive of individual differences in

subsequent generous behavior provides evidence that people are motivated to give in part due to their anticipated emotion from giving.

Given this previous work and theorizing, the third aim of this dissertation was to further specify children's beliefs about whether and why people experience happiness from giving. Children did overall demonstrate awareness that there are emotional benefits from giving – specifically that people are most happy when they can *see* the outcome of *their* giving – suggesting that children's beliefs may strengthen (rather than undermine) their motivation to give out of anticipation of emotional reward. While it is possible that this awareness could make it more likely that children give out of anticipation of the emotional benefits, it should be noted that it is inaccurate to assume that this awareness must be present to motivate generosity or that it must contribute to prosocial motivations. This section of the general discussion describes why this is the case and provides some alternate interpretations of the beliefs findings.

Conscious awareness not necessary to motivate behavior. First, it is unlikely that children's conscious awareness of the emotional benefits of giving are *necessary* for the anticipation of emotional reward to motivate their generous behavior. Rather, it is possible that children's motivation to give is also rooted in an implicit anticipation of experiencing happiness from giving. Over the past few decades, work on early infant development and implicit social cognition have demonstrated that implicit attitudes and beliefs guide people's judgments and behaviors (Greenwald, & Banaji, 1995). Implicit beliefs are intuitive, automatic, and not consciously available to the individual; thus, they are particularly influential on behavior in circumstances that force a quicker and un-deliberated behavioral response from the individual (Greenwald & Banaji, 1995; Nosek, Hawkins, & Frazier, 2011; Strack & Deutsch, 2004). Even though 5-year-old children in the current work and adults in a previous study (Paulus & Moore,

2017) do mostly demonstrate a conscious awareness of the emotional benefits of giving, their implicit beliefs likely play a greater role in motivating their behavior.

In fact, research using economic games suggests that individuals who make quicker decisions about how much to give a recipient tend to be more generous than those who deliberate (Rand, Greene, & Nowak, 2012). Moreover, Rand and colleagues (2012) demonstrate that this relation is causal—when they told participants to make a donation decision either quickly or slowly, those making quicker decisions were more generous; when they told participations to follow their intuition (and inhibit their reflection) or utilize reflection (and inhibit intuition), those using their intuition and inhibiting their reflection were more generous. In addition to these behavioral studies with adults, social neuroscience experiments with adults demonstrate the intuitive nature of prosociality (for review see Zaki & Mitchell, 2013). Given these findings, it is highly unlikely that conscious awareness of the emotional benefits of prosocial behavior is *necessary* for motivating individuals to behave generously. Rather, conscious reflection may actually undermine an intuition to behave generously.

Given these findings, perhaps it is actually unsurprising that adults believe they will be happier after spending money on themselves than spending it on others (Dunn et al., 2008). That is, perhaps their conscious belief that receiving resources is more rewarding than giving resources actually undermines their desire to give resources to the recipient when they deliberate in economic games. Since 5-year-olds in the current work demonstrate a similar belief as adults, whether or not children are similarly more generous when making quick and intuitive decisions about resources than when slowly deliberating and reflecting on their decision would be an interesting and important question for future work. If children are more generous when they are forced to make speedy decisions or when they do not reflect or deliberate, there would be further

evidence that children's beliefs about emotional reward from giving may not be necessary to promote their prosocial behavior and if anything may undermine an intuitive desire to do so.

Relatedly, it is important to consider the finding that toddlers experience emotional reward from giving to others (Aknin, Hamlin, et al., 2012; Van de Vondervoort et al., 2017). Although these studies are rather underpowered, future replications of this finding with larger samples would undermine the interpretation that conscious beliefs about emotional reward are necessary for motivating prosocial behavior. Toddlers and infants do not have the verbal skills necessary to explicitly report their beliefs; therefore, studies investigating the thoughts of these young children tend to rely on methods that are designed to tap into their implicit cognition (e.g., violation of expectation looking time, anticipatory looking, intermodal matching). Therefore, it is useful and critical for future work to test whether toddlers or even infants demonstrate an *implicit* understanding of the emotional benefits of giving. For example, if young children are surprised to see a giver express unhappiness compared to happiness, there would be further evidence to suggest that an implicit anticipation of emotional reward from giving contributes to motivating generous behavior and rule out the possibility that conscious awareness of the emotional benefits of giving is necessary for motivating generosity.

A similar discussion regarding the distinction between implicit versus explicit understanding has recently occurred surrounding theory of mind, another topic related to social cognitive development. Traditional tests of children's theory of mind (i.e., their ability to attribute mental states to other people) demonstrated that it is not until four years of age that children gain the full ability to represent others' mental states. However, over the course of the past decade, studies using non-traditional methods to assess theory of mind indicate that children younger than four (even infants) are capable of reasoning about others' mental states in ways that

were previously thought to be too advanced (Scott & Baillargeon, 2017). Critically, while the traditional tasks assessing theory of mind relied on children's explicit awareness of others' mental states (Baron-Cohen, Leslie, & Frith, 1985; Gopnik & Astington, 1988; Perner, Leekam, & Wimmer, 1983; Wellman, Cross, & Watson, 2001; Wimmer & Perner, 1983), more recent work has tapped into young children's implicit knowledge about mental states by using looking-time paradigms such as anticipatory looking (Clements & Perner, 1994) and violation of expectation (Onishi & Baillergeon, 2005). Researchers have also assessed young children's implicit beliefs about others' mental states in paradigms that do not rely on looking time. For example, Buttelmann and colleagues (2009) found that children as young as eighteen months of age actively help others complete their goals, even when those goals are based in a false belief and the children know differently.

Given the growing body of work suggesting that young children demonstrate an implicit theory of mind well before they succeed on tasks assessing their conscious awareness of others' mental states, researchers have begun theorizing on what this development of explicit awareness means. Some advocate that the developmental shift around four years of age represents a meaningful conceptual change. While certain advocates of this view believe that the findings about implicit theory of mind can be reduced to lower-level explanations (Ruffman, 2014), others believe that this shift from implicit sensitivity to others' mental states to conscious awareness of others' mental states require a perspective change that is not possible prior to four years of age (Perner & Roessler, 2012). On the other hand, other researchers posit that the implicit and explicit modes of theory of mind have more similarities than differences and that young children's inability to pass the more traditional theory of mind tasks can be simply reduced to the inhibitory control, working memory, and verbal ability demands of those tasks

(Scott & Baillargeon, 2017).

While there is still active debate about whether or not the ability for children to explicitly report on others' mental states is meaningful for their ability to fully represent and use that information, it is quite clear from the history of this area of research that implicit beliefs may play more of role in people's behavior than researchers initially considered. Critically, recent research suggests that even adults implicitly track the mental states of others (see Schneider, Slaughter, & Dux, 2017 for review of automatic theory of mind processing in adults). Therefore, the evidence in this area of research is heading toward the position that implicit beliefs may actually play a large role in people's mental state understanding, questioning how much conscious awareness of others' mental states actually contributes to the ability to represent and act on this information.

Thus, perhaps the previous and current work on the emotional benefits of giving should consider the history of thinking from other areas of social cognitive development. Although the current work was initially intended to demonstrate whether or not children anticipated the emotional reward they experience from giving based on suggestions from prior research (Aknin, Dunn, et al., 2012; Aknin et al., 2018; Paulus & Moore, 2017; Perry et al., 1986), it is important to recognize that conscious beliefs about the relation between giving and happiness may not be necessary for anticipation of emotional reward to motivate generous behavior. Rather, implicit anticipation of emotional reward may also drive children's generous behavior. Moreover, given that five-year-old children in the current work and adults in previous work (Dunn et al., 2008) believe that the emotional reward associated with receiving is better than the emotional reward associated with giving, it is actually more likely that explicit awareness undermines people's tendency to engage in generous behavior. As mentioned earlier, this idea is supported by work

demonstrating that adults are more generous when they make quicker decisions and when they refrain from deliberating about their decision (Rand et al., 2012). Finally, the hypothesis that implicit, automatic, and non-conscious anticipation of emotional reward is the primary motivation for generous behavior further supports the theory that the self-rewarding nature of prosocial behavior is an evolutionary adaptation that supports the cooperative goals of humans' complex social networks.

Beliefs are a by-product of experience. Even when children's beliefs about emotional reward are an accurate representation of their experiences (such as in Studies 5 and 6 of the current work), their beliefs may not play a role in motivating their generous behavior. Rather, it is possible that children's implicit anticipation of emotional rewards from giving drives their behavior with their explicit beliefs about this relation being a consequence of their repeated experiences with emotional reward from giving. In this way, the beliefs may be just another indicator of the experience of emotional reward as they may be built up through experiences that are initially motivated implicitly.

For example, Paulus & Moore (2017) may have found that children's expected happiness from giving was positively correlated with the amount they gave because the children who were more likely to recognize the emotional benefits of giving are those who just tend to give more and thus have had more experiences with emotional reward to inform their beliefs. Another possibility is that the kids who are highly motivated to give also just tend to experience more happiness from giving than others kids, which in turn influences both their desire to give and their understanding of its self-rewarding nature. Therefore, although Paulus & Moore (2017) found that children's conscious beliefs were related to their sharing behavior, those beliefs need not be the driving force of their motivation, but rather a reflection of their cumulative experience.

Thus, it is important to consider that children's beliefs are merely another reflection of their experiences with emotional reward. In the current work, children were aware of the impact of seeing a beneficiary and from being responsible for the generous action (two factors that were shown to increase children happiness in the experience studies), suggesting that children understand the sources of their emotional reward from giving. It is possible, then, that children's cumulative experiences of being happier after giving when they can see their positive impact on a beneficiary, compared to when they cannot, and when they are responsible for the generous act compared to when they are not have caused them to believe that these factors matter. However, it does not necessarily suggest that these beliefs are in turn motivating them to be a giver (rather than a non-giver) and that it is particularly motivating them in instances where they will see the beneficiary (rather than times when they will not see a beneficiary).

General Limitations and Future Directions

As with most research, the current work has limitations and opens up questions for future research. The limitations having to do with the specific methodological decisions or interpretations of each study have been discussed; however, there are some limitations that are generally true of all studies in this dissertation. These general limitations and discussion of future work are presented in this section.

Demographic background of sample. In addition to the methodological limitations, it is critical to note that the sample is not diverse and represents a very specific population of 5-year-old children. The large majority of children in these studies were from high socio-economic backgrounds, such that their parents are on average very highly educated and have high annual incomes. Additionally, children in this work predominantly identified as White Americans. Therefore, results from these studies should not be over-generalized to the broader population of

children given that cultural and economic backgrounds, particularly socio-economic status, could potentially influence children's experiences with and beliefs about giving. One possibility is that those with fewer resources might be overwhelmed with fulfilling their own resource needs, which could mitigate the emotional benefits of providing for others (Martin & Hill, 2011). Alternatively, those with fewer economic resources might actually be more likely to experience emotional reward from giving compared to those from higher-SES backgrounds because they also tend to be more culturally interdependent (Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012).

Importantly, one study has shown that children from culturally diverse backgrounds also experience emotional reward from giving (Aknin, Barrignton-Leigh, et al., 2013). This type of work is critical for supporting the claim that the self-rewarding nature of prosocial behavior is an early-emerging experience that serves to reinforce cooperative behaviors that are a critical component of human social interaction. However, this study is just a first step toward uncovering answers to these questions about how and why engaging in prosocial behavior provides emotional benefits to the actor in addition to benefiting the recipient. Therefore, future work should attempt to replicate this work and examine whether children from a diverse set of backgrounds also have similar sources of their emotional reward (e.g., witnessing a beneficiary; being the giver).

Age of sample. An additional general limitation is that these studies cannot directly speak to potential developmental change over time, as all studies were conducted with one age group (5-year-olds). Given that there is only one age group in the current work, it is critical to keep in mind that *by* age five children demonstrate greater happiness from giving when they can see the positive impact that their generosity had on a beneficiary. Additionally, *by* age five

children believe that people are happy from being a giver and from seeing the positive impact of their generosity, but also believe that giving is not as emotionally rewarding as receiving. That is, it cannot be concluded that five is the specific age at which children develop these experiences and beliefs. It is quite possible that children younger than five demonstrate happiness from giving in the ways five-year-olds did in the current work. Further, although it is challenging to measure explicit beliefs of children younger than age five, it is possible to assess the implicit beliefs about giving and happiness held by younger children. Future studies could systematically vary age, to directly test whether age five is the first time in development that children begin to demonstrate these effects, or if they occur even earlier in development. Such findings would be particularly important for making claims about the role of implicit versus explicit beliefs in motivating generous behavior as well as claims about whether early experiences are necessary or not for children to demonstrate emotional reward from giving to others.

Identity of the recipient. One final comment about the study design of the current work has to do with the identity of the recipient(s) presented to children. Several studies suggest that children's resource allocations are influenced by the recipient's identity, such that children tend to be more prosocial toward individuals with whom they share group membership (Dunham, Baron, & Carey, 2011; Kinzler, Dupoux, & Spelke, 2012; Sommerville et al., 2018) or have a close relationship (Moore, 2009; Paulus & Moore, 2014). For example, infants are more likely to help members of their in-group (i.e., those who share their snack preferences) as early as 18 months of age (Sommerville et al., 2018) and are more likely to share with members of their in-group (i.e., those who speak the same language) by age two (Kinzler et al., 2012). At five years of age, children prefer to give resources to peers that share their gender identity and arbitrarily assigned group (Dunham et al., 2011) and are more likely to share with peers who are their

friends compared to strangers or non-friends (Moore, 2009; Paulus & Moore, 2014). Together, these findings suggest that recipient group membership and familiarity are influential on children's resource allocations, which is important to consider in relation to the current work.

In the studies examining children's experience of happiness upon giving to others, the recipient child was always matched in gender and age to the participant, but was a new child that the participant had never seen before. That is, girl participants always gave to 5-year-old girl recipients and boy participants always gave to 5-year-old boy recipients who they had not met previously. Further, in Study 1 the recipients were White American children, whereas in Studies 2 and 3 the recipients were Indian American children. Thus, although all participants were matched to the recipient on gender and age, participants were only sometimes a part of the same racial group as the recipient. Given the significant effects of these studies, it is likely that race of the recipient did not impact the results; however, it is possible that the significant effects can be explained in part by the fact that participants matched recipients on two of three major social groups (gender and age). Given the previous work described above, it would be interesting to test whether children's experiences of emotional reward are moderated by the group membership or familiarity of the recipient. That is, are children less happy from giving to a member of a different gender group compared to their own gender? Or, are children happier from giving when they give to a friend compared to a stranger? Answers to these questions would further speak to the nature and function of experiencing emotional reward from prosocial behavior.

Similarly, in the studies testing children's beliefs about giving and happiness, children were asked to indicate how peers would feel upon giving to children who are their friends of the same age and gender. Given that White American 5-year-olds believe that White individuals will be more happy from helping an individual of their same racial group than members of another

racial group (African Americans; Weller & Lagatutta, 2012), perhaps they would think that peers would be less happy from giving to a child who was a different gender or was not a friend. Children were also asked to indicate how they would feel from giving to a friend of theirs in the studies on children's beliefs about giving and happiness. Following the same logic, perhaps children would indicate less happiness from giving to stranger. Children were not asked to describe their friend's group membership, but it would be interesting to see what kinds of social group identities they described for their friends and how it may or may not relate to their happiness ratings. Overall, the current work serves as a baseline of children's happiness from giving to recipients who share their social group memberships or are very familiar. It would be fascinating to further explore how the phenomenon of emotional reward from giving is moderated by the identity of the recipient, as answers to these questions would have both theoretical and practical implications.

Conclusions

The current work provides new insights about the emotional benefits of giving in childhood and opens up interesting future questions about how this proximate mechanism sustains human prosociality beginning in early development. These studies first provide further evidence that children experience positive emotions from engaging in prosocial behavior. Moreover, they suggest that by age five, children's emotional reward from prosocial behavior is rooted in their ability to witness the benefits that they were responsible for providing to a beneficiary. There is likely a developmental shift from toddlerhood through late preschool, such that children maintain their desire to see someone benefitted, but become more concerned with being the person to provide that benefit. A more systematic test of this hypothesis as well as investigations of why this shift occurs should be a topic of future research. Future work could

also examine the potential consequences of children experiencing positive emotions from engaging in prosocial behavior, such as improved mental and physical health as well as advances in cognitive functioning, such as creativity.

Further, this work highlights that researchers should not make the assumption that children's conscious awareness of the emotional benefits of prosocial behavior indicates that they are motivated to give out of anticipation of this emotional reward. It is true that 5-year-old children in the current work accurately believed that people are happier when they can witness the positive impact that they were responsible for providing to a beneficiary. However, this awareness may not be necessary to motivate children's prosocial behavior and/or it may simply be a by-product of their experience. Moreover, similarly to adults (Dunn et al., 2008), 5-year-olds actually inaccurately believe that the emotional reward from giving is less positive than the emotional reward from receiving. It is possible, then, that children's conscious beliefs actually undermine their initial inclination to engage in generous behavior. If future work demonstrates that children are more generous when they make quicker decisions based on intuition, rather than slower decisions based on deliberation (as demonstrated among adults, Rand et al., 2012), it is likely that children's (and perhaps even adults') generosity is primarily motivated and reinforced through implicit, intuitive, and non-conscious means (as recently argued by Zaki & Michell, 2013), with conscious beliefs tending to undermine this natural inclination to behave prosocially.

In sum, this dissertation starts to answer big questions regarding the emotional benefits of prosocial behavior as an explanation for the human tendency to help, comfort, and share with others. Building off of this work, future studies can further elucidate this potential proximate mechanism of human prosociality in order to better describe the cooperative tendencies of human social interaction that have contributed greatly to our social functioning and success.

References

Aderman, D. (1972). Elation, depression, and helping behavior. *Journal of Personality and Social Psychology*, *24*(1), 91.

Aknin, L. B., Barrington-Leigh, C. P., Dunn, E. W., Helliwell, J. F., Burns, J., Biswas-Diener, R., ... & Norton, M. I. (2013). Prosocial spending and well-being: Cross-cultural evidence for a psychological universal. *Journal of Personality and Social Psychology*, *104*(4), 635.

Aknin, L. B., Broesch, T., Hamlin, J. K., & Van de Vondervoort, J. W. (2015). Prosocial behavior leads to happiness in a small-scale rural society. *Journal of Experimental Psychology: General*, *144*(4), 788.

Aknin, L. B., Dunn, E. W., & Norton, M. I. (2012). Happiness runs in a circular motion: Evidence for a positive feedback loop between prosocial spending and happiness. *Journal of Happiness Studies*, *13*(2), 347-355.

Aknin, L. B., Dunn, E. W., Sandstrom, G. M., & Norton, M. I. (2013). Does social connection turn good deeds into good feelings? On the value of putting the 'social' in prosocial spending. *International Journal of Happiness and Development*, *1*(2), 155-171.

Aknin, L. B., Dunn, E. W., Whillans, A. V., Grant, A. M., & Norton, M. I. (2013). Making a difference matters: Impact unlocks the emotional benefits of prosocial spending. *Journal of Economic Behavior & Organization*, *88*, 90-95.

Aknin, L. B., Fleerackers, A. L., & Hamlin, J. K. (2014). Can third-party observers detect the emotional rewards of generous spending?. *The Journal of Positive Psychology*, *9*(3), 198-203.

Aknin, L. B., Hamlin, J. K., & Dunn, E. W. (2012). Giving leads to happiness in young children. *PLoS One*, *7*(6), e39211.

Aknin, L. B., Mayraz, G., & Helliwell, J. F. (2017). The emotional consequences of donation opportunities. *The Journal of Positive Psychology*, *12*(2), 169-177.

Aknin, L. B., Van Boven, L., & Johnson-Graham, L. (2015). Abstract construals make the emotional rewards of prosocial behavior more salient. *The Journal of Positive Psychology*, *10*(5), 458-462.

Aknin, L. B., Van de Vondervoort, J. W., & Hamlin, J. K. (2018). Positive feelings reward and promote prosocial behavior. *Current Opinion in Psychology*, *20*, 55-59.

Andreoni, J. (1989). Giving with impure altruism: applications to charity and Ricardian equivalence. *The Journal of Political Economy*, 1447-1458.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"?. *Cognition*, *21*(1), 37-46.

Batson, C. D., Batson, J. G., Slingsby, J. K., Harrell, K. L., Peekna, H. M., & Todd, R. M. (1991). Empathic joy and the empathy-altruism hypothesis. *Journal of Personality and Social Psychology*, *61*(3), 413.

Baumeister, R. F., Vohs, K. D., Nathan DeWall, C., & Zhang, L. (2007). How emotion shapes behavior: Feedback, anticipation, and reflection, rather than direct causation. *Personality and Social Psychology Review*, *11*(2), 167-203.

Becker, S. W., & Eagly, A. H. (2004). The heroism of women and men. *American Psychologist*, *59*(3), 163.

Benenson, J. F., Pascoe, J., & Radmore, N. (2007). Children's altruistic behavior in the dictator game. *Evolution and Human Behavior*, *28*(3), 168-175.

Blake, P. R., & Rand, D. G. (2010). Currency value moderates equity preference among young children. *Evolution and Human Behavior*, *31*(3), 210-218.

Brown, S. L., Nesse, R. M., Vinokur, A. D., & Smith, D. M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science*, *14*(4), 320-327.

Brownell, C. A., Iesue, S. S., Nichols, S. R., & Svetlova, M. (2013). Mine or yours? Development of sharing in toddlers in relation to ownership understanding. *Child Development*, *84*(3), 906-920.

Brownell, C. A., Svetlova, M., & Nichols, S. (2009). To share or not to share: When do toddlers respond to another's needs?. *Infancy*, *14*(1), 117-130.

Burns, M. P., & Sommerville, J. (2014). "I pick you": the impact of fairness and race on infants' selection of social partners. *Frontiers in Psychology*, *5*, 93.

Buttelmann, D., Carpenter, M., & Tomasello, M. (2009). Eighteen-month-old infants show false belief understanding in an active helping paradigm. *Cognition*, *112*(2), 337-342.

Cialdini, R. B., Baumann, D. J., & Kenrick, D. T. (1981). Insights from sadness: A three-step model of the development of altruism as hedonism. *Developmental Review*, *1*(3), 207-223.

Cialdini, R. B., & Kenrick, D. T. (1976). Altruism as hedonism: a social development perspective on the relationship of negative mood state and helping. *Journal of Personality and Social Psychology*, *34*(5), 907.

Clements, W. A., & Perner, J. (1994). Implicit understanding of belief. *Cognitive Development*, *9*(4), 377-395.

Crumpler, H., & Grossman, P. J. (2008). An experimental test of warm glow giving. *Journal of Public Economics*, *92*(5), 1011-1021.

Cunningham, M. R., Steinberg, J., & Grev, R. (1980). Wanting to and having to help: Separate

motivations for positive mood and guilt-induced helping. *Journal of Personality and Social Psychology*, *38*(2), 181.

Dahl, A., Schuck, R. K., & Campos, J. J. (2013). Do young toddlers act on their social preferences?. *Developmental Psychology*, *49*(10), 1964.

Danner, D. D., Snowdon, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: findings from the nun study. *Journal of Personality and Social Psychology*, *80*(5), 804.

Dunfield, K., Kuhlmeier, V. A., O'Connell, L., & Kelley, E. (2011). Examining the diversity of prosocial behavior: Helping, sharing, and comforting in infancy. *Infancy, 16,* 227-247.

Dunfield, K. A., & Kuhlmeier, V. A. (2013). Classifying prosocial behavior: Children's responses to instrumental need, emotional distress, and material desire. *Child Development*, *84*(5), 1766-1776.

Dunham, Y., Baron, A. S., & Carey, S. (2011). Consequences of "minimal" group affiliations in children. *Child Development*, *82*(3), 793-811.

Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending money on others promotes happiness. *Science*, *319*(5870), 1687-1688.

Dunn, E. W., Aknin, L. B., & Norton, M. I. (2014). Prosocial spending and happiness using money to benefit others pays off. *Current Directions in Psychological Science*, *23*(1), 41-47.

Dunn, E. W., Ashton-James, C. E., Hanson, M. D., & Aknin, L. B. (2010). On the costs of self-interested economic behavior: How does stinginess get under the skin?. *Journal of Health Psychology, 15*, 627-632.

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related

behaviors. *Psychological Bulletin*, *101*(1), 91.

Ekman, P., Freisen, W. V., & Ancoli, S. (1980). Facial signs of emotional experience. *Journal of Personality and Social Psychology*, *39*(6), 1125.

Ekman, P., Roper, G., & Hager, J. C. (1980). Deliberate facial movement. *Child Development*, 886-891.

Engelmann, J. M., Herrmann, E., & Tomasello, M. (2012). Five-year olds, but not chimpanzees, attempt to manage their reputations. *PloS one*, *7*(10), e48433.

Fabes, R. A., Eisenberg, N., McCormick, S. E., & Wilson, M. S. (1988). Preschoolers' attributions of the situational determinants of others' naturally occurring emotions. *Developmental Psychology*, *24*(3), 376.

Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature*, *454*(7208), 1079.

Fehr, E., & Fischbacher, U. (2004). Third-party punishment and social norms. *Evolution and Human Behavior*, *25*(2), 63-87.

Feshbach, N. D., & Roe, K. (1968). Empathy in six-and seven-year-olds. *Child Development*, 133-145.

Field, T. M., Hernandez-Reif, M., Quintino, O., Schanberg, S., & Kuhn, C. (1998). Elder retired volunteers benefit from giving massage therapy to infants. *Journal of Applied Gerontology*, *17*(2), 229-239.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*(3), 218.

Grant, A. M., Campbell, E. M., Chen, G., Cottone, K., Lapedis, D., & Lee, K. (2007). Impact and the art of motivation maintenance: The effects of contact with beneficiaries on

persistence behavior. *Organizational Behavior and Human Decision Processes*, *103*(1), 53-67.

Geraci, A., & Surian, L. (2011). The developmental roots of fairness: Infants' reactions to equal and unequal distributions of resources. *Developmental Science*, *14*(5), 1012-1020.

Gopnik, A., & Astington, J. W. (1988). Children's understanding of representational change and its relation to the understanding of false belief and the appearance-reality distinction. *Child Development*, 26-37.

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: attitudes, self-esteem, and s tereotypes. *Psychological Review*, *102*(1), 4.

Gummerum, M., Hanoch, Y., Keller, M., Parsons, K., & Hummel, A. (2010). Preschoolers' allocations in the dictator game: The role of moral emotions. *Journal of Economic Psychology*, *31*(1), 25-34.

Hamlin, J. K., Wynn, K., & Bloom, P. (2007). Social evaluation by preverbal infants. *Nature*, *450*(7169), 557.

Hamlin, J. K., Wynn, K., Bloom, P., & Mahajan, N. (2011). How infants and toddlers react to antisocial others. *Proceedings of the National Academy of Sciences*, *108*(50), 19931-19936.

Harbaugh, W. T., Mayr, U., & Burghart, D. R. (2007). Neural responses to taxation and voluntary giving reveal motives for charitable donations. *Science*, *316*(5831), 1622-1625.

Harris, M.B. (1977). Effects of altruism on mood. *Journal of Social Psychology, 102*, 197-208. doi**:**10.1080/00224545.1977.9713265

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., ... & Tracer, D. (2005). "Economic man" in cross-cultural perspective: Behavioral experiments in 15 small-scale

societies. *Behavioral and Brain Sciences*, *28*(06), 795-815.

Hepach, R., Haberl, K., Lambert, S., & Tomasello, M. (2017). Toddlers help anonymously. *Infancy.* 1-16.

Hepach, R., Vaish, A., & Tomasello, M. (2012). Young children are intrinsically motivated to see others helped. *Psychological Science*, *23*(9), 967-972.

Hepach, R., Vaish, A., & Tomasello, M. (2013). A new look at children's prosocial motivation. *Infancy*, *18*(1), 67-90.

Hepach, R., Vaish, A., & Tomasello, M. (2017). Children's intrinsic motivation to provide help themselves after accidentally harming others. *Child Development*, *88*(4), 1251-1264.

Hepach, R., Vaish, A., Grossmann, T., & Tomasello, M. (2016). Young children want to see others get the help they need. *Child Development*, *87*(6), 1703-1714.

House, B., Henrich, J., Sarnecka, B., & Silk, J. B. (2013). The development of contingent reciprocity in children. *Evolution and Human Behavior*, *34*(2), 86-93.

Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology*, *52*(6), 1122.

Kenward, B., & Dahl, M. (2011). Preschoolers distribute scarce resources according to the moral valence of recipients' previous actions. *Developmental Psychology*, *47*(4), 1054.

Kenward, B., Hellmer, K., Winter, L. S., & Eriksson, M. (2015). Four-year-olds' strategic allocation of resources: Attempts to elicit reciprocation correlate negatively with spontaneous helping. *Cognition*, *136*, 1-8.

Kinzler, K. D., Dupoux, E., & Spelke, E. S. (2012). 'Native' objects and collaborators: Infants' object choices and acts of giving reflect favor for native over foreign speakers. *Journal of Cognition and Development*, *13*(1), 67-81.

Konrath, S., Fuhrel-Forbis, A., Lou, A., & Brown, S. (2012). Motives for volunteering are associated with mortality risk in older adults. *Health Psychology*, *31*(1), 87.

Koster, M., Ohmer, X., Nguyen, T. D., & Kartner, J. (2016). Infants Understand Others' Needs. *Psych Science.* 1-7.

Leimgruber, K. L., Shaw, A., Santos, L. R., & Olson, K. R. (2012). Young children are more generous when others are aware of their actions. *PloS one*, *7*(10), e48292.

Lennon, R., & Eisenberg, N. (1987). Emotional displays associated with preschoolers' prosocial behavior. *Child Development*, 992-1000.

Lucca, K., Pospisil, J., & Sommerville, J. A. (2018). Fairness informs social decision making in infancy. *PloS one*, *13*(2), e0192848.

Lum, T. Y., & Lightfoot, E. (2005). The effects of volunteering on the physical and mental health of older people. *Research on Aging*, *27*(1), 31-55.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success?. *Psychological Bulletin*, *131*(6), 803.

Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, *9*(2), 111.

Malti, T., Gummerum, M., Keller, M., & Buchmann, M. (2009). Children's moral motivation, sympathy, and prosocial behavior. *Child Development*, *80*(2), 442-460.

Manucia, G. K., Baumann, D. J., & Cialdini, R. B. (1984). Mood influences on helping: Direct effects or side effects?. *Journal of Personality and Social Psychology*, *46*(2), 357.

Martin, A., Lin, K., & Olson, K. R. (2016). What you want versus what's good for you: Paternalistic motivation in children's helping behavior. *Child Development*, *87*(6), 1739-1746.

Martin, A., & Olson, K. R. (2013). When kids know better: Paternalistic helping in 3-year-old children. *Developmental Psychology*, *49*(11), 2071.

Martin, A., & Olson, K. R. (2015). Beyond good and evil: What motivations underlie children's prosocial behavior?. *Perspectives on Psychological Science*, *10*(2), 159-175.

Martin, K. D., & Hill, R. P. (2011). Life satisfaction, self-determination, and consumption adequacy at the bottom of the pyramid. *Journal of Consumer Research*, *38*(6), 1155-1168.

Moore, C. (2009). Fairness in children's resource allocation depends on the recipient. *Psychological Science*, *20*(8), 944-948.

Morelli, S. A., Lieberman, M. D., & Zaki, J. (2015). The emerging study of positive empathy. *Social and Personality Psychology Compass*, *9*(2), 57-68.

Musick, M. A., Herzog, A. R., & House, J. S. (1999). Volunteering and mortality among older adults: Findings from a national sample. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *54*(3), S173-S180.

Musick, M. A., & Wilson, J. (2003). Volunteering and depression: The role of psychological and social resources in different age groups. *Social science & medicine*, *56*(2), 259-269.

Nosek, B. A., Hawkins, C. B., & Frazier, R. S. (2011). Implicit social cognition: From measures to mechanisms. *Trends in Cognitive Sciences*, *15*(4), 152-159.

Oman, D., Thoresen, C. E., & McMahon, K. (1999). Volunteerism and mortality among the community-dwelling elderly. *Journal of Health Psychology*, *4*(3), 301-316.

Onishi, K. & Baillergeon, R. (2005). Do 15-month-old infants understand false beliefs? *Science, 308,* 255-258.

Paulus, M. (2014). The emergence of prosocial behavior: why do infants and toddlers help,

comfort, and share?. *Child Development Perspectives*, *8*(2), 77-81.

Paulus, M. (2016). Friendship trumps neediness: The impact of social relations and others' wealth on preschool children's sharing. *Journal of Experimental Child Psychology*, *146*, 106-120.

Paulus, M., & Moore, C. (2012). Producing and understanding prosocial actions in early childhood. In *Advances in Child Development and Behavior* (Vol. 42, pp. 271-305). JAI.

Paulus, M., & Moore, C. (2014). The development of recipient-dependent sharing behavior and sharing expectations in preschool children. *Developmental Psychology, 50,* 914-921.

Paulus, M., & Moore, C. (2015). Preschool children's anticipation of recipients' emotions affects their resource allocation. *Social Development*, *24*(4), 852-867.

Paulus, M., & Moore, C. (2017). Preschoolers' generosity increases with understanding of the affective benefits of sharing. *Developmental Science*, *20*(3), e12417.

Perner, J., Leekam, S. R., & Wimmer, H. (1987). Three-year-olds' difficulty with false belief: The case for a conceptual deficit. *British Journal of Developmental Psychology*, *5*(2), 125-137.

Perner, J., & Roessler, J. (2012). From infants' to children's appreciation of belief. *Trends in Cognitive Sciences*, *16*(10), 519-525.

Perry, L. C., Perry, D. G., & Weiss, R. J. (1986). Age differences in children's beliefs about whether altruism makes the actor feel good. *Social Cognition*. *4*(3). 263-269.

Post, S. G. (2005). Altruism, happiness, and health: It's good to be good. *International journal of Behavioral Medicine*, *12*(2), 66-77.

Rand, D. G., Greene, J. D., & Nowak, M. A. (2012). Spontaneous giving and calculated greed. *Nature*, *489*(7416), 427.

Rheingold, H. L. (1982). Little children's participation in the work of adults, a nascent prosocial behavior. *Child Development*, 114-125.

Rieffe, C., Ketelaar, L., & Wiefferink, C. H. (2010). Assessing empathy in young children: Construction and validation of an Empathy Questionnaire (EmQue). *Personality and Individual Differences*, *49*(5), 362-367.

Rosenhan, D. L., Underwood, B., & Moore, B. (1974). Affect moderates self-gratification and altruism. *Journal of Personality and Social Psychology*, *30*(4), 546.

Ruffman, T. (2014). To belief or not belief: Children's theory of mind. *Developmental Review*, *34*(3), 265-293.

Saarni, C. (1984). An observational study of children's attempts to monitor their expressive behavior. *Child Development*, 1504-1513.

Schneider, D., Slaughter, V. P., & Dux, P. E. (2017). Current evidence for automatic Theory of Mind processing in adults. *Cognition*, *162*, 27-31.

Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize?. *Journal of Research in Personality*, *47*(5), 609-612.

Scott, R. M., & Baillargeon, R. (2017). Early false-belief understanding. *Trends in Cognitive Sciences*, *21*(4), 237-249.

Sebastián-Enesco, C., & Warneken, F. (2015). The shadow of the future: 5-year-olds, but not 3-year-olds, adjust their sharing in anticipation of reciprocation. *Journal of Experimental Child Psychology*, *129*, 40-54.

Silver, I. M., & Shaw, A. (2018). Pint-Sized Public Relations: The Development of Reputation Management. *Trends in Cognitive Sciences*, *22*(4), 277-279.

Skinner, B.F. (1938) The behavior of organisms. New York: D. Appleton-Century.

Smith, K. D., Keating, J. P., & Stotland, E. (1989). Altruism reconsidered: The effect of denying feedback on a victim's status to empathic witnesses. *Journal of Personality and Social Psychology*, *57*(4), 641.

Sommerville, J. A., Enright, E. A., Horton, R. O., Lucca, K., Sitch, M. J., & Kirchner-Adelhart, S. (2018). Infants' prosocial behavior is governed by cost-benefit analyses. *Cognition*, *177*, 12-20.

Stein, N. L., & Levine, L. J. (1989). The causal organisation of emotional knowledge: A developmental study. *Cognition & Emotion*, *3*(4), 343-378.

Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology*, *102*(6), 1178.

Stotland, E. (1969). Exploratory Investigations of Empathy1. In *Advances in Experimental Social Psychology* (Vol. 4, pp. 271-314). Academic Press.

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review*, *8*(3), 220-247.

Strayer, J. (1986). Children's attributions regarding the situational determinants of emotion in self and others. *Developmental Psychology*, *22*(5), 649.

Surian, L., & Franchin, L. (2017). Toddlers selectively help fair agents. *Frontiers in Psychology*, *8*, 944.

Svetlova, M., Nichols, S. R., & Brownell, C. A. (2010). Toddlers' prosocial behavior: From instrumental to empathic to altruistic helping. *Child Development*, *81*(6), 1814-1827.

Tasimi, A., & Young, L. (2016). Memories of good deeds past: The reinforcing power of

prosocial behavior in children. *Journal of Experimental Child Psychology.*

Thompson, R. A., & Lagattuta, K. H. (2007). Feeling and understanding: Early emotional development. *Blackwell Handbook of Early Childhood Development*, 317-337.

Trommsdorff, G., Friedlmeier, W., & Mayer, B. (2007). Sympathy, distress, and prosocial behavior of preschool children in four cultures. *International Journal of Behavioral Development*, *31*(3), 284-293.

Vaish, A., Carpenter, M., & Tomasello, M. (2009). Sympathy through affective perspective taking and its relation to prosocial behavior in toddlers. *Developmental Psychology*, *45*(2), 534.

Warneken, F., & Tomasello, M. (2006). Altruistic helping in human infants and young chimpanzees. *Science, 311*, 1301–1303.

Warneken, F., & Tomasello, M. (2007). Helping and cooperation at 14 months of age. *Infancy*, *11*(3), 271-294.

Warneken, F., & Tomasello, M. (2013). Parental presence and encouragement do not influence helping in young children. *Infancy*, *18*(3), 345-368.

Weller, D., & Lagattuta, K. (2012). Helping the in-group feels better: Children's judgments and emotion attributions in response to prosocial dilemmas. *Child Development*, *84*(1), 253-268.

Wellman, H. M., & Banerjee, M. (1991). Mind and emotion: Children's understanding of the emotional consequences of beliefs and desires. *British Journal of Developmental Psychology*, *9*(2), 191-214.

Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development*, *72*(3), 655-684.

Wellman, H. M., & Lagattuta, K. H. (2000). Developing understandings of mind.

Wellman, H. M., & Woolley, J. D. (1990). From simple desires to ordinary beliefs: The early development of everyday psychology.

Williams, A., O'Driscoll, K., & Moore, C. (2014). The influence of empathic concern on prosocial behavior in children. *Frontiers in Psychology*, *5*, 425.

Williams, S., & Shiaw, W. T. (1999). Mood and organizational citizenship behavior: The effects of positive affect on employee organizational citizenship behavior intentions. *The Journal of Psychology*, *133*(6), 656-668.

Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current Directions in Psychological Science*, *14*(3), 131-134.

Wimmer, H. & Perner, J. (1983). Beliefs about beliefs: Representations and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13,* 103-128.

Wynn, K., Bloom, P., Jordan, A., Marshall, J., & Sheskin, M. (2018). Not noble savages after all: Limits to early altruism. *Current Directions in Psychological Science*, *27*(1), 3-8.

Yuill, N. (1984). Young children's coordination of motive and outcome in judgements of satisfaction and morality. *British Journal of Developmental Psychology*, *2*(1), 73-81.

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology*, *28*(1), 126.

Zaki, J., & Mitchell, J. P. (2013). Intuitive prosociality. *Current Directions in Psychological Science*, *22*(6), 466-470.