

You and me: Investigating the role of self-evaluative emotion in preschool prosociality.

Running head: Self-evaluative emotion and preschool prosociality

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Word count main text (excluding tables and references): 7752

Abstract

Self-evaluative emotions depend on internalized social standards and motivate social action. However, there is a lack of empirical research documenting the impact of self-evaluative emotion on 3- and 4-year-olds' prosociality. Extant research relates children's experiences of guilt to empathetic concern and making amends. However, the relationship between guilt and both concern and making amends is potentially reductive. Empathetic concern involves similar bodily expressions to guilt, and amend making is used to distinguish guilt from shame in children. This is the first study to relate the development of both positive and negative self-evaluative emotions to empathetic concern and prosocial choice (making amends, spontaneous help). Results confirm that the broad capacity for self-evaluative emotion is established in the preschool years, and relates to empathetic concern. Moreover, these social emotions can be used to predict prosocial choice. Making amends was best predicted by empathetic concern and by children's responses to achievement (pride following success, lack of shame following failure). Alongside moral pride, pride in response to achievement and resilience to shame was also the best predictor of spontaneous help. The data support the idea that young children's prosocial choices may be partially driven by the affective drive to maintain an 'ideal' self. Psychologists have emphasised that in order to be adaptive, self-evaluative emotion should be guilt rather than shame orientated. However, the adaptive role of pride has been neglected. We call on future research to redress the focus on negative self-evaluation in moral development and further explore the prosocial potential of pride.

Research Highlights

1. Self-evaluative emotions depend on internalized standards and motivate social action.
2. Extant developmental research associates guilt with empathetic concern and reparation.
3. The current paper shows that pride and shame also relate to empathy and predict prosociality.
4. Our results imply that the broad capacity for self-evaluation contributes to moral development.

For humans, positive social interactions are a necessity for psychological wellbeing (Baumeister & Leary, 1995). In keeping with this, the tendency to attend to the needs of others (behave prosocially) is nascent. From birth, infants resonate with the emotions of others, reacting to others' distress signals with personal distress (Dondi, Simeon & Caltran, 1999; Geangu, Benga, Stahl & Striano, 2010). As infancy ends, emotional contagion begins to be replaced with other-focused responses (Zahn-Waxler, Radke-Yarrow, Wagner & Chapman, 1992; Svetlova, Nichols & Brownell, 2010). For example, infants as young as 12 months spontaneously help others to retrieve an accidentally displaced object (Liszkowski, Carpenter, Striano & Tomasello, 2006; Warneken & Tomasello, 2006, 2007), and 2-year-olds will often attempt to repair harm they have caused (Barrett, Zahn-Waxler & Cole, 1993; Kochanska, Gross, Lin & Nichols, 2002). Although the early development of prosocial behavior is well established (see also Dunfield, Kuhlmeier, O'Connell & Kelley, 2011; Dunfield & Kuhlmeier, 2013), the mechanisms that drive the maturation of prosocial behavior beyond infancy are unclear (Paulus & Moore, 2012). Taking Hoffman's (1975, 2000) influential theory of moral development as a starting point, the current study aims to address this gap in the literature. In doing so, we provide novel evidence to substantiate the idea that self-evaluative emotions such as guilt and pride may act as the emotional successors of empathy, motivating the child to take a prosocial stance.

Hoffman's (1975, 2000) theory of moral development argues that in addition to parental encouragement and modelling, age-related skills such as self-other differentiation, self-control and cognitive perspective taking are all necessary to transform emotional contagion into other-focused helping. To move beyond emotional contagion the infant has to distinguish between their own and others' distress, prioritise others' perspective over own, and identify a potential solution. By this account, the infant learns to alleviate their innate empathetic distress or concern for others' goals by addressing others' needs instrumentally.

In support of the suggestion that helping behavior has a self-regulatory function, 2-year-old's affective arousal (as measured by pupil dilation) has been shown to increase on witnessing another person's need, and decrease when the need is resolved (Hepach, Vaish & Tomasello, 2012). This occurs even when the person in need shows no distress. The idea that natural representation of other's goals or feelings provides the motivation for human prosociality is at the centre of most modern accounts of moral development (see Paulus, 2014 for review). However, the developmental mechanisms that transform prosociality from basic affective arousal to other-focused helping are still poorly understood (Paulus & Moore, 2012). Hoffman's (1975, 2000) theory offers an intuitive starting point to address this gap in knowledge, and has a growing evidence base.

The level of arousal produced by others' need appears to be heritable (Fortuna & Knafo, 2014). Nevertheless, other-focused responses may depend on parental modelling (Pettygrove, Hammond, Karahuta, Waugh, & Brownell, 2013). Although requests and rewards for prosocial behavior are not always successful in increasing prosocial choices (Eisenberg, Wolchik, Goldberg, & Engel, 1992; Warneken & Tomasello, 2008), authoritative, warm, mind-minded parenting is positively associated with prosocial behavior (Farrant, Devine, Maybery, & Fletcher, 2012; Padilla-Walker, 2014). Moreover, children as young as 3 years express socially learnt, normative rules concerning the desirability of prosocial action (Tomasello & Vaish, 2013). These results imply that socialization plays a role in the appearance of other-focused responses. Links between children's prosocial choices and the cognitive developments identified by Hoffman (1975, 2000) have also been reported.

Positive relationships have been reported between mirror self-recognition and the tendency of 18- to 24-month-olds to help a person in distress (Bischof-Köhler, 1991; Johnson, 1982; Kärtner, Keller, & Chaudhary, 2010; Nichols, Svetlova, and Brownell, 2009; Zahn-Waxler et al, 1992), and inducing self-focus in 3- and 4-year-olds is associated with

increased compliance and prosociality (Ross, Campbell & Anderson, 2011). Kochanska and colleagues have published a number of studies arguing that effortful control is involved in the internalization of prosocial standards, as evidenced by positive associations between preschoolers' compliance and their moral cognition (see Kochanska & Askan, 2006 for review). Researchers have also reported a positive relationship between children's self-control and sympathetic dispositions, suggesting that the move from personal distress to other-focused response may be effortful (e.g. Eisenberg et al., 2007; Valiente et al., 2004). There is also a large body of work suggesting that a lack of self-control is implicated more generally in anti-social behaviour (de Ridder, Lensvelt-Mulders, Finkenauer, Stok & Baumeister, 2012; Murray & Kochanska, 2002). Contrary to the positive results for self-control, early work often failed to find the predicted association between prosociality and perspective taking ability in children younger than 4 years (Denham, 1986; Iannotti, 1985; Underwood & Moore, 1982). Although several recent studies report a positive association between cognitive perspective taking and prosociality for 4- to 6-year-olds (Farrant, Devine, Maybery & Fletcher, 2012; Takagishi, Kameshima, Schug, Koizumi, & Yamagishi, 2010; Moore, Barresi, & Thompson, 1998; Wu & Su, 2014), null and even negative results continue to be observed (Imuta et al, 2016). The most recent meta-analysis concludes that cognitive perspective taking has a significant but small association with prosociality (Imuta et al, 2016).

What is missing from this evidence base is a holistic view of the maturation of prosociality. In each of these studies, the factors in Hoffman's (1975, 2000) model (social learning, self-consciousness, self-control, cognitive perspective taking) are considered in isolation, and their interaction is left an open question. It is possible that this atomistic approach may account for some of the null results observed for social learning (Eisenberg, Wolchik, Goldberg, & Engel, 1992; Warneken & Tomasello, 2008) and cognitive perspective

taking (Denham, 1986; Iannotti, 1985; Imuta et al, 2016; Underwood & Moore, 1982). A more holistic way to represent the functional interaction between the factors in Hoffman's (1975/2000) model is to consider the development of self-evaluative emotion. Self-evaluative responses such as guilt, shame and pride depend on comparison of one's own actions (self-other differentiation) with internalised standards for ideal social behavior (involving social learning and cognitive perspective taking) (Lewis, 1997; Tracy & Robins, 2004). Moreover, self-evaluative experiences motivate different courses of social action (self-regulation). For example, Tangney, Stuewig & Mashek (2007) describe how guilt arises when we perceive our behavior to have violated an internalized social standard, and often results in reparative behavior. Shame arises when we judge ourselves to have violated a social standard irretrievably, prompting withdrawal from others. Both reparation and withdrawal alleviate the emotional consequences of negative self-evaluation by changing our interactions with other people. Similarly, pride arises when we feel our behavior has met or exceeded a standard for desirable social behaviour, and encourages social proximity seeking. In work with adults, guilt, shame and pride are often termed 'moral' emotions due to their reliance of internalized social standards, and consequences for social interaction (Tangney et al, 2007). Accordingly, Hoffman (1975/2000) recognizes that the development of self-evaluative emotion may be central to the maturation of prosociality. However, there has been little empirical exploration of this hypothesis in early development.

As early as 18 months, infants begin to show signs of objective self-consciousness such as mirror self-recognition and personal pronoun use (Courage, Edison & Howe, 2004). Self-recognizers also tend to show self-conscious affective reactions such as embarrassment and withdrawal under social scrutiny (Lewis, Sullivan, Stanger & Weiss, 1989; Courage, Edison & Howe, 2004). These behaviors suggest an ability to reflect on the self objectively; viewing oneself through the lens that other's see us. Parents report that self-conscious

affective reactions increase in complexity and frequency across childhood, with children beginning to voice self-evaluative thoughts and exhibit the behavioral markers of pride, shame and guilt between two and four years (Stipek, Gralinski & Kopp, 1990). Lab studies show that 3- and 4-year old children react with prototypical expressions of pride and shame when facing success and failure in an achievement context (Alessandri & Lewis, 1993, 1996; Belsky et al, 1997; Lewis, Alessandri & Sullivan, 1992; Lewis & Ramsay, 2002; Stipek, Recchia, & McClintic, 1992), and with expressions of guilt and shame when led to believe they have caused another person distress (Barrett, Zahn-Waxler & Cole, 1993; Kochanska et al, 2002). Our current understanding of the onset of self-evaluative emotion rests on a small body of work, in stark contrast to the large volume of work exploring the development of primary emotion (Kochanska & Askan, 2006). Nevertheless, this small literature has established that the capacity for emotional self-evaluation onsets by the third year of life (Lewis, 1997; Tracy & Robins, 2004; Lagutta & Thompson, 2007).

Despite the early onset of self-evaluative emotion, and the large volume of work exploring the early drive for prosociality, the development of self-evaluation has only rarely been empirically linked to moral behavior. In two year olds, reactions consistent with guilt have been associated with helping the distressed victim (Barrett, Zahn-Waxler, & Cole, 1993; Zahn-Waxler et al, 1992). Two-year-old's guilt following caused distress has also been associated with their compliance, moral cognition and self-reported morality at five years (Kochanska et al, 2002). This longitudinal data is important because it suggests that not only is guilt a proximate motivator for prosociality (Barrett, Zahn-Waxler, & Cole, 1993; Zahn-Waxler et al, 1992), the capacity to experience guilt is more widely associated with the internalization of prosocial standards. Such results have led Kochanska and colleagues to consider guilt the 'motivational engine' of a social conscience (Kochanska & Askan, 2006, p.1589). Later in childhood, positive associations between the capacity to predict guilt in

hypothetical scenarios and the tendency to make prosocial choices have also been reported (Chapman et al, 1987; Koenig, Cicchetti, & Rogosch, 2004; Malti & Krettenauer, 2013; Ongley & Malti, 2014; Ongley, Nola & Malti, 2014). However, the developmental literature linking the onset of self-evaluative emotional experiences with developmental changes in prosociality is surprisingly limited not only in size, but in scope. Shame is only rarely considered separately from guilt (Barrett, Zahn-Waxler, & Cole, 1993), and the experience of pride is entirely unrepresented. An over emphasis on guilt has also been noted in the adult literature on this topic (Tracy, Shariff & Cheng, 2010).

The neglect of pride is unfortunate not only since pride has the potential to drive prosocial self-regulation, but because measuring the relationship between negative self-evaluative emotion and prosociality is relatively complex. Shame and guilt are typically elicited in similar moral contexts (Tangney et al, 2007), and there is substantial overlap in their behavioral expression. For both adults (Tangney, Miller, Flicker, & Barlow, 1996) and children (Kochanska et al, 2002) shame and guilt are expressed through closed posture and sad facial expressions. However, experiences of shame and guilt have different predictions for social behavior. Whereas guilt is considered a prosocial emotion due to its close association with reparation, shame is considered an antisocial emotion, associated with withdrawal (Barrett, Zahn-Waxler, & Cole, 1993; Tangney, 1991; Tangney et al, 2007). For this reason, studies confounding shame and guilt may find their observation of a relationship between self-evaluative emotion and prosociality compromised. In contrast, pride and shame are rarely elicited in the same context, and are opposite in both behavioral expression (pride is displayed through open posture and a happy expression) and consequence (pride predicts social approach) (Tangney, 1991; Tracy, Robins & Schriber, 2009). As a result, although the relationship between negative self-evaluative experiences and prosociality is complex to predict, it should be relatively simple to observe a positive relationship between pride and

prosociality. In support, studies with adolescents show that anticipating pride in a moral context is more predictive of prosocial behavior (helping, donating) than anticipating guilt (Krettenauer, Jia & Mosleh, 2011).

The main aim of current study is to explore the association between 3- to 5-year-old's experience of self-evaluative emotions and their spontaneous prosocial choices. Replicating previous research, negative self-evaluation is elicited by leading the child to believe they have damaged another person's prized possession (known as the 'mishap' task; Barrett, Zahn-Waxler, & Cole, 1993; Kochanska et al, 2002; Zahn-Waxler et al, 1992). Since spontaneous negative self-evaluation implies the internalization of social standards, we expect children's experiences of negative self-evaluation to be associated with their tendency to make prosocial choices. We measure prosociality both within the mishap context by noting children's attempts to fix the broken item (making amends), and on a separate occasion, by observing children's spontaneous attempts to help by retrieving an item another person has accidentally dropped.

Research with adults has shown that guilt is associated with concerns about other's needs and making amends, whereas shame is associated with concerns about other's evaluation of the self and accompanied by social withdrawal (Tangney et al, 2007). Following this reasoning, Barrett, Zahn-Waxler & Cole (1993) disambiguate guilt from shame in the mishap context by considering whether the child's emotional response is focused on reparative behavior (guilt) or hiding the self (shame). In adults, although guilt and shame proneness are related, the former is positively related to other-orientated empathy, whereas the latter is negatively related (Tangney, 1991). Children's shame and guilt may also have separate implications for morality, such that guilty reactions are associated with separate measures of prosociality, whereas shamed reactions are not.

We also measure negative self-evaluation in response to failure in an achievement context (Alessandri & Lewis, 1993, 1996; Belsky et al, 1997; Lewis, Alessandri & Sullivan, 1992; Lewis & Ramsay, 2002; Stipek, Recchia, & McClintic, 1992). Responses to failure in achievement contexts clearly index shame as opposed to guilt, since the situation involves no harm to others. Thus, responses to failure give the opportunity to assess the capacity for negative self-evaluation independent from guilt and prosocial choice. Despite this strength, the relationship between achievement shame and prosocial choice is complex to predict. On one hand, since shame is associated with social withdrawal, we might expect to see a negative association between this emotion and prosocial choice. On the other, since negative self-evaluation in response to failure may be indicative of a baseline capacity for self-evaluation, we might expect this experience to relate positively to prosocial choice. To circumvent this complexity, we also include a measure of positive self-evaluation in response to success in the achievement context. Since pride is not associated with social withdrawal, and indicative of the wider capacity for self-evaluation, we expect this experience to relate positively to prosocial choice.

Although young children have been observed to display happiness following both spontaneous and compliant sharing (Lennon & Eisenberg, 1987; Akin, Hamlin & Dunn, 2012), and show ‘positive empathy’ when others are happy (Sallquist, Eisenberg, Spinrad, Eggum, & Gaertner, 2009), there is no precedent for lab work observing children experiencing pride in moral contexts. The only extant validated measure of pride in children is pride in response to success in the achievement context (Alessandri & Lewis, 1993, 1996; Belsky et al, 1997; Lewis, Alessandri & Sullivan, 1992; Lewis & Ramsay, 2002; Stipek, Recchia, & McClintic, 1992). To address the gap in methodology, our study pioneers observations of pride (characterised by a happy facial expression plus open posture, social approach and/or a positive verbal self-evaluation) in a moral context, by observing children’s

responses to their own spontaneous or elicited help. We hypothesise that children who show pride following helping will be likely to show pride following success; potentially validating the new moral measure as indicative of complex emotion. As set out above, we also expect children's capacity to experience pride to be positively related to prosociality (making amends, choosing to help). Although pride has been shown to predict prosociality in adolescence, we know of no previous work using pride to predict prosociality in early childhood.

We choose to measure positive and negative self-evaluative emotion both within the prosocial context (mishap task, retrieval task) and in a distinct context (achievement) in order to strengthen our hypothesis that self-evaluative emotions might motivate prosocial choice. Where guilt and shame are distinguished by reparative behavior, any positive association between guilt and help in a separate context could potentially be reduced to dispositional prosociality. Pride as measured in a moral context could be similarly reduced; I help (and show positive emotion after helping) because I like helping. However, dispositional prosociality is not a common denominator linking achievement pride/shame and prosocial choice. Instead, the common denominator is self-evaluation. According to this account, although pride and shame/guilt may come as a consequence of moral decisions, children ultimately behave prosocially not because of this proximate reinforcement, but because of the broader ability to evaluate their own actions from an external perspective. In other words, the 'looking glass self' (Cooley, 1902) has become functional.

Our focus on self-evaluative emotion is motivated by a desire to push the field to look beyond empathetic concern when considering the affective correlates of prosocial behaviour in childhood. However, rather than replacing empathy, we propose that self-evaluative emotions may build from the innate capacity to take other's emotional perspectives. If this is the case, one would expect positive associations between preschooler's empathy, self-

evaluation (pride, shame, guilt) and prosociality. To explore this developmental progression, we supplement our measures of self-evaluative emotion and prosociality with observation of children's empathetic concern in response to an injured party (Zahn-Waxler et al, 1992). There is little extant data linking early self-evaluative experiences with empathy. From 5 years, children's guilt and empathy themes in story completion tasks relate to one another (Koenig et al, 2004), and to helping other people (Chapman et al, 1987; Koenig et al, 2004). In addition to this, Zahn-Waxler et al (1992) note an association between 2-year-olds' expressions of guilt in a mishap context and their displays of empathetic concern in response to injury. However, this relationship is difficult to interpret since guilt and concern were measured via the same behavior (personal discomfort, attempts to comfort other) and distinguished only by context (the child caused the harm, or was a passive observer). Moreover, as far as we are aware, no previous data links young children's experiences of pride with their capacity for empathy. This is an important oversight, since any positive link between negative self-evaluation and empathy is potentially reductive; both theoretically (guilt may be a special case of empathetic concern) and practically (negative self-evaluation and concern may involve similar behavioral markers). On the contrary pride and empathetic concern are theoretically and practically distinct emotions. Therefore, any positive association between empathy in response to witnessing injury and the self-evaluative emotion of pride would be more clearly premised on the broader capacity to care about other's perspectives.

The key objective of the current study is to explore the broad relevance of emotional self-evaluation to preschool children's prosocial choices. By redressing the focus on guilt to encompass a fuller range of self-evaluative experience, we hope to showcase the functional importance of the self-system in early moral development. According to the position set out above, self-evaluative emotions are relevant to the development of morality not only as

proximate drivers of prosocial behavior, but because they indicate a wider capacity for self-evaluation, which is driven by the internalisation of other's standards, and may be premised by empathy. If this is the case, we should see a relationship between social emotions (empathy, guilt, pride and shame) across moral and achievement contexts, and be able to use both 'moral' and 'non-moral' self-evaluative experiences to predict prosocial choices.

Method

Participants

80 3- and 4-year-old children (37 male, age range 36-59 months, M= 48.4 months) took part. Following study approval from the University of Dundee ethics committee, children were recruited with parental consent and their own assent, from four nursery schools in a moderate to low socio-economic area in Dundee, Scotland (the sample were predominately Caucasian). Children were tested during their normal nursery session in a room adjacent to the main nursery.

Materials, Procedure and Coding.

Several opportunities to display social emotion and prosocial behavior took place in pseudorandomised order during a single series of interactions with one previously unfamiliar adult. The measures of prosociality and/or social emotion taken in each context are summarised in Table 1. The entire session was filmed using a digital video-recorder to allow for post hoc coding.

Table 1: Summary of tasks eliciting prosociality and social emotion

Context¹	Potential prosocial choice	Potential social emotion
A. Experimenter bangs head on table during coloring task	N/A	Empathetic concern
B. Experimenter drops crayon out of reach during coloring task	Spontaneous help (retrieves crayon)	Moral Pride
C. Beat the buzzer task eliciting success and failure	N/A	Achievement pride (success), Achievement shame (failure)
D. Mishap task	Makes amends (attempts to fix toy)	Guilt or moral shame

¹*Order pseudorandomised (ABCD, ABDC, DCAB, DCBA, BACD, BADC, CABD, DABC, CBAD, DBAC)*

Empathetic concern, helping and self-evaluative emotion were measured whilst the child was engaged in coloring a drawing with the experimenter using crayons. During the task, the experimenter:

- A. ‘accidentally’ dropped their crayon (“Oh no! I’ve dropped my crayon!”) within reach and bumped their head on the drawing table during an attempt to retrieve it (“Ouch that hurt!”). Following their injury the experimenter rubbed their head and looked pained for 15 seconds before moving on (see Zahn-Waxler et al, 1992).

Before or after this (dependent on counterbalancing), the experimenter also

- B. ‘accidentally’ dropped their crayon (“Oh no! I’ve dropped my crayon!”) out of reach, extending an arm towards the dropped crayon and gaze alternating between the child and the crayon to demonstrate their need (see Warneken & Tomasello, 2006)..

Following Vaish, Carpenter & Tomasello (2009), children were considered to show empathy if they looked concerned whilst witnessing the experimenter’s pain (event A), concerned looks were defined as furrowing of the brow and sadness in the eyes. Verbal expressions of empathy (e.g. “I bumped my head once”) and sympathy (e.g. “That must be sore, are you

OK?") were also coded, but occurred very rarely ($N = 9$ and $N = 1$ respectively) in this age range (replicating Dunfield et al., 2011; Dunfield & Kuhlmeier, 2013). Children who acted on the experimenter's signals to retrieve the crayon dropped beyond reach (event B) within 15 seconds were considered to offer spontaneous help. In addition to observing prosocial responses to the dropped item, children's behavioural expressions immediately after returning the crayon were coded for pride. Since children who did not spontaneously retrieve the crayon were explicitly asked to do so and all complied, the potential for pride upon returning the crayon was not confounded with spontaneous help.

Expressions of pride (and shame) were elicited using Lewis et al's (1992) established 'beat the buzzer' paradigm (see also Belsky et al., 1997; Lewis & Ramsay, 2002; Stipek et al, 1992). In this paradigm, children are required to complete a task before a buzzer sounds. In addition to the competitive element of the buzzer (pass/fail), a verbal comparison to a social standard is used to activate self-evaluative responses. Working from a key of four colored animals, children placed the correct color sticker on up to 16 animal drawings on a sheet of A4 paper. Two of the tasks were 'easy' (containing 8 drawings to color code) and two were 'difficult' (containing 16 drawings). Children were told that most children their age could complete the easy tasks in time, but most couldn't complete the difficult tasks. In reality, the buzzer was manipulated so that each child failed an easy task, passed an easy task, failed a difficult task and then passed a difficult task, ensuring equal opportunity to display positive and negative evaluation. This order was chosen so children replaced failure with success, facilitating motivation and emotional well-being. Three children requested to stop before completing all four tasks and so do not contribute data. After the buzzer sounded, children were told neutrally whether or not they had won (you did it on time/you didn't do it on time) and there was a 15 second pause to allow for their response. Children's reactions to success during this period were coded for pride, and reactions to failure were coded for shame.

To measure negative self-evaluation in a moral context we used the established mishap paradigm (Barrett et al, 1993; Kochanska et al. 2002). The experimenter presented the child with her “favourite” toy: a soft toy animal wearing a sweater, inside the sleeve of which the arm had been detached. The experimenter demonstrated how the toy could be played with by holding the arms and making it dance. The child was then encouraged to repeat this behavior with the toy. Invariably, the child’s vigorous repetition of these movements caused the detached arm to slide out from the sleeve, revealing the toy to be broken. When this occurred the experimenter raised a hand to her mouth, took a deep breath and exclaimed sadly “Oh no! My toy is broken!”. The experimenter continued to lament her broken toy and look sadly between the child and the toy for 15 seconds, or until the child responded by attempting to fix the toy. Children’s reactions during this task were coded for negative self-evaluation, distinguishing between guilt and moral shame. Two children refused to touch the toy from the outset and so do not contribute data to this task. If the child did not attempt to fix the toy after 15 seconds the experimenter showed them how to do so, and moved along with the session.

Coding of self-evaluative emotions

As shown in Table 2, negative self-evaluative reactions are typified by negative emotional expressions, closed posture, social withdrawal and negative verbal self-evaluations. In contrast, positive self-evaluations are typified by positive emotional expressions, open posture, social approach and positive verbal self-evaluations. These markers are derived from Stipek et al’s (1992) comprehensive monograph and encompass the markers used in other developmental studies using similar methodology (Belsky et al., 1997; Lewis et al, 1992; Lewis & Ramsay, 2002). They also provide a close match to prototypical expressions of pride and shame since verified for adult studies (Tracy, Robins & Schriber,

2009), and measures used to qualify children's negative self-evaluation in moral contexts (Kochanska et al, 2002).

Although the prototypical expressions of self-evaluative emotions are widely agreed, each developmental study has operationalized the emotions differently. For example, Lewis and colleagues (Alessandri & Lewis, 1993, 1996; Lewis et al, 1992, Lewis & Ramsay, 2004) made a categorical decision concerning the presence/absence of pride and shame, depending on whether children showed three of five key markers spanning the four channels of expression (marked with an asterisk in Table 2). Others create continuous scores; for example, Stipek et al (1992) and later Kochanska et al (2002) sum behaviors within or across channels of expression (social, postural, verbal), whereas Belsky et al (1997) rate the intensity of reactions within each channel to create a total score.

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Table 2: Behavioral markers of self-evaluative emotion derived from previous developmental studies

Negative self-evaluation	Positive self-evaluation
Negative emotional expression	Positive emotional expression
Frown	Broad smile OR Mouth open*
Pout OR lower lip between teeth* OR sheepish smile (one corner of mouth raised)	Celebration (pointing*, applause, cheers, clapping, dancing)
Social withdrawal	Social approach
Gaze aversion from experimenter OR camera	Eye contact with experimenter OR camera*
Turns back OR backing away from task or experimenter*	Physically approaching experimenter OR camera
Closed posture	Open posture*
Hanging Head*	Head held high, chin up
Covering face or eyes with hands/arms	Hands raised above head
Hunched shoulders	Pushed back shoulders
Body tense* (arms/legs crossed over body OR held tightly at sides OR squirming)	Body expanded (arms/legs open OR extended from body)
Negative verbal self-evaluation* (e.g. I was too slow)	Positive verbal self-evaluation* (e.g. I did it!)

Notes:

- *This table shows negative and positive markers for self-evaluation identified by Stipek et al (1992) as relevant to pride and shame in achievement contexts.*
- *Lewis and colleagues considered the indicators marked * to be key, children had to show 3/5 indicators in each column to be considered to show pride and shame following success and failure.*
- *Aside from the verbal channel, every behavior in the negative self-evaluation column was also considered guilt relevant by Kochanska et al (2002) in a moral context.*

Our approach is to consider a child to have shown shame or pride if they showed the relevant valence of emotional expression (negative response to failure, positive response to success) and target behavior(s) in at least one other distinct channel of expression. Emotional expression is given precedence a) since this establishes an intuitive baseline (we would not expect a prideful child to show sadness) and b) since Stipek et al (1992) note negative facial expressions in response to failure develop relatively late, and therefore may signal the

maturation of negative self-evaluation. To qualify as a complex emotional experience, we require social, postural or verbal signals coherent with positive or negative self-evaluation to align with basic emotional expression. Our method is therefore in keeping with Lewis and colleagues categorical approach, but ensures that all relevant indicators of pride and shame identified in previous literature are represented.

Barrett et al (1993) classified children as showing guilt if they were quick to make amends following mishap (trying to fix the toy), whereas children were classified as showing shame if they avoided the experimenter's gaze and were slow (or failed) to make amends. On the contrary, Kochanska et al (2002) considered the broad range of the behavioral markers of negative self-evaluation shown in Table 2 indicative of guilt. Bringing together these approaches, we classified children as showing moral shame if they did not attempt to fix the toy in the 15 seconds following mishap and showed negative self-evaluation as described above for the achievement task (negative emotional expression plus marker(s) in at least one other channel of negative expression shown in Table 1). Children were considered to show guilt if they showed a negative emotional expression and attempted to fix the toy. In this case, making amends becomes the corroborating evidence distinguishing a simple reaction (sadness or emotional contagion) from a complex one. Some 'guilty' children also showed other social, postural or verbal markers of negative self-evaluation. However, since maintaining social withdrawal and closed posture is incompatible with fixing the toy, and verbal self-evaluation following the mishap was very rare, we could not reasonably treat scoring in an additional category as necessary.

Inter-rater reliability

Inter-rater reliability for behavioral markers of emotion was established by comparing 20% of the coding completed by the first author with coding completed by a research

assistant. Agreement was at 87.5% ($k = .765$) for empathetic concern. Intra-class correlation (ICC) analyses also indicated substantial agreement for behavioral display of self-evaluative emotion from which pride, shame, guilt and moral shame categories were derived (Positive self-evaluation following help/compliance: ICC $.766$; Positive self-evaluation following success: ICC = $.723$; Negative self-evaluation following failure: ICC = $.677$; Negative self-evaluation following mishap: ICC = $.730$).

Results

Rates of prosociality

The majority of children made prosocial choices; 66.3% made amends and 57.5% spontaneously helped. A McNemar test indicated that the context did not impact the rate of prosocial choice ($p = .09$, $\phi = .05$), and point biserial correlations showed that neither prosocial choice was associated with age (spontaneous help: $r_{pb} = .133$, $p = .24$; making amends: $r_{pb} = .138$, $p = .23$)

Rates of social emotion

Rates of social emotion were also high. Most children showed empathetic concern (78.9%), pride (51.3%) and negative self-evaluation (77.5%) in moral contexts, and pride (71.3%) and shame (66.3%) in achievement contexts.

Within the moral context, the majority of negative self-evaluations following mishap were classified as guilt (60%), only a minority of children displayed moral shame (17.5%) ($X^2 = 28.3$, $p < .001$, $\phi = .6$). As a result of this lack of representation ($N = 14$), we excluded 'moral shame' from subsequent analysis.

Children who spontaneously retrieved the crayon were more likely to show pride (60.8%) than children who retrieved the crayon only after prompting (38.2%) ($X^2 = 4.00$, $p =$

.04, $\phi = .22$). This implies that the children's choice to help increased the likelihood of a self-conscious response.

Within the achievement context, children were more likely to show pride following completion of a difficult task (69.2%) than an easy task (57.7%) (McNemar $p = .054$, $\phi = .37$), and vice versa for shame (difficult: 47.4%; easy: 59%; McNemar $p = .054$, $\phi = .39$). This implies that exceeding or following short of an established social standard heightened children's emotional response.

Between tasks, children were more likely to show pride in the achievement context than in the moral context (McNemar $p < .001$, $\phi = .43$), but context did not matter for negative self-evaluation (McNemar $p = .31$, $\phi = .13$).

As shown in Table 3, point biserial correlations indicated that none of the self-evaluative emotions correlated with age in months.

Table 3 Point biserial correlations between social emotions and age

Social emotion	Age in months
Empathetic concern	$r_{pb} = -.011, p = .925$
Moral Pride	$r_{pb} = .061, p = .589$
Guilt	$r_{pb} = .057, p = .617$
Achievement pride	$r_{pb} = .203, p = .075$
Achievement shame	$r_{pb} = .155, p = .176$

Relationships between prosocial choices and social emotions

Table 4 reports phi coefficient analyses linking social emotions (empathy, moral pride, guilt, achievement pride, achievement shame) and prosocial choice.

Relationship between prosocial choices

There was no relationship between helping and making amends ($p = .631$), implying that children who made prosocial choices in one context did not necessarily do so in another.

Relationships between social emotions

However, there were several positive associations between the social emotions. Empathetic concern was related to both negative self-evaluation (guilt: $p < .001$; achievement shame, $p = .016$) and positive self-evaluation (moral pride: $p = .026$; achievement pride: $p = .002$). There were also correlations between pride across moral and achievement contexts ($p < .001$) and between pride and shame within the achievement context ($p = .001$). Pride was also related to guilt (moral pride: $p = .042^1$; achievement pride $p = .001$). However, achievement shame was not related to guilt ($p = .872$) or moral pride ($p = .114$).

Relationships between social emotions and prosocial choice

In addition to relating to each other, empathetic concern and pride related positively to prosocial choices. Empathetic concern was related to making amends ($p < .001$), as was pride in achievement contexts ($p = .010$). Pride across both contexts was related to spontaneous help (moral pride: $p = .005$; achievement pride: $p = .023$). Again, the only null results referred to negative self-evaluation. Achievement shame did not relate to prosocial choices (help: $p = .310$; making amends: $p = .717$), and guilt did not relate to spontaneous help $p = .839$).

¹ Note, this relationship was no longer significant when controlling for false detection rate using the Benjamini–Hochberg procedure. All other significant results remained.

Table 4 Phi coefficient relationships between social emotions and prosocial behavior

Social emotion	Self-evaluation				Prosociality	
	Moral Pride	Guilt	Achievement pride	Achievement shame	Amends	Help
Empathy	$\Phi = .249^{**}$	$\Phi = .476^{**}$	$\Phi = .347^*$	$\Phi = .272^*$	$\Phi = .408^{**}$	$\Phi = .048$
Moral pride		$\Phi = .231^{*1}$	$\Phi = .413^{**}$	$\Phi = .180$	$\Phi = .139$	$\Phi = .309^{**2}$
Guilt			$\Phi = .375^*$	$\Phi = .019$	N/A	$\Phi = -.004$
Achievement pride				$\Phi = .368^{**}$	$\Phi = .292^*$	$\Phi = .258^*$
Achievement shame					$\Phi = -.042$	$\Phi = -.115$

* $p < .05$, ** $p < .001$

¹ *This relationship was no longer significant when controlling for false detection rate using the Benjamini–Hochberg procedure. All other significant results remained*

² *This correlation is the only one to refer to a proximate relationship between self-evaluation and prosocial choice, all others refer to relationships between self-evaluative emotion and prosocial choice as measured in separate tasks*

Using social emotions to predict prosocial choices

Table 5 shows binary logistic regression analyses run to determine whether social emotion could be used to predict prosocial responses. Empathetic concern, moral pride, achievement pride and achievement shame are entered as predictors for spontaneous help and making amends. Guilt is omitted from the analysis predicting making amends, since guilty reactions were partially defined by this behaviour.

Empathy, pride and shame could be used to predict reparative behavior; explaining 31.6% of the variance in response and correctly classifying 80.3% of cases. Empathetic concern and achievement pride each made significant positive contributions to the model, whereas achievement shame made a significant negative contribution. The independent

contribution of moral pride was not significant. This implies that children who experienced empathetic concern and pride following success, and did not experience shame following failure, were most likely to make amends when led to believe they had broken the experimenter's toy.

Empathy, guilt, pride and shame could also be combined to model spontaneous help; explaining 25.1% of the variance in response and correctly classifying 65.8% of cases. Empathetic concern and guilt did not make independent contributions to the model. On the contrary, pride (in both moral and achievement contexts) made significant positive contributions, whereas shame was a negative predictor. In other words, children who experienced pride in moral and achievement contexts, and did not exhibit shame following failure, were most likely to offer spontaneous help.

Table 5 Binary logistic regression using social emotion to predict prosocial behavior

	<i>B</i>	Wald	exp (<i>B</i>)	<i>P</i>
Predicting amends				
$\chi^2 (4) = 19.220, p = .001^*$				
Empathetic concern	2.281	9.098	9.784	.003*
Moral Pride	-.282	.174	.754	.677
Achievement Pride	1.834	4.548	6.258	.033*
Achievement Shame	-1.838	4.210	.159	.040*
Predicting help				
$\chi^2 (5) = 15.761, p = .008^*$				
Empathetic concern	.271	.128	1.312	.721
Guilt	-1.112	2.634	.329	.105
Moral Pride	1.189	4.051	3.283	.044*
Achievement Pride	2.055	5.169	7.806	.023*
Achievement Shame	-1.661	4.716	.190	.030*

* $p < .05$, ** $p < .001$

Discussion

As expected, we found prosociality well established by the preschool years; the majority of children spontaneously helped an unfamiliar person who had dropped something beyond reach (Dunfield et al, 2011; Dunfield & Kuhlmeier, 2013; Svetlova, Nichols & Brownell, 2010) and made amends when they had caused upset by breaking the stranger's toy (Svetlova, Nichols & Brownell, 2010; Zahn-Waxler et al, 1992). However, children who helped in one context did not necessarily help in the other. This lack of association is in keeping with previous research (Dunfield & Kuhlmeier, 2013) and implies that children may react differently dependent on context. The variables predicting prosocial behavior were also

context dependent. When the child was led to believe they had caused another person upset, empathetic concern and achievement pride positively predicted a prosocial choice (to make amends), where shame following failure predicted withdrawal. On the contrary, when the child witnessed another's need in a non emotional context (the experimenter attempting to retrieve a dropped item), empathetic concern did not have predictive value. Here, children's choice to help could best be predicted by their pride in response to helping and success, and their resilience to failure. Although moderate, the effect size of achievement pride as a predictor variable for both help and amends equals that of empathy reported in previous literature (see Eisenberg & Miller, 1987; Eisenberg, Spinrad & Sadovsky, 2006/2013 for review).

In addition to reliably making prosocial choices, 3- and 4-year-olds reliably reacted to achievement, failure, social mishap and social help with behavioral expressions of pride, shame, and guilt (Barrett et al, 1993; Belsky et al, 1997; Cole et al, 1992; Kochanska et al., 2002; Lewis et al, 1992; Stipek et al, 1990; Stipek et al, 1992). Children's experience of social emotion was not related to age, and was coherent across contexts. Specifically, there were positive relationships between positive and negative self-evaluation within the achievement task, and between pride across moral and achievement contexts. There were also positive relationships between pride in both contexts and guilt following social mishap. These relationships are to be expected only if the experiences observed are indicative of complex emotion. Happiness following success should only relate to sadness following failure through the unifying capacity for self-evaluation; likewise for the relationship between achievement happiness and sadness in the mishap task. Strengthening the case for complexity, positive and negative self-evaluation in both contexts related to empathetic concern. Empathetic children were more likely to show pride and shame in achievement contexts, react negatively when causing another person distress (the majority displaying reactions consistent with guilt) and

positively having helped another person (particularly if spontaneously). Since other looked unhappy in both the mishap and the injury task, it is possible that both tasks measure empathetic concern, or even basic emotional contagion. If this is the case then the relationship between empathy and guilt might be considered circular. Likewise, since children looked happy in the achievement task, and happy in the help task, the relationship between pride across contexts could be reduced to a positive disposition. However, these reductive explanations cannot account for the relationships between achievement shame and pride, pride and empathy, or pride and guilt.

It remains possible that children are simply reacting positively/negatively to good/bad outcomes. However, the standard of the outcome was sensitive to social cues. Replicating Lewis et al (1992), children were most likely to experience shame or pride when their behavior fell short of or exceeded a set social standard for achievement (most children your age can/can't complete this task). Likewise, it is interesting to see that the child's level of responsibility for producing social help attenuated the likelihood of a self-conscious response. Children who helped spontaneously, and therefore could be considered solely responsible for the good outcome, were more likely to show pride. This is important, since 'owning' an outcome is considered an important pre-requisite for self-conscious emotion (Lewis, 1997). These observations, together with the relationships between social emotions, and between self-evaluative emotion and prosocial choice, make it increasingly difficult to argue against complex emotional experience. This is important not only since the literature establishing the onset of self-evaluative emotion is small, but since there appears to be a significant developmental lag between children's ability to predict self-evaluative emotions and their capacity to experience them.

Malti & Ongley (2014) review several studies showing that children under the age of 8 years are poor at predicting negative self-evaluation when the outcome for self is

superficially positive (such as when one gains chocolate by stealing). The switch to ‘mature’ prediction of self-evaluative emotion is associated with an increase in sharing and altruism (Malti & Krettenauer, 2013; Ongley & Malti, 2014; Ongley, Nola & Malti, 2014). Without the current study, one might conclude from this pattern that young children’s experiences of self-evaluative emotion are nascent, and not related to the same antecedents and consequences as adult emotions. However, by observing a coherent pattern of self-evaluative responses that are linked to both empathy and prosocial behavior, we demonstrate that when viewed ‘online’ young children’s experience of self-evaluative emotion appears mature. For this reason, the lag in predicting complex emotion (and associated delays in sharing/altruistic behavior) might be explained not by deficits in self-evaluation, but by choices being compromised by young children’s established difficulties in inhibition and forward thinking (Moore, Barresi & Thompson, 1998). Alternatively, the link between self-evaluation and prosociality may initially function on an implicit level, before later being made explicit in children’s moral reasoning. This conclusion is in keeping with Kochanska et al’s (2002) observation that early experiences of guilt are predictive of later developments in moral cognition and self-regulation.

It is interesting to note that despite overlap in their behavioral expression, guilt in a moral context and shame in an achievement context do not relate to one another. It is possible that this is a function of antithetical leanings towards shame over guilt. Conversely, it is possible that reactions to failure in achievement contexts cannot be equated with moral shame or guilt because one or both measurements are faulty. For example, perhaps ‘shamed’ reactions in the achievement context are just expressions of sadness following failure, or expressions of guilt/shame in a moral context simply a function of emotional contagion. However, if negative reactions in the achievement or moral context were not self-evaluative and/or social, one would not expect to see achievement shame attenuated by a social

standard, or observe relationships between negative self-evaluation and pride. For this reason, we favour the explanation that although indicative of self-evaluation, the withdrawal associated with achievement shame may compromise the relationship between this emotion and guilt (an emotion defined by social approach). In support of this interpretation, shame negatively predicts spontaneous help and making amends in the context of other 'social approach' emotions (pride, empathy).

Despite evidence for the maturity of self-evaluative emotion, we did not witness high levels of moral shame in the current sample. In line with Kochanska et al (2002) we found that most children's reactions to breaking the toy were consistent with experiencing guilt. Contrary to Barrett et al (1993) only a small minority were classified as displaying shame. However, Barrett et al's (1993) definition of withdrawal was finer (taking into account latency) and their sample size almost half the size. It could be that more moral shame would have been observed if our measures were less binary, or if our sample was less representative of the typical population, containing more children with maladaptive socialization patterns. Alternatively, it could be (as argued by Kochanska et al, 2002) that making a behavioural distinction between guilt and shame in moral contexts is not valid in this age range.

Given the focus of previous literature, what is perhaps most interesting to note from our observations of negative self-evaluative emotion is that guilt is not predictive of prosocial choices beyond the mishap context. This may be viewed as troubling for claims that guilt is the 'motivational engine' of a social conscience (Kochanska & Askan, 2006, p.1589). However, it could be that the association between guilt and prosocial behavior is closest for young children when guilt acts as a proximate motivator, by definition prompting amends. Only later might the anticipation of guilt result in a wider association with prosocial choices (e.g. helping to retrieve a dropped item in an emotionally neutral context). Alternatively, it is possible that the limited opportunity to display prosociality in the current study limited the

associations found. From a quantitative perspective, creating more opportunities for prosocial action may increase the power to observe relationships between guilt and prosociality. From a qualitative perspective, it is also important to note that the association between guilt and prosocial behavior may be stronger for the avoidance of anti-social behavior. Kochanska et al's (2002) claim for the prosociality of guilt is based on a longitudinal association between 2-year-old's experiences of guilt, and their compliance to a stated rule aged 5 years. In adolescence, Krettenauer, Jia & Mosleh (2011) find that although anticipating guilt predicts the avoidance of anti-social behavior (such as stealing), anticipating pride is more predictive of actively prosocial choices (such as donating or sharing). Accordingly, future studies may benefit from supplementing measures of prosocial choice with measures of compliance or avoidance of anti-social choices.

What the current results make clear, is that guilt and empathy are not the only social emotions relevant to children's prosociality. Specifically, achievement pride emerges as a consistent positive predictor of prosocial choice. Importantly, achievement pride and moral pride each make significant positive contribution to predicting help. Together with the observation that achievement is a consistent negative predictor of prosocial choice, this confirms that self-evaluative emotions are not simply a proximate motivators or consequences of prosociality; the capacity to self-evaluate is more broadly related to prosocial choice. Reflecting the relative complexity of negative self-evaluation, achievement shame and prosociality were not directly related; it was only in the context of pride and other social emotions that shame emerged as a negative predictor. This highlights the importance of taking a holistic view on the development of self-evaluative emotion, representing both positive and negative poles of experience.

As set out in the introduction, although the onset of self-evaluative emotion has been established for decades, relatively few studies have empirically substantiated the hypothesis

that self-evaluative emotions may signal the internalization of moral standards and be related to an increase in socially functional self-regulation. Instead, the majority of developmental studies focus on the motivational value of empathetic concern. However, we find that although empathetic concern predicts making amends to a distressed person, it does not predict help when the person in need is not emotionally upset. On the contrary, pride and shame predict prosociality regardless of the context (caused harm, witnessed need). This is in keeping with the idea that what is salient across both contexts is not necessarily other's feelings, but the child's 'ideal' idea of themselves, and how this is affected by the social 'looking glass'.

It is clear that further work is needed to establish the extent to which children's prosocial choices are driven by a desire to maintain a socially 'ideal' self. The developmental delay between the experience and anticipation of self-evaluative emotion in social contexts implies that the process may develop implicitly, and deserves closer attention. Moreover, the direction of the relationship between prosociality and the self-system cannot necessarily be inferred from the current result. As set out by Hoffman (2000) and reflected by the centrality of moral emotions in adult literature, it is likely that self-evaluative emotions are a functional component of mature prosociality. However, since both empathy and prosocial choices predate self-evaluation, it is possible that in development prosocial and anti-social choices actually help to establish the capacity for self-evaluation. When the child chooses to help or withdraw in an emotional context, their capacity for empathy is likely to imbue the experience with emotion. This reinforcement may be what drives the internalisation of other's perspectives. Once it becomes possible for the child to reflect on themselves objectively (as signalled by mirror self-recognition), other's perspective can be viewed as a consequence of one's own choices. Thus, children begin to build experience of feeling good and bad *about themselves* following prosocial and antisocial action. On this reading, self-

evaluative experiences arise from a constellation of self-other differentiation, empathy, and social choice; and once established, drive children toward social approach or withdrawal. Imuta et al (2016) consider a similar hypothesis when linking cognitive perspective taking and prosociality; although it is commonly held that reasoning about other minds may prompt children to help, it is also possible that helping gives children the opportunity to learn about other minds.

Regardless of the developmental mechanisms linking the self-system to prosocial choice, the current study takes an important first step, demonstrating the broad relevance of self-evaluative emotion to early prosociality. Beyond previously observed associations between young children's empathetic concern, guilt and making amends (Barrett, Zahn-Waxler, & Cole, 1993; Chapman et al, 1987; Kochanska et al, 2002; Koenig et al, 2004; Zahn-Waxler et al, 1992), we find that pride may be an important consequence and predictor of prosociality. Observation of the relationship between pride and prosociality is key from a theoretical perspective, as the relationship between guilt and prosociality is loaded with complexity (due to overlap with shame) and confound (due to overlap with reparation). The relationship between pride and prosociality is impervious to these problems, and therefore may be better placed to provide clear evidence of a link between the self-system and prosocial choice.

In addition to making an important theoretical contribution, our findings have potentially important practical implications. Early prosociality is associated with positive academic and social outcomes, and anti-social behavioral interventions often focus on increasing prosocial behavior (Caprara et al, 2000). As part of this drive, psychologists have emphasised that in order to be adaptive, negative self-evaluative emotion should be action specific rather than global i.e. be guilt rather than shame orientated (Alessandri & Lewis, 1996). Our observations suggest that encouraging pride might also foster prosocial choice.

What is crucial to recognize here, and in the theoretical arena, is that the functional nature of self-evaluative emotion is dependent not only on the potential for negative self-representation, but on the potential for positive self-representation. Children approach situations that can produce or repair an ‘ideal’ emotional reflection on self, and withdraw from situations that can’t. Without this balance, the motivational nature of self-evaluative emotion is compromised, and self-regulation may fail. For this reason, we urge future studies to redress the focus on negative self-evaluation in moral development and further explore the prosocial potential of pride.

Acknowledgments

Many thanks to the families and nurseries who participated in this research, and to the following research students who helped to collect the data; Holly Andrews, Tina Bruan, Shavonne Bryce, Paul Docherty, Corrie Fraser, Helen Robson.

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