The Empathy Correlates of Aggressive/Antisocial versus Prosocial Behavior in low SES Children in the Western Cape

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Abstract

We live in a social world, where individuals are in constant interaction with one another. Empathy, the ability to relate to another person, is therefore essential for navigating through the social world. Our empathic abilities develop during childhood. These abilities often serve as predictors' behaviour. A substantial body of international research has focused on how empathy predicts behaviour in children. In contrast, very little research has been conducted in a South African setting. Furthermore, international findings have been inconsistent. We draw on international literature which may not apply to a South African context. The majority of South African child population live in poverty. Research suggests that low socioeconomic status predisposes individuals to potentially persistent negative behavioural outcomes. This study aimed to investigate how empathy relates to behaviour in children from a low socioeconomic background in the Western Cape; focusing on the components of empathy and how they predict behaviours on a spectrum from antisocial to prosocial. To investigate the relationship between empathy and behaviour, we studied forty participants (20 girls and 20 boys). We used a multi-method, multi-informant approach incorporating parent reports, tasks for children, as well as a piloted observational component. Parent and child measures measuring the same component of empathy were compared. There were no significant findings, however our data suggest that there are major discrepancies in parent and child measures of empathy, and they provide some insight into the relationship between empathy and behaviour. There is therefore a need for more reliable, validated, as well as better adapted measures for our context.

Introduction

"Empathy, and the lack of it, is an important construct in explanations of the most appealing and appalling aspects of human behaviour" (Dadds et al., 2008, p.111). Empathy is the ability to relate to others. It is the ability to perceive, share, and understand the affective states of others, which is crucial for navigating the social world (Decety & Jackson, 2006; Decety & Svetlova, 2012). Empathy plays a central role in moral development, and is often associated with both (a) prosocial behaviours, which are defined as voluntary actions which benefit other individuals, such as helping behaviour, sharing, cooperation, caring and perspective taking; and (b) the inhibition of aggressive/antisocial behaviours (Belgrave et al., 2011; Decety, 2010; Decety & Jackson, 2006; Eisenberg & Miller, 1987). Several studies draw a link between empathy and behaviour. However, the results of these studies have proved inconsistent (Hinant & O'Brien, 2007; Barnett & Thompson, 2001; Feshbach & Feshbach, 1969).

Much of what we know about empathy comes from international research. Previous research may therefore not necessarily apply when considering the South African context. According to Ebrahim (2012), in 2007 68% of children in South Africa lived in households which earned less than R350 per month. The majority of the South African child population therefore lives in poverty, which in itself has implications for the development of empathy and the exhibition of prosocial or antisocial behaviours (Ebrahim, 2012).

Parent, teacher, and self-reports confirm that socioeconomic status affects behaviour (McLoyd, 1998). According to previous research low SES has been associated with a higher prevalence of behavioural problems (Adams, Hillman, & Gaydos, 1994; Baldry & Farrington, 200; Brooks-Gunn & Duncan, 1997; Jolliffe & Farrington, 2010). The prevalence of internalizing (depression, sadness, and anxiety) and externalizing (aggression and defiance) problems are associated with long term exposure to poverty (McLoyd, 1998). Both prosocial and antisocial behaviour in childhood are seen as a predictors of behaviours to be exhibited in adulthood (Eisenberg et al., 1999). Exposure to low SES conditions in childhood may therefore increase the risk of negative behavioural outcomes which may persist through adulthood.

Not all children from low SES backgrounds exhibit negative behavioural outcomes. Low SES however compounds the stress placed on the family which increases likelihood of familial

dysfunction potentially resulting in child behavioural problems (McLoyd, 1998; Patterson, Debaryshe, & Ramsey, 1993). In South Africa, the majority of children live in poverty which predisposes them to potentially persistent negative behavioural outcomes. Childhood therefore forms an important platform for research in empathy (Decety, 2010), making research in this area is crucial in order to address a large gap in the literature and has major implications for interventions.

Defining Empathy: A Theoretical Framework

Conceptualizations of empathy are vast and varied. Empathy is a complex construct which for a long time was viewed as a unitary construct made up of various independent components such as emotion contagion, sympathy, cognitive empathy, helping behaviour, and mimicry (Decety & Michalska, 2010; Preston & De Waal, 2002). As a result, until recently, studies have relied on different conceptualizations of this construct.

More recently, however, a clear distinction has been made between an affective component and a cognitive component to empathy (Dadds et al, 2008; Decety & Jackson, 2006). Affective empathy refers to emotional sharing. This involves a response which is in line with what someone else is experiencing on a visceral level (Dadds et al, 2008; Decety & Jackson, 2006). Cognitive empathy, on the other hand, refers to an understanding of another's emotional state. This involves the ability to (a) identify the emotion being experienced by another individual and (b) comprehend why the individual is feeling that way. In a sense, therefore, cognitive empathy is similar to perspective-taking, or Theory of Mind (Dadds et al., 2008).

A recent shift towards viewing empathy in terms of behaviour has occurred. The current study makes use of a framework which conceptualizes empathy in terms of brain processes which result in empathic behaviour (Decety, 2010; Decety & Lamm, 2006; Decety & Michalska, 2010). Empathic behaviour is therefore a result of interplay between 3 brain processes: 1) bottom-up processes of affective sharing, 2) top-down processes involved in perspective-taking and 3) regulatory mechanisms which regulate these processes (Decety 2010; Decety & Jackson, 2004). The likelihood of an individual behaving in a certain way (i.e., empathic vs. not) depends on how these bottom-up and top-down processes are regulated.

It should be clear that affective and cognitive capacities alone do not always result in empathic behaviour, but that the variation and mediation of the two components of empathy

result in varying degrees of behaviour ranging from aggressive/antisocial to prosocial. As Yarrow and colleagues (1976) point out, to understand prosocial and antisocial expressions of behaviour, we need to understand the accompanying interrelated components of empathy and the role they play.

Empathy in Children

Empathy embodies a range of characteristics which are considered essential for healthy psychological development in children (Dadds et al., 2008). Empathy emerges in childhood and develops as the child becomes more aware of the experiences of others, thereby outgrowing their former egocentricity (Decety, 2010; Decety & Michalska, 2010). A child's empathic capacity develops early in life, and the ability to comprehend the emotional states of others often precedes the ability to articulate this understanding (Dadds et al., 2008).

Affective empathy develops first in the form of involuntary, automatic emotion contagion. Emotion contagion is a primitive form of empathy, and at this stage the distress of others stresses a child leading to him/her to engage in self-comforting behaviours. Only in later development is there a shift where the child's behaviour is prompted to help the distressed individual instead of seeking comfort themselves. Once this ability for emotion regulation and affect control is mastered, the child is able to distinguish themselves from others and this allows for a cognitive understanding of empathy to develop.

Theory of mind refers to one component of the top-down processes associated with cognitive empathy which the current study focuses on. The ability to correctly infer another's beliefs is foundational to ToM. It is the ability to take on someone else's perspective. This component of cognitive empathy develops later as the child realizes that that beliefs can differ from reality. Once the child is able to understand that the beliefs of others (especially false beliefs) influence their behaviour, he/she is better equipped to predict and interpret their behaviour correctly.

Theories of mind abilities incorporate first and second order false beliefs. First and second order belief inferences differ on points of reference; for example, first order false beliefs consists of "he thinks that" whereas second order false belief consists of "he thinks that she thinks " (Wimmer & Perner, 1983). There is an element of distance with regards to first and second order false belief reasoning. First order false belief relates to someone else's view of an event whereas second order false belief takes a step back, looking at someone else's belief on another person's view of an event.

First order false belief is mastered at around four years of age (Wellman, 1990). Around the age of six, children master second order false belief (Miller, 2009; Wimmer & Perner, 1983). This opens up a new realm of social interaction, understanding, and perspective taking. This understanding of others and social consequences results in self presentational behaviour (behaviour based on others' views) to avoid guilt, shame, and embarrassment. The mastery of this ability has the potential to enable the child to engage in negative behaviours such as manipulation and deceit as well as the potential for positive behaviours such as cooperation and the consoling of others (Miller, 2009). Cognitive empathy therefore can be seen as a potential causal factor in the exhibition of social behaviour.

In middle childhood (i.e., between the ages of 8 and 10) children know when and how to display and regulate emotion. The rules of interpersonal behaviour are learnt through early social experience, and by middle childhood children's cognitive capacity enables them to anticipate how others perceive them (Gnepp & Hess, 1986). At a preschool level children have not quite mastered regulation and control (Cole, 1986). Therefore, middle childhood is the ideal age range on which to focus empathy research, and provides an interesting backdrop for early observation of empathy and its correlates of both prosocial and aggressive/antisocial behaviours.

Measurement Considerations

There are many measurement issues that arise when assessing young children. In previous research involving children, various methods have been used to measure empathy and its expression in behaviour. Measures range from picture stories, experimental induction of an affective response, self-report, to monitoring facial and gestural reactions to witnessing other's emotion in a film or story (Miller & Eisenberg, 1988). However, the results have proved inconsistent (Barnett & Thompson, 2001; Feshbach & Feshbach, 1969; Hinant & O'Brien, 2007).

Empathy research in children, however, has predominantly relied on parent-report of behaviour and self-reports, despite a strong argument that a multi-method and multi-informant approach is more comprehensive and accurate (Dadds et al., 2008; MacGowan, 1999). Given that self-report measures are known to be unreliable, the fact that very few studies make use of more objective (i.e., observational) measures of behaviour is of concern (Dadds et al., 2008).

For example, self-reports are problematic- children younger than the age of 8 lack verbal and cognitive abilities to report on their internal states, while studies which incorporate parent and teacher reports lack well validated measures (Dadds et al., 2008). According to Underwood and Moore (1982) the relationship between empathy and behaviour is stronger when assessed by non-verbal measures. Child empathy is therefore an important avenue for research as empathic abilities are still formative, however valid measures are still lacking. There is therefore a need for better specified measures.

Empathy and Behaviour

Bearing in mind Decety and colleagues' framework for empathy, it is important that we discuss both affective (bottom-up) and cognitive (top-down) components and how they relate to behaviour. On the extreme ends of the continuum, we consider empathy and its relationship to prosocial and aggressive/antisocial behaviour, respectively.

Empathy and Prosocial Behaviours. Empathy is often viewed as a mediator of interpersonal responses and as a precursor/determinant of both prosocial and antisocial behaviours (Eisenberg & Strayer, 1987; Eisenberg & Miller, 1987; Belgrave, Nguyen, Johnson, & Hood, 2011). Both cognitive and affective empathy have been associated with prosocial behaviour (Dadds et al., 2008).

Specifically, increased affective empathic capabilities in an individual result in more prosocial behaviours, regardless of cognitive abilities (Davis, 1982; Decety & Lamm, 2006). Preston & De Waal (2002) make reference to a perception action model in which affective states serve as motivators of prosocial engagement. For example, observing others in a fearful or a painful situation results in increased activity in brain areas associated with emotional processing, representation and movement (De Gelde et al., 2004; Price, 2000). A state of affective arousal is therefore evoked in the observer when exposed to another's emotional state and experience, potentially motivating helping/prosocial engagement in behaviour (Decety, 2011).

Measures of social perspective taking (cognitive empathy) have also been positively correlated with helping and sharing (Iannotti, 1985; Eisenberg & Miller, 1987). The increase in understanding allows the individual to display more concern (i.e., sympathy) for others which increases the likelihood of prosocial behaviour. Cognitive empathy therefore better equips the individual to help, comfort, and engage prosocially with others. Both components (affective and cognitive) can therefore increase the predictability of prosocial behavioural outcomes.

Empathy and Antisocial Behaviour. The ability to understand the feelings of others does not always result in prosocial behaviours. Often children who display good cognitive empathy abilities may act in a manipulative manner, unless this understanding is coupled with affective empathy (Barnet & Thompson, 2001). Sutton, Smith, and Swettenham (1999), for example found that bullies demonstrate a superior theory of mind (ToM) and that this understanding enables them to take advantage of other children. The distinction made between bullies and children who behave prosocially is the inability of the bully to appreciate the consequence of their behaviour for others and share their affective state (Sutton, Smith, & Swettenham, 1999). Blair (2005) also found no ToM impairment in psychopaths, although they did have an empathic impairment.

Thus the experience of cognitive empathy alone may result in antisocial rather than prosocial helping behaviour. Children who behave in antisocial/psychopathic manner often have empathy deficits (Dadds et al., 2009). Aggressive and/or antisocial behaviour could be viewed as resulting from disrupted affective processing- the reduced ability to share an emotional state with others (Blair, 2005) Empathy dysfunction in relation to antisocial behaviour therefore may appear to be selective.

Empathy and Gender. There are marked differences across sex regarding empathy. Research suggests that, overall, females tend to have a higher empathy scores compared to males (Auyeung, Allison, Wheelwright, & Baron-Cohen, 2012; Hinant & O'Brien, 2007; Hoffman, 1997). This difference may be linked to emotion regulation, measurement method, or the way in which children are socialized (Hinant & O'Brien, 2007; Belgrave et al, 2011).

Girls are generally socialized to express emotions while boys rely more on emotion regulation and perspective taking (Hinant & O'Brien, 2007). There are different stereotypes and gender roles associated with being male and being female within society. These are learned at a young age: girls are carers and are vulnerable whereas boys are tough and strong (Adler, Kless, & Adler, 1992). It is therefore normal to expect that these perceptions and learnt roles may result in differing behaviours among males and females. For this reason self-reports of empathy tend to favour girls. Males tend to score higher on measures of cognitive empathy (knowing how other individuals feel), whereas females tend to score higher on items measuring affective empathy (feeling what other individuals feel; Dadds et al, 2008).

Although there are differences in gender, this does not imply that gender necessarily results in unchangeable patterns of behaviour. Klein and Hodges (2001) conducted a study in

which empathic ability and motivation was tested between males and females. They found that women tended to outperform men in correctly inferring the emotional state of another. However, when a monetary incentive was introduced, this difference disappeared. The change in empathic 'behaviour/ability' with the introduction of the monetary incentive indicates that motivations for empathic behaviour may differ between males and females rather than their empathic capability.

There are many gaps in the literature with regard to empathy research in children. Firstly empathy research pertaining a South African context is scare and therefore our understanding of the construct relies heavily on international findings. These findings however may not be transferrable to our context. Secondly there is a lack of reliable and well validated measures which measure empathy and behaviour in children. Empathy research relies predominantly on self-report which is not always an accurate measure of the construct/ the empathic abilities of children.

Rationale

This study aimed to address the above-outlined gaps in previous research. Specifically, the current study looked at the empathy correlates of both aggressive/antisocial and prosocial behaviours in children while making use of a multi-method, multi-informant approach. Like Dadds and colleagues (2008), this study made use of a model which compared empathy (both the affective and cognitive components) with behaviour to try and capture the broader construct of empathy and how it relates to behaviour. This will enable us to compare parent report measures against child performance based reports, and actual behaviour observation to counter biases.

The primary aim of this study was to investigate how empathy predicts overt expressions of behaviour (either prosocial or aggressive/antisocial) in grade 3 children in South Africa. The following hypotheses were tested:

1) Higher empathy (both affective and cognitive) scores correlate with overt expressions of prosocial behaviour

2) There is a gender difference in empathy and the expression of overt behaviours, such that girls are more affective and more likely to engage prosocially; whereas boys are more cognitive and more likely to show aggressive behavior

3) The cognitive and affective components of empathy contribute uniquely to the expression of behaviour. High cognitive and low affective empathy is associated with more antisocial and/or aggressive behaviours. High affective empathy is associated with prosocial behaviours.

Method

Design and setting

This study formed part of a larger cross-cultural study investigating the development of empathy and moral reasoning in children in several countries. This study was specifically concerned with looking at the relationship between empathy and behaviour. A cross-sectional correlational design was employed to investigate the relationship between components of Decety and colleagues' framework for empathy (i.e., predictor variables) and overt expressions of behaviour on a spectrum from prosocial to aggressive/antisocial (i.e., outcome variable)

Participants were recruited from two public schools located in the Cape Town area. All participants were tested individually during the school day at the school. Each child met with the researcher twice (on 2 separate sessions) to complete several tasks in a quiet room free of distractions. Sessions were arranged in advance for parents to come in to the school and meet with the researchers to complete questionnaires, to allow for clarification of any confusion with questions asked.

Participants

Forty grade 3 children (age range 8-10 years) took part in the study, of which 20 were girls and 20 were boys. Participants were selected from two primary schools within the Cape Town region, situated within low/working class areas. Purposive sampling was employed to recruit children from a low socioeconomic status (SES): Children were included on the basis of their total family income per year being R75000 and less (i.e., ≤R6250 per month), as indicated by their parents/legal guardians via a demographic questionnaire (See Appendix A).

Inclusion and exclusion criteria: Only children in English-medium classes were included (regardless of home language). Children included were currently in grade 3; those in other grades were excluded from the study. Age therefore ranges between 8 and 10. . Children

from higher income brackets were excluded as well as those with a history of neurological or psychiatric conditions such as epilepsy, seizures, head injury, mental or learning disabilities.

Measures

A multi-method (self-report and behavioural observation) and multi-informant approach (parent report and child performance based tasks) was employed to attempt to capture various aspects of the complex construct under investigation (i.e., empathy). Children completed several tasks, including measures of affective empathy (Pain empathy task) and cognitive empathy (Theory of Mind task). Parents completed a demographics questionnaire and the Questionnaire of Cognitive and Affective Empathy (QCAE).

Pain empathy task. The pain empathy task served as a measure of affective empathy (Decety, Michalska, & Akitsuki, 2008). For this task, the child was shown different pictures which depicted either a person experiencing pain or no pain. The child had to decide how much pain they thought the person is experiencing and how badly they felt for the person in that situation. The task therefore encouraged the child to affectively share the emotional state of the person in each picture and empathise on that level. Each picture portrayed various types of painful/non-painful situations (Decety, Michalska, & Akitsuki, 2008), all of which were age-appropriate and drew on everyday situations. These pictures only depicted the hands and feet of different people but not their faces. For example, the child was shown a picture depicting a hand about to get caught in a door or a foot stepping on another foot (See Appendix B).

Theory of Mind task. This task was designed to measure the child's ability to take on another individual's perspective and therefore taps into their cognitive empathy skills (Wimmer & Perner, 1983). The theory of mind (ToM) task was a paper and pen task for children consisting of modified 1st and 2nd order false belief reasoning. The child was assessed on his/her 1st and 2nd order false belief reasoning by a series of scenarios in a story like format which depicted an interaction between 2-3 characters (Wimmer & Perner, 1983). Each story has two control questions and two theory of mind questions which determined whether the child had understood the story and whether they were able to apply theory of mind (taking on someone else's perspective); both were therefore scored out of a maximum two. The researcher read the story aloud to the child while pointing to the relevant picture on the page. Thereafter the child was asked questions pertaining to the story regarding their knowledge of the actors' beliefs, desires, and thoughts. (See Appendix C).

ToM tasks for children are reliable and valid measures of cognitive empathy. Previous studies done on standard and advanced theory of mind tasks for children showed that internal consistency of combined tasks resulted in an Cronbach's alpha of 0.84 and 0.85 respectively over two testing sessions (Hughes et al., 2000).

Dispositional empathy. The Questionnaire of Cognitive and Affective Empathy (QCAE) is a self-report questionnaire designed to measure both affective and cognitive components of empathy (Reniers, Corcoran, Drake, Shryane, & Vollm, 2011). Parents were asked to complete a modified version (i.e., parent-report), asking them to report on their child's dispositional empathy (See Appendix D). For example, item 8 on the QCAE "My child is inclined to get nervous when others around him/her seem nervous" measures affective empathy. Item 15 on the QCAE "My child can easily tell if someone else wants to enter a conversation" however measures cognitive abilities of the child (Reniers et al., 2011).

Items of the QCAE are scored on a 4 point likert scale. Parents had to rate the degree each item applied to their child with the response options of *strongly agree, slightly agree*, *slightly disagree*, and *strongly disagree.* There were only four reverse-coded items; 1, 2, 17, and 29.

The QCAE is a reliable measure of both affective and cognitive components of empathy (Reniers et al, 2011; Joliffe & Farrington, 2006). Both components of the QCAE also had strong positive correlations with the Basic Empathy Scale; $r = .62$ for cognitive and $r = .76$ affective empathy (BES; Jolliffe & Farrington, 2006; Reniers et al., 2011).

Observation of social behaviour. Each participant was observed for two 5 minute sessions during school break times. The observation checklist was a new measure which was being piloted by this study. The checklist was compiled of items taken from various existing behaviour checklists including the Social Behaviour Checklist for preschool children (Rydell, Hagekull, & Bohlin, 1997), the Anger Expression Scale (Steele, Lergerski, Nelson, & Phipps, 2009), Disruptive Behaviour Rating Scale (Mungas, Weiler, Franzi, & Henry, 1989); Eyberg Child Behaviour Inventory (ECBI; Eyberg, 1990); Children's Behaviour Scale (Ladd & Profilet, 1996). The compiled checklist consists of the following items: 24 items measure antisocial behaviours, 16 measure prosocial behaviours, and 1 item measures solitary play (See Appendix E).

Behaviour was scored on an 8 point scale ranging on a spectrum from aggressive/antisocial to prosocial. Aggressive/antisocial behaviours were scored negatively

while prosocial behaviours were scored positively. For example hitting another person was scored as negative 8 whereas a prosocial behaviour such as comforting or helping was scored as positive 8. Behaviours were noted and scored according to frequency of occurrence. Each participant therefore has a single behavioural score which was summed total of behaviours exhibited during naturalistic observation.

Procedure

The current study forms part of a large cross-cultural research initiative investigating moral development in Canada, USA, South Africa, Turkey, and China. Ethical approval for the larger study was obtained from both the University of Cape Town's Department of Psychology Ethics Committee (See Appendix F) and the Western Cape Education Department (See Appendix G).

Informed consent was obtained from the school as well as parents (See Appendix H) in advance, thus allowing children to take part in the study. This document informed both parties that (a) participation was voluntary (b) they were able to withdraw participation at any time, and (c) all the information provided would be kept anonymous and confidential. Consent forms were sent home with children and returned before data collection commenced.

Tasks for Children. Assent was received during the first testing session with the child (See Appendix I). There were two testing sessions in total for each child; each session was approximately 1 hour in duration. Tasks were split across two sessions which allowed for a mixture of computer based tasks, pen and paper tasks, observation, and a game to ensure we held the child's attention.

In the first session the child completed the pain empathy computer-based task and in the second session the child completed a ToM pen and paper task. Both sessions included a number of other tasks pertaining to the larger study. Games which offered the child an incentive such as stickers or candy were placed in each session.

Direct observation. Naturalistic observation of social behaviour took place during break times. Using a modified observation checklist two researchers observed from an appropriate and inconspicuous distance. Each child was observed for two 5-minute sessions; recording the frequency of social behaviours exhibited on the checklist.

Parent Questionaires. Parents completed several questionnaires. The set of questionnaires took approximately an hour to an hour-and-a-half to complete. Parents received R100 on completion of questionnaires.

Data analysis

The Statistical Package for the Social Sciences™, (SPSS), Version 21 was used to analyse the data. The descriptive and diagnostic statistics were used to provide a better understanding of how data is distributed and ensure that necessary assumptions of parametric tests were upheld.

A preliminary factor analysis and reliability analysis was conducted on the QCAE (one of the predictors) as research to date has been done only in the international context. Therefore the analysis was run to ensure that factors load similarly, are reliable, and can be applied to the South African context.

For the main analysis, a series of *t*-test or Mann-Whitney *U* tests (where parametric assumptions were violated) were conducted to detect any between group gender difference in the predictor variables (empathy components) and the outcome variable (behaviour). A simultaneous multiple regression then was conducted to ascertain the relationship between predictor variables, namely QCAE, ToM, and the Pain empathy task, and the outcome variable (behaviour).

Our predictor variables comprised of the two components of empathy: cognitive and affective which were measured indirectly through parent report and directly through child measures. The outcome variable was behaviour; a single score on a spectrum ranging from aggressive/antisocial to prosocial. This allows us to assess which measures explain the variance in behaviour the most: parent or child measures. The multi-method and multi-informant approach enabled us to compare child and parent measures for any discrepancies. Correlation statistics served as a means to check whether parent report and task scores correlated or not.

Results

Sample Characteristics

Table 1 displays sociodemographic characteristics of the sample. Forty children took part in this study, with an equal number of girls and boys. As can be seen from Table 1, participants were successfully matched on age, and total family income. Race and home

language were not contingent on gender. All participants were in grade 3 and overall the age ranged from 8-10 years (M = 8.58, SD = 0.68). The majority of the participants were coloured, all coming from a low socioeconomic background with a total family income of R75 000 per annum or less. All participants attended an English medium class. However, English is not necessarily their home language (i.e., some participants come from bilingual homes). Five participants listed both English and Afrikaans as their home language and one listed Swahili and French.

Table no.1
Sample Sociodemographics Characteristics

	Group				
Variable	Male (n= 20)	Female (n= 20)	t / X^2	p	ESE
Age	8.70 (0.73)	8.35 (0.59)	0.7	0.49	0.53[a]
Home Language			6	0.2	.39[b]
Race (Black: Coloured)	07:13	05:15	0.48	0.49	.11[b]
Total Family Income	20	20	0	1	0[b]

Note. For the variable *Age*, means are presented with standard deviations in parentheses. ESE = Effect size estimate. [a]Estimate of effect size using Cohen's *d*. [b]Estimate of effect size using Cramer's *V*.
*$p < .01$.

Questionnaire of Cognitive and Affective Empathy (QCAE)

Initial analysis was conducted to establish whether the QCAE is a reliable measure for this context and the purposes of this study. Since the QCAE form one of the predictors of behaviour in this study, it is necessary that the reliability of the measure to be affirmed. Although the QCAE is a well-established measure, it has not been tested in South Africa.

Previous research indicates that the items of the QCAE load onto two factors: a cognitive component and an affective component (Reniers, Corcoran, Drake, Shryane, & Vollm, 2011). Nineteen of the items on the questionnaire are said to measure cognitive empathy (1, 3, 4, 5, 6, 15, 16, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 30, 31) while 12 items measure affective empathy (2, 7, 8, 9, 10, 11, 12, 13, 14, 17, 23, 29). We therefore expect the factor analysis to yield two factors: factor 1 being cognitive empathy component and factor 2 being the affective empathy component.

A principal components analysis was conducted on 31 items with an orthogonal rotation (varimax). The Kaiser-Meyer-Olkin (KMO) measure is .48 which is lower than the minimum requirement according to Field (2009). Barlett's test for sphericity χ^2 (465) = 957.53, $p < 0.001$, indicated that between item correlations were sufficient to conduct a principal component analysis.

The initial analysis extracted the two factors, however eigenvalues dictate that there could be as many as 9 factors with eigenvalues larger than Kaisers criterion of 1 (See Appendix J). The two factors extracted obtained eigenvalues greater than 1 and together explained 42.28% of the variance (See Appendix K). The scree plot is ambiguous as it makes the case for retaining both 2 and 8 factors.

Subsequently, a reliability analysis conducted on items of the QCAE. The cognitive subscale of the QCAE had good internal consistency, Cronbach's $\alpha = 0.93$. However, the affective subscale of the QCAE had very low reliability, Cronbach's $\alpha = 0.27$. Cronbach's α was scaled for item deletions; if deletion of an item improved the overall Cronbach's α/ the reliability of the scale- that item was considered unreliable and was deleted. Reliability analysis therefore justified deleting four items: 29, 17, 23, and 2, - the overall Cronbach's alpha then increased to $\alpha = .66$ which was more acceptable.

A factor analysis was then rerun with the new model which produced an increased KMO of .61 which meets the minimum requirement of .50, Bartlett's remained significant, χ^2 (351) = 762.39 as well as increasing the variance explained to 44.33%, thus justifying their elimination. Table 2.1 shows the factor loadings after rotation on the original model (See Appendix J) while Table 2.2 shows the factor loadings after rotation on the new model (after items were deleted) (See Appendix L). The items that cluster on the same components suggest that component 1 represent cognitive empathy and items clustered on component 2 represent affective empathy.

However by looking at the rotated factor loadings in the Table 3, factors still do not load very well onto the two factors. The QCAE contains less affective items than cognitive items and deleting 4 items from the affective scale means only 8 items remain. According to Field (2009) alpha increases with the number of items on the scale and therefore a Cronbach's $\alpha = .66$ may be rather large for the number of items on the affective scale. Inter-item correlations between affective items are very low most of them below $r = 0.30$. According to Field (2009) and Kline (1999) good reliability starts Cronbach's $\alpha = 0.7$ to 0.8. By this

standard the items which measure cognitive empathy had extremely high reliability, Cronbach's α = .93, however the items measuring the affective empathy component relatively low reliability, Cronbach's α = .66. However, factor loadings were not below Cronbach's alpha of 0.30 and thus we retained the modified affective empathy component of the QCAE.

Measures of Empathy

To test hypothesis 2 a series of *t*-test and Mann- Whitney *U*-tests were run in order see if there were any significant differences in performances on theory of mind, pain empathy, behaviour, and QCAE between the sexes. The results are reported in Table 4. Due to the number of *t*-tests and Mann-Whitney *U*-tests being run and the size of the sample, significance was adjusted to $p = 0.01$ to control for increased familywise error. For directional hypothesis, *p*-values were divided by two. Although *p*-values were not statistically significant, we were able to see some trends in the empathy and behavioural data between genders.

Table no. 3

Performances on theory of mind, pain empathy, behaviour, QCAE

	Sex					
	Male	Female				
Variable	*n*=20	*n*=20	*t / U*	*P*	ESE	Power
1st order false belief control	1.85 (0.37)	1.60 (0.68)	167	.13	0.46	0.41
1st order false belief	1.45 (0.60)	1.35 (0.49)	0.58	.29	0.18	0.14
2nd order false belief control	1.60 (0.60)	1.60 (0.68)	0	.50	0	0.05
2nd order false belief	0.75 (0.64)	1.05 (0.69)	-1.43	.08	0.45	0.40
Pain task control	85.53 (9.92)	85.57 (10.89)	-0.01	.50	0	0.05
Pain empathy affective score	85.25 (9.28)	83.26 (11.72)	0.60	.28	0.19	0.14
Behaviour 3pt scale	-2.55 (25.69)	4.75 (3.73)	188.50	.19	0.40	0.34
Behaviour 8pt scale	-15.15 (71.27)	6.8 (9.38)	172	.12	0.43	0.38
QCAE cognitive	40.60 (13.72)	42.55 (13.32)	-0.46	.33	0.14	0.11
QCAE affective mod.	13.75(4.61)	13.45 (3.83)	1.06	.41	0.07	0.08

Note. For the variables, means are presented with standard deviations in parentheses. ESE= Estimated Size of Effect. Estimate of effect size using Cohen's *d.*

*$p < .01$.

Theory of Mind. Children scored high on the control questions for both first order false belief ($M = 1.73$, $SD = 0.55$) and second order false belief ($M = 1.60$, $SD = 0.63$) tasks, suggesting that children were able to comprehend both first and second order belief stories. However in the theory of mind question we see a drop in scores from first order false belief ($M = 1.40$, $SD = 0.55$) to second order false belief ($M = 0.90$, $SD = 0.67$). 42.5% of the sample

correctly inferred first order belief compared to only 17.5% of the sample on second order false belief. Overall only 2 participants (5% of the sample) fully comprehended and grasped both first and second order belief.

The Pain Empathy Task. Overall, participants scored similarly on pain task control question (M = 85.55, SD = 10.28) and pain empathy affective score (M = 84.25, SD = 10.48); There was no difference between sexes. As expected, there was a high correlation between the pain task control score (how much pain is the person experiencing) and the pain empathy affective score (how bad do you feel for the person in the picture), r =.76, $p < 0.01$.

Behaviour Observation Scale. Behaviour was scored on a spectrum from aggressive/antisocial to prosocial behaviours. Negative values therefore indicate aggressive/antisocial behaviour and positive scores depict prosocial behaviours. Initially behaviours were measured on a 3 point scale however due to low variability in the data the scale was adapted to an 8 point scale. Overall the participants exhibited mostly prosocial behaviours. Only 8 children out of the total sample of 40 scored on the aggressive end of the behaviour scale: 3 girls and 5 boys. Inspection of the raw data indicates that girls tended to exhibit low aggressive/antisocial scores while boys ranged into the extremes (See Appendix M). Again, although the difference was not significant, as is evident in Table 4, boys exhibited more aggressive/antisocial behaviours when compared to girls. Furthermore, 3 outliers were identified, of which all were boys (these were actual observations of boys exhibiting aggressive behaviour).

The QCAE. There was no significant difference between genders on the cognitive or (modified) affective component of the QCAE. Overall, however, girls scored slightly higher on cognitive items than boys. Both boys and girls scored similarly on affective items.

Predictors of behaviour

A simultaneous multiple regression was run to determine how empathy measures predict behaviour. The simultaneous regression was therefore run to address hypothesis 1 and 3: whether higher empathy scores (affective and cognitive) result in or more prosocial behaviour or whether components of empathy contribute to behaviour uniquely. Inspection of normality plots and casewise diagnostics identified 3 outliers where the standardized residual

was greater than 3. These cases were eliminated and the regression was run again. Table 4 and 5 display the output from a simultaneous multiple regression after the deletion of outliers.

Inspection of table 4indicates that there are no significant correlations between the outcome variable (behaviour) and the predictor variables. Correlations between predictors and the outcome variables are very low, r < .40. However inspection of the correlation matrix indicates that behaviour has a positive relationship with cognitive component of the QCAE and first order false belief. Thus as cognitive empathy increases, it results in a positive increase in behaviour. All the other predictors have a negative/inverse relationship with behaviour which suggests that as second order false belief, QCAE affective component, and pain empathy task scores increase; it is associated with a decrease in the behavioural score (however, these associations are very small, and not significant) It is reassuring to see some positive associations between various measures of empathy.

Table no. 4
Correlation Matrix

	QCAE cognitive	QCAE affective mod	1st order false belief	2nd order false belief	Pain empathy score	Behaviour 8pt scale
QCAE cognitive	1	-.13	.21	-.06	-.10	.16
QCAE affective mod		1	.05	.27	.37	-.23
1st order false belief			1	.25	.04	.18
2nd order false belief				1	.37	-.13
Pain empathy score					1	-.13
Behaviour 8pt scale						1

*$p < .01$.

The regression model was statistically insignificant, F (5, 31) = 0.76, p = 0.59. The empathy measures are therefore not predicting observed behaviour, R^2 = 0.11. Partial correlations indicate that the predictors uniquely have a very small effect on the behaviour.

Inspection β - values in Table 5 (See Appendix N) indicate positive relationship between behaviour and cognitive measures and an inverse relationship between affective measures and behaviour. Although p is insignificant we do see a slight trend in the unique contribution of each component of empathy and behaviour. This however differs from what we predicted as the increase in affective scores result in a decrease in behavioural score (toward antisocial) while increase in cognitive scores lead to increase in behavioural score (toward prosocial).

Discussion

The general aim of this study was to address the question of how components of empathy predict behaviour (both prosocial and aggressive/antisocial) in children from a low socioeconomic background in South Africa. This study looked specifically at various components of empathy and how these components related to one another and in turn affected behaviour as the outcome measure. The study tested three specific hypotheses which were based on findings in the international literature with regards to empathy in children. It was therefore of interest to see how they would apply to a South African context, or if they would apply at all. The literature predicted that empathy and the lack thereof would be a major predictor of the types of behaviour exhibited by girls and boys. Findings, however, did not confirm our a priori hypotheses. In fact empathy did not seem to be predicting behaviour at all.

To unpack what we found, I will firstly discuss how empathy was measured and whether tasks used were working and appropriate for the context. Thereafter how empathy related to gender as well as its relationship with behaviour will be discussed- in terms of our hypothesis. Lastly our limitations as well as future directions will be discussed.

Measuring empathy

There are many measurement issues that arise when testing empathy in children because as mentioned previously, empathy is a complex construct and we rely on international research and measures far too much. It is therefore important that we make sure that the measures used in this study are appropriate and applicable for the context. Therefore, before running any analysis, the measures used such as the QCAE, pain empathy task and Theory of mind tasks were assessed for reliability.

The QCAE. A factor analysis and a reliability analysis were conducted on the QCAE. QCAE is a well-established measure which according to literature consists of distinct cognitive and affective components on which items load. The cognitive component of the QCAE was found to be reliable in our context; however the affective component yielded a rather low reliability. The low reliability score suggested that the affective component of the QCAE may not be working. The QCAE was administered as a parent report measure and therefore it perhaps makes sense that parents would know more about the cognitive empathic abilities rather than the internal affective states of their children. The affective scale was

adjusted by eliminating items to improve reliability and this modified scale was included in our analysis. The modified affective scale therefore only included 8 items compared to 19 items on the cognitive scale. But even this modified subscale did not have good internal consistency. Moreover, the Factor Analysis did not support a simple 2-factor structure. Thus the psychometric properties of this measure in our context are questionable.

The Pain Empathy Task. For the pain empathy task, we looked at the correlations between the control question (whether the child was able to identify how much pain the person was experiencing) and the affective question (how badly the child felt for the person in the picture). This yielded a high correlation which indicated that the perception of pain and it's severity in another is related to the degree affective sharing in the child. Thus the pain empathy task appeared to be working well. Children were able to identify painful situations and empathise with the individual in that situation.

Theory of Mind. In the ToM task, control questions ensured that the participants were able to comprehend the stories; failure in correctly inferring first and second-order beliefs could therefore not be attributed to the failure of understanding. Recalling the mean score for both sexes on the control questions in Table 3, these indicated that comprehension was not an issue and therefore both first and second order belief tasks were included in the multiple regression model.

Empathy and gender

Hypothesis 2 stated that there is a gender difference in empathy and behaviour. A series of *t*-test and Mann-Whitney *U*-tests were run in order to test the hypothesis. There were no significant differences between sexes, however both ToM and behaviour yielded reasonable effect sizes.

ToM. Participants understood the stories, however they failed to correctly infer second order false belief. Both girls and boys performed similarly on first order false belief. Importantly, girls performed better than boys on the second order false belief taskAccording to Cohen (1988) the recommended effect size conventions are as follows: small (d = 0.20), medium (d= 0.50), and large (d = 0.80) . The effect size for second order false belief is > 0.40 approaching a medium effect size (0.50). Although p was insignificant, there was a moderate effect which may be significant in larger studies.

Our results suggest that girls may have better social skills than boys. Research suggests that the increased social ability may attribute to their gender role and socialization

(Adler, Kless, & Adler, 1992; Best, 1983; Erder & Hallinan, 1978). School forms a powerful site for gender patterned relationships to develop. Girls and boys engage in different types of play which forges qualitatively different relationships. Girls tend to play in more intimate groups while boys are more competive and tend to engage in games where they compete with their friends or are more aggressive (Adler, Kless, & Adler, 1992; Best, 1983; Erder & Hallinan, 1978). As a result girls engage with others for enjoyment and form more intimate relationships which foster a greater understanding of others whereas boy engagement with friends and play may be centered on winning. Boys engage more physically while girls engage more socially with others.

Behaviour. With regard to behaviour: although there were no significant differences, the mean differences between sexes as well an effect size of 0.43 indicate that a significant difference may be detected in a larger sample. Mean scores alone do suggest that boys were more aggressive than girls. Inspection of extreme cases as well as aggressive/antisocial cases suggests that boys are more likely to act in aggressive antisocial manner compared to girls.

The literature suggests that girls are more likely to have higher empathy scores and exhibit more prosocial behaviour compared to boys (Auyeung, Allison, Wheelwright, & Baron-Cohen, 2012; Hinant & O'Brien, 2007; Hoffman, 1997). Although our results were not statistically significant, trends found in the data suggest boys behave more aggressively than girls.

Post-hoc power calculations (using Gpower 3.1) indicate that even using parametric tests, this sample size would have yielded insufficient power to find these gender effects for ToM and behavior statistically significant (1 – beta = .13). This strongly indicates that important effects are present, and that future research should attempt to use larger samples.

Empathy and behaviour

Hypothesis 1 and 3 will be addressed together. Hypothesis 1 stated that higher empathy scores correlate with overt expressions of prosocial behaviour. On the other hand, hypothesis 3 stated that cognitive and affective components of empathy contribute uniquely to the expression of behaviour.

A simultaneous multiple regression was run to test how empathy measures predicted behaviour. However correlations between predictors and the outcome variable were very

small. Therefore our empathy measures were not predicting behaviour. Inspection of β-values as well as correlations do indicate differing relationships between empathy and behaviour.

Correlations were statistically insignificant however there were small positive correlations on between aspects of empathy, $r > 0.20$. First and second order false belief positively correlated with each other which indicated that the stories were tapping into the same construct. The cognitive component of the QCAE also positively correlated with first order theory of mind which suggested there is some consistency between parent and child measures measuring the same construct. There was a moderate positive correlation between second order false belief and pain empathy task score which indicated a relationship between cognitive and affective empathy. Results reveal a level of consistency between measures, cognitive measures seem to relate to one another and tap into the same construct. Measures seem to be working well together and therefore the problem must lie with the behavioural scale.

Previous research suggests that empathic capacities in children are not always accurately captured by report and verbal measures (Dadds et al, 2008). Verbal and self-report measures also tend to be unreliable when testing young children. Naturalistic observation therefore provides a means to capture empathic ways of relating to others regardless of age, gender, or mental capacities. The behavioural measure is a pilot measure. Low correlation between the predictors and dependent variable may be attributed to low variability in the scale which lead to a scale adaptation. Initially behaviour was scored on a 3-point scale however this scale resulted in children scoring similarly and did not allow for much variation within the data. The scale was not discriminating behaviours well. To increase the variability in the data this scale was later expanded to form an 8-point scale measuring behaviour.

We attempted to weight the degrees of both aggression and prosocial behaviour on a spectrum ranging from the worst to the best behaviours. We attempted to use expert consensus to achieve reasonable weightings, but there is some degree of arbitrariness in these decisions, and this scale needs further development and refinement. Behaviours were therefore scored according to degree of how bad or good the exhibited behaviour was. For example an aggressive behaviour such as hitting another individual was scored as negative 8 compared to a procosial behaviour such as consoling another individual which was scored as positive 8 (See Appendix O). Behaviours such as solitary play were considered as neither prosocial or aggressive and therefore fell in the middle of the spectrum scoring zero (See Appendix E).

Observations were measured to frequency and not duration which was also problematic. The behavioural scale therefore did not account for the varying degrees of prosocial and aggressive behaviours based on duration. The scale would therefore not have been able to discriminate between a prosocial behaviour such as a long hug compared to a short hug which are evidently different in terms of prosociality. Instead both these behaviours would have been scored the same.

These observations were also influenced by a number of factors such as the presence of the researcher, what kind of day the child had been having, if something happened, or even just the time of break (at the beginning of break, children often are not very active, finishing their lunch). The behaviour scale was therefore a rather blunt measure, however it was interesting to note the different types of behaviour seen between genders (discussed above).

Some behaviours were not captured by the behaviour checklist and the scale is therefore representative of a limited range of behaviours. From qualitiative observations we saw prosocial behaviour such as laughing, holding hands and skipping which were not captured by the scale. We also witnessed aggressive/antisocial behaviours through the enactment of a hostage scenario where children had made paper guns and pretened to take a child hostage.

Coding with regards to behaviours exhibited by the children was also problematic. Some behaviours such as rough and tumble play were ambiguous. These behaviours were coded negatively thus scored as aggressive/antisocial behaviours. However, interestingly, aggressive play (especially among boys) was not actually aggressive at all but a form of engagement and play. Children engaged in groups through play fighting and wrestling. Qualitatively children engaged in this type of behaviour exhibited a range of prosocial behaviours as well such as smiling, laughing, engaging with others, and even helping a friend up after they have wrestled. In fact prosical scorers on the behavioural scale often displayed both aggressive and prosocial behaviour,s however their positive prosocial score cancelled their negative scores onbtained through aggressive behaviours.

We saw very little aggressive behavior. As seen in Fig. 2 most behavior lay on the prosocial side of the scale - therefore there was very little variability in this data. Thus it's unsurprising that we were unable to successfully model the impact of empathy scores on this data. We need to think of different situations to observe, or perhaps more obs periods, or longer observation periods to try to rectify this.

Limitations and Future Directions

Although this study matched participants on age, gender, and income bracket to eliminate possible confounds there are still a number of cautionary steps to be taken whilst interpreting the data. The reliability of the observation scale was limitation as well as the comprehension of the measures, , and small sample size.

Comprehension of measures. A major limitation to the study was that we did not know whether the parents fully comprehended the parent questionnaires or not. Researchers were present at parent questionnaire sessions; however it was evident that many of the parents failed to grasp the questions asked by the questionnaires. Parents needed assistance and further explanation on some questions while others required the researcher to go step by step through each question. The prescribed time for parents to fill out the questionnaires was an hour to an hour and a half; however we found that some parents took up to 3 hours to fill out questionnaires often not wanting assistance.

Of the four items deleted from the QCAE, 3 of them were reversely coded items which are an indication that parents might not have fully understood the questions on the QCAE. Reverse phrased questions use clumsy phrasing that is difficult to understand. For example item 2, “My child is usually objective when he/she watches a film or play, and doesn’t often get completely caught up in it” as well as item 29, “My child usually stays emotionally detached when watching a film” were both reversely coded items which parents struggled to grasp. During parent questionnaire sessions many of the parents needed help completing these questions especially in terms of how these items are worded.

Many of parents had not completed high school and therefore their comprehension serves as major limitation. Furthermore, some parents did not speak English as a first language. A number of participants were excluded due to inadequate completion of questions. In these cases it was evident that the parent did not understand the questionaires. It should therefore be clear that the QCAE in its current form is probably unsuitable for use in the South African context. This is particularly of concern with regard to the affective subscale, which demonstrated poor internal consistency (even when adjusted). However, the factor analysis also indicated that items did not load cleanly onto two factors. There is a need for adapted and more clearly worded measures with regard to testing populations from low socioeconomic backgrounds.

Children also showed low cognitive capabilities with regards to ToM based on their age. According to Miller (2009) children master first order false belief at a preschool level (around 4 years of age) and second order false belief is mastered around the age of 6. Children in our sample were between the ages of 8 and 10. However they showed a developmental lag in grasping this cognitive skill. Only two participants in our sample were able to fully comprehend and correctly infer both first and second order false belief. Less than half of the sample was able to correctly infer first order false belief and less than a quarter correctly inferred second order false belief. Recalling Table 3, there was no problem in comprehending ToM stories and therefore poor performance may be attributed to the failure to grasp ToM. The finding in this study echoes results from an Honours study conducted last year, where a delay in first order false belief reasoning was noted in a sample of Grade 1 learners from a similar SES. According previous literature it is not clear why this should be the case in our sample, and it could be perhaps be attributed to factors such as poor education, parenting, or environment. This warrants further investigation.

Small sample size. The small sample size in the current study is of concern. The study conducted a factor analysis, t-test for between group comparisons, as well as a multiple regression. Previous research studies which use similar statistical analyses generally obtained a much larger sample. For example Reniers and colleagues had a sample size as large as n = 640 to conduct their factor analysis on the QCAE. Sample size is also a major factor when it comes to multiple regression. According to Field (2009) the general rule of thumb is 10-15 cases per predictor, in our case there are 5 predictors. We should therefore have a sample size of at least 50, however we only had 40 participants. We therefore found it necessary to conduct a post hoc power analysis to test whether measures used had a fair chance of rejecting the null hypothesis.

The GPower software package was used to conduct a post hoc power analysis (Faul & Erdfelder, 1992). The study's small sample size (N = 40) resulted in limited statistical power and may have contributed to limiting the significance of the some of the between group comparisons conducted as well as the multiple regression. The alpha level for both analyses was set at $p < .01$.

The post hoc analysis for the multiple regression conducted, after deleting outliers, revealed that the statistical power for this study was .28 for detecting a small effect ($f^2 = 0.12$). In order to have achieved the recommended power of 0.80, we would have need a

sample size of approximately 109. It is therefore clear from this analysis that a much larger sample was needed. Future research should therefore invest in collecting data from large samples.

Another interesting avenue for empathy research in children would be to address socioeconomic status. The current study focused on children from a low socioeconomic background alone. However the effects of low socioeconomic status (SES) is not evidently depicted in this study and therefore research across varying SES strata may result in a clearer picture of how SES effects both the development of empathy and behaviour. The majority of the South African population live in poverty and therefore investigating the effects of SES is an important avenue for empathy research especially in South Africa.

Summary and Conclusions

Although the currently did not provide any significant statistical findings, it found a number of interesting effects, and it illuminated a number of issues to be addressed in future studies. The current study addresses important issues as well as large gaps in the literature.

We found no statistically significant difference between gender on measures of empathy and behaviour; however closer inspection of the data indicated that girls tended to perform better on theory of mind (specifically second order false belief reasoning); while boys demonstrated more aggressive behavior. Aggressive outliers in observed behaviour were all boys.

Our findings also indicated that the empathy measures were not significantly predicting behaviour. This may be due to some extraneous variable not captured by this study or due to unreliable measures and sample size. The correlations between some of the empathy measures indicate we do have some effective instruments with which to assess empathy; however, assessing behavior in order to effectively capture prosocial and aggressive tendencies remains a challenge.

There are therefore still many avenues to be addressed with regards to empathy research in children. Research in a South African context is scarce and valid measures are lacking. There is therefore a need for more reliable and valid measures and future research in the field should look at developing new measures with regard to measuring empathy in children. Research in this field is important and may have many implications for interventions with regard to behaviour and deficits in empathy.

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Appendices

Appendix A

DEMOGRAPHIC QUESTIONNAIRE

International research guidelines suggest that researchers report some attributes of all research participants (e.g., children's gender, parents' educational background, etc.). To help us collect this information, we are asking you to complete this brief questionnaire. All your answers are kept private, and won't be used in a way that identifies you or your child. If you are uncomfortable answering any of the items, feel free to ignore them.

Today's Date (MM/DD/YY): _____

Who is completing this questionnaire? (Please √)

☐ Biological parent ☐ Grandparent ☐ Nanny
☐ Foster parent ☐ Aunt/Uncle ☐ Friend
☐ Stepparent ☐ Sibling ☐ Other: _____

Are you the child's primary caregiver? (Circle one) Y /N

Your gender: M /F

Child's Information

Child's date of birth (MM/DD/YY): _____

Child's gender: M /F

Child birth order: Child number _____ out of _____ children.

Ages of siblings: Boy/Girl Age: _____

Boy/Girl Age: _____

Boy/Girl Age: _____

Child's height (in cm):_____ Child's weight (in kg): _____

Child's home language: _____

Child's race (Please √):

☐ Black South African ☐ Coloured ☐ Indian

☐ Black African (Other) ☐ White/Caucasian ☐ Other: _____

(Please specify)

Please list any serious health problems this child has had:

_____

_____

_____

Was this child born more than two weeks early? Y / N

Please list any medications this child is taking for behavior issues, attention difficulties, or issues related to moods and feelings:

_____

_____

_____

Does this child currently attend (Please √):

☐ Daycare/Crèche ☐ Grade R

☐ Preschool ☐ Primary school (Grade: _____)

Household Information

Who does this child currently live with? (Please √ all that apply)

☐ Biological parent ☐ Grandparent ☐ Nanny

☐ Foster parent ☐ Aunt/Uncle ☐ Friend

☐ Stepparent ☐ Sibling ☐ Other: _____

Who is this child's primary caregiver?

☐ Biological parent ☐ Grandparent ☐ Nanny

☐ Foster parent ☐ Aunt/Uncle ☐ Friend

☐ Stepparent ☐ Sibling ☐ Other: _____

Languages currently spoken at home:

Home language:_____

Other: _____

Religion(s) practiced in the home: _____

Primary Caregiver Information

Current age: _____

Marital Status:

- ☐ Married
- ☐ Single
- ☐ Divorced
- ☐ Remarried

Child's Mother's level of education completed:

- ☐ 0-5 years
- ☐ 6-8 years
- ☐ 9-12 years
- ☐ 13-16 years
- ☐ Bachelor's degree
- ☐ Postgraduate degree
- ☐ Other: _____

Child's Father's level of education completed:

- ☐ 0-5 years
- ☐ 6-8 years
- ☐ 9-12 years
- ☐ 13-16 years
- ☐ Bachelor's degree
- ☐ Postgraduate degree
- ☐ Other: _____

Child's Primary caregiver's level of education completed:

- ☐ 0-5 years
- ☐ 6-8 years
- ☐ 9-12 years
- ☐ 13-16 years
- ☐ Bachelor's degree
- ☐ Postgraduate degree
- ☐ Other: _____

Current job title:

Mother: _____

Father: _____

Primary caregiver: _____

Total family/household income last year:

- ☐ Less than R35 000
- ☐ R36 000-R75 000
- ☐ R76 000-R125 000
- ☐ R126 000-R175 000
- ☐ R176 000-R225 000
- ☐ R226 000-R275 000
- ☐ R276 000-R325 000
- ☐ R326 000-R375 000
- ☐ R376 000-R425 000
- ☐ R426 000-R475 000
- ☐ R476 000-R525 000
- ☐ More than R525 000

Thank you for taking the time to complete this questionnaire!

Appendix B

Appendix C

THEORY OF MIND SCRIPT
Cross Cultural Moral Development Study

Necessary Materials
Theory of Mind Program

Launch Theory of Mind Task: "ToM_English"
Enter Subject Number
Navigate Task Using: Double Touch/ Stylus

Story 1 "The Ball"

Read Instructions: *We're going to read some stories together and then I will ask you some questions. Here is the first story. It is called "The Ball".*

Read Story: *This is Sally, and this is Anne. Sally puts her ball into the basket. Then Sally leaves the room. Anne moves the ball from the basket into her box. Then Anne leaves the room.*

Guide child to double touch "basket button" or "box button" for each question. Double touch [NEXT] button to move between questions.

Read Questions: *When Sally Returns to get her ball, where will she look first? Where does sally think the ball is? Where is the ball now? Where did Sally put the ball in the beginning?*

[NEXT]

Experimenter: *Great Job! Ready for the next story?*

Story 2 "The Ice Cream Man"

Read Story: *John and Mary are in the park. Mary wanted to buy ice cream from the ice cream man but she hasn't got any money. The ice cream man tells her that he will be there all afternoon. Mary goes home to get money for ice cream. After a while, the ice cream man tells John that he changed his mind and he is going to drive to the school yard and sell ice cream there. The ice cream man sees Mary on the road on his way to the school. He tells her that he is going to the school yard and will be selling ice cream there. John goes to Mary's house but Mary is not there. Her mom tells him that she has gone to buy ice cream.*

Guide child to double touch "park button", "home button", or "school button" for each question. Double touch [NEXT] button to move between questions.

Read Questions: *Where is the ice cream man now? Does John know that Mary talked to the ice cream man? John is looking for Mary. Where does John think Mary has gone for ice cream? Why does he think that? Where did Mary go for her ice cream?*

[NEXT]

Experimenter: *Great! Only 1 story left! The next story is called, "The Chocolate Bar"*

Story 3 "The Chocolate Bar"

Read Story: *Danny and Amy are brother and sister. They are playing in the living room. Their mother returns home from shopping. She bought some chocolates and she gives some to Danny. Amy doesn't get any chocolate because she has been naughty. Danny eats some of the chocolate and puts the rest in the drawer. He doesn't give any chocolate to Amy. That makes Amy angry. Now Danny goes into the kitchen to help his mother with the cleaning. Amy is alone in the living room. Because she is angry with Danny, Amy hides the chocolate. She takes the chocolate out of the drawer and puts it in the toy chest. Danny is busy cleaning the kitchen, but goes outside to throw the fruit leftovers in the bin near the garden. Through the window, he sees the living room. He sees Amy take the chocolate out of the drawer and put it in the toy chest. Amy does not see Danny.*

[Double Touch]

Guide child to double touch "chest button", "drawer button", "Yes/No button" for each question. Double touch [NEXT] button to move between questions.

Read Questions: *Where is the chocolate now? Does Danny know that Amy has hidden the chocolate in the toy chest? Does Amy know that Danny saw her hide the chocolate?*

[Double Touch]

Read Story: *Danny has finished cleaning the kitchen and he is hungry. He wants to eat some of his chocolate. Danny enters the living room and says "I would like some chocolate."*

Guide child to double touch "chest button", "drawer button", "Yes/No button" for each question. Double touch [NEXT] button to move between questions.

Read Questions: *Where does Amy think that Danny will look for the chocolate? Why does she think that?*

Experimenter: *Great job! You completed all of the stories!*

STORY 1: THE BALL

We're going to read some stories together and then I will ask you some questions about them. Here is the first story. It is called "The Ball." **Read story.**

<u>Questions:</u>

When Sally returns to get her ball, where will she look first?

_____

_____

__

*Where does Sally think the ball is?*_____

*Where is the ball now?*_____

Where did Sally put the ball in the beginning?

_____

STORY 2: THE ICE CREAM MAN

Great Job! Ready for the next story? The next story is called "The Ice Cream Man." **Read Story.**

Questions:

Where is the ice cream man now?

_____

Does John know that Mary talked to the ice cream man? Y / N

*John is looking for Mary. Where does John think Mary has gone for ice cream?*_____

Why does he think that?

_____

*Where did Mary go for her ice cream?*_____

Appendix D

QCAE (Child)

People differ in the way they feel in different situations. Below you are presented with a number of characteristics that *may or may not apply to **your child***. Read each characteristic and indicate how much you agree or disagree with the item by selecting the appropriate box. Answer quickly and honestly.		Strongly agree	Slightly agree	Slightly disagree	Strongly disagree
1.	My child sometimes finds it difficult to see things from another's point of view.				
2.	My child is usually objective when he/she watches a film or play, and doesn't often get completely caught up in it.				
3.	My child tries to look at everybody's side of a disagreement before he/she makes a decision.				
4.	My child sometimes tries to understand his/her friends better by imagining how things look from their perspective.				
5.	When my child is upset at someone, he/she will usually try to "put his/herself in the person's shoes" for a while.				
6.	Before criticizing somebody, my child tries to imagine how he/she would feel in their place.				
7.	My child often gets emotionally involved in his/her friends' problems.				
8.	My child is inclined to get nervous when others around him/her seem nervous.				
9.	People my child is with have a strong influence on his/her mood.				
10.	It affects my child very much when one of his/her friends seems upset.				
11.	My child often gets deeply involved with the feelings of a character in a film, play, or novel.				
12.	My child gets very upset when he/she sees someone cry.				
13.	My child is happy when he/she is with a cheerful group and sad when others are glum.				
14.	It worries my child when others are worrying and panicky.				
15.	My child can easily tell if someone else wants to enter a conversation.				
16.	My child can pick up quickly if someone says one thing but means another.				
17.	It is hard for my child to see why some things upset people so much.				
18.	My child finds it easy to put him/herself in somebody else's shoes.				
19.	My child is good at predicting how someone will feel.				
20.	My child is quick to spot when someone in a group is feeling awkward or uncomfortable.				
21.	Other people tell my child he/she is good at understanding what others are feeling and what others are thinking.				
22.	My child can easily tell if someone else is interested or bored with what he/she is saying.				
23.	Friends talk to my child about their problems as they say that my child is very understanding.				
24.	My child can sense if he/she is intruding, even if the other person does not tell him/her.				
25.	My child can easily work out what another person might want to talk about.				
26.	My child can tell if someone is masking their true emotion.				
27.	My child is good at predicting what someone will do.				
28.	My child can usually appreciate the other person's viewpoint, even if he/she does not agree with it.				
29.	My child usually stays emotionally detached when watching a film.				
30.	My child always tries to consider the other person's feelings before he/she does something.				
31.	Before my child does something, he/she tries to consider how his/her friends will react to				

	it.				

Scoring of the (sub)scales of the QCAE Empathy (Sub)scale Item Numbers	
Cognitive empathy: Perspective taking Online simulation	 15, 16, 19, 20, 21, 22, 24, 25, 26, 27 1 (r), 3, 4, 5, 6, 18, 28, 30, 31
Affective empathy: Emotion contagion Proximal responsivity Peripheral responsivity	 8, 9, 13, 14 7, 10, 12, 23 2 (r), 11, 17 (r), 29 (r)

Note. (r) indicates that the item is reverse scored.

Appendix E

Behavior Observation	**Frequency**	**Duration**
Aggressive/antisocial behaviour		
Yelling/shouting at people		
Yelling/shouting at things		
Breaking things		
Hit things		
Hit people		
Sulking		
Swearing		
Spitting		
Kicking		
Pushing		
Throwing stuff		
Pulling hair		
Using 'weapons'		
Name calling		
Mocking/teasing		
Shove		
Poke/pinch		
Forcefully move child out of way/off toy		
Argues		
Careless with toys/objects		
Grabs toys		

Bites		
Pretend to hurt child		
Pretend to hurt toy		
Prosocial behavior		
Tries intervene in peer conflicts		
Friendly towards others		
Offers help		
Shares		
Hold hands		
Smile at others		
Wait patiently for turn on swings/toys		
Plays with others		
Joins in games/activities		
Helps		
Comforts		
Shares		
Shows something		
Friendly verbal interaction with peers		
Friendly nonverbal interaction with peers		
Caring behavior to toy		
Exclude		
Solitary play		

Appendix F

UCT Ethics Approval

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3414
Fax No. (021) 650 4104

5 March 2013

Dr. Susan Malcolm-Smith
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Dr Malcolm-Smith,

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your project:

The development of moral reasoning

Please use the reference PSY2013-001 if required. I wish you all the best for your study.

Yours sincerely,

Johann Louw PhD
Professor
Chair: Ethics Review Committee

Appendix G

WCED Ethics Approval

Directorate: Research

Audrey.wyngaard2@pgwc.gov.za

tel: +27 021 467 9272

Fax: 0865902282

Private Bag x9114, Cape Town, 8000

wced.wcape.gov.za

REFERENCE: 20130315-8009

ENQUIRIES: Dr A T Wyngaard

Dr Susan Malcolm-Smith
Department of Psychology
UCT
Private Bag
Rondebosch

Dear Dr Susan Malcolm-Smith

RESEARCH PROPOSAL: THE DEVELOPMENT OF MORAL REASONING

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Approval for projects should be conveyed to the District Director of the schools where the project will be conducted.
5. Educators' programmes are not to be interrupted.
6. The Study is to be conducted from**01 May 2013 till 20 September 2013**
7. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
8. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
9. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
10. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
11. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.

12. The Department receives a copy of the completed report/dissertation/thesis addressed to:

The Director: Research Services
Western Cape Education Department
Private Bag X9114
CAPE TOWN
8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 15 March 2013

Appendix H

Consent Form

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

The Development of Moral Reasoning

Principal Investigator:

Dr Susan Malcolm-Smith

Senior Lecturer

Department of Psychology

University of Cape Town

Principal Investigator:

Dr Jean Decety

Department of Psychology

University of Chicago

Dear Parent/Legal guardian,

You and your child are invited to participate in a research study investigating the development of moral reasoning in children. This study focuses on how children of different ages feel about good and bad behaviour.

What is involved in this study?

Approximately 360 children aged 3 to 13 years will participate in this study. If your child participates, a researcher will guide her/him through several computer-based tasks. In one task, children will be asked to view pictures of hands or feet in neutral situations (e.g. a hand opening a door) or in situations that could be painful (e.g. a hand getting stuck in a door). In another task, children will view short videos of one person accidentally hurting another person (e.g. a person being bumped) or one person intentionally hurting another person (e.g. a person being pushed). After viewing these pictures and videos, children will be asked how mean the person in the picture is and how good/bad the action was. All pictures are appropriate for children as young as 3 years of age and have been taken from situations children readily observe in every-day life.

Additionally, children will complete a number of pencil and paper tasks. In one such task, your child will answer questions about short stories. These questions will look at their ability to take another person's point of view. Children will also play a game where they have an opportunity to share rewards (stickers or sweets) with others or not, and their interactions with others (such as their friends) will be observed. Altogether this study will take about 90 minutes of your child's time. All sessions will take place either right after school, or during the school day (depending on your and your child's school's preference). We will take a break after completing some of the tasks, and take additional short breaks if your child gets tired.

We also have a number of questionnaires that will ask you questions about your own views and questions about your child's views. Your completion of these documents is completely voluntary.

Are there any benefits to taking part in the study?

Your child will receive a snack for her/his participation, as well as some stickers of her/his choice, and you will receive R100 if you complete all questionnaires. The results of this research could provide essential information about how children process emotional and moral information and this may be helpful in planning effective educational programs for children with social difficulties.

What are the risks of the study?

There are no risks to you or your child through participating in this research. However, if any child does become at all upset, or tired, she or he may stop participating at any point. We would like to emphasise that participation in this study is entirely voluntary, and will not affect your child's education. All results will be securely stored, and kept strictly confidential.

If you would like your child to participate in the study, please complete the consent form, as well as the demographics survey, and return to your child's school. Please answer all the questions as accurately and truthfully as possible. We understand that some of this information may be sensitive, but be assured that all information will be kept strictly confidential.

Should you have any questions or queries about the research or your participation, please do not hesitate to contact Lea-Ann Pileggi: (email) leapileggi@gmail.com, or Susan Malcolm-Smith: (phone) 021 650 4605, (email) Susan.Malcolm-Smith@uct.ac.za, or contact Professor Johann Louw (Psychology Ethics Committee): (email) Johann.Louw@uct.ac.za.

Thank you for your participation.

CONSENT FORM

The research project and the procedures associated with it have been explained to me. I hereby give my permission for my child to participate in the above-described research project.

Child's name: _____

Parent/guardian's name: _____

Signature of parent/guardian: _____

Date: _____

We will send the questionnaires to you via your child's school once we have received consent. Please provide a contact number below.

If you prefer to complete the questionnaires telephonically, please indicate which time/s would be most convenient to receive this phonecall. Alternatively, please provide an email address if you would prefer the questionnaires be forwarded to you via email.

Phone: _____ Time/s: _____

Email: _____

Appendix I

Child Assent Form

UNIVERSITY OF CAPE TOWN

DEPARTMENT OF PSYCHOLOGY

The Development of Moral Reasoning

Assent Form

Hello! We want to tell you about a research study we are doing. A research study is a way to learn more about something. We would like to find out more about how children feel about good and bad behaviour.

If you agree to join this study, you will be asked to do some tasks on the computer. For example, we will show you some pictures and ask you how you feel about them. We will also show you some short movies on the computer screen. These are not the kind of movies you see on TV. They are movies that we made to help us study how children feel about good and bad behaviour. It is very important that you watch the pictures carefully. You will also be asked to do some other tasks, like tell us the meaning of some words, and we will ask you to answer questions about short stories we will read to you.

Together these tasks will take about 90 minutes. We will take a break after you've done some of the tasks. We can take other short breaks too if you get tired.

You do not have to join this study. It is up to you. No one will be angry with you if you don't want to be in the study or if you join the study and change your mind later and stop.

Do you have any questions about the study? If you think you can do it and you don't have any more questions about it, will you sign this paper? If you sign your name below, it means that you agree to take part in this study.

Child's Signature: _____ Date: _____

Interviewer's Signature: _____ Date: _____

Appendix J

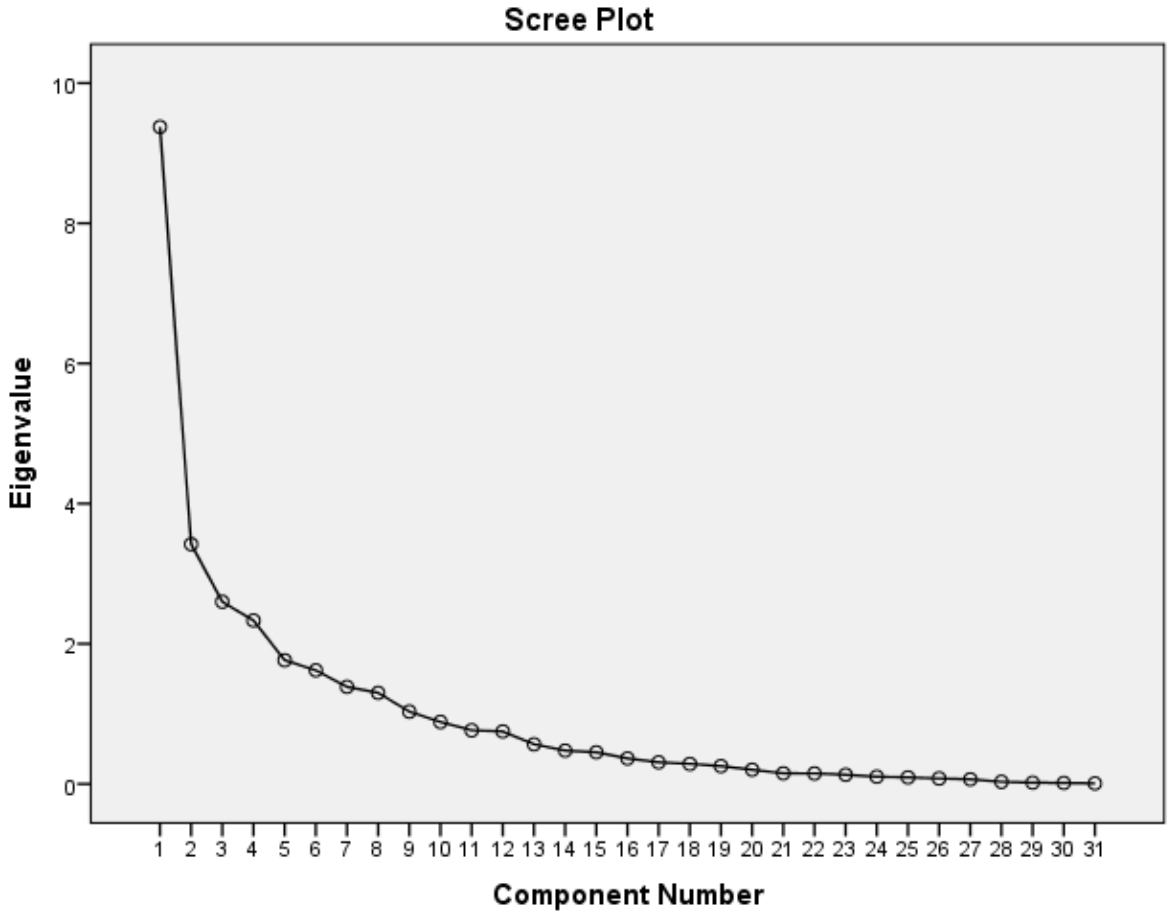

Figure 1. Scree plot displaying eigenvalues for the corresponding number of components

Appendix K

Table no. 2.1
Factor Analysis for the Questionaire of Cognitive and Affective Empathy

Item	Rotated factor loadings	
	cognitive	affective
1		**-.56**
2	**-.42**	
3	**.53**	
4	**.65**	
5	**.70**	
6	**.71**	
7	**.36**	**.69**
8		**.52**
9	-.33	**.45**
10		**.62**
11		**.53**
12		
13		**.51**
14		**.59**
15	**.70**	
16	**.58**	
17	**-.49**	-.34
18	**.67**	
19	**.80**	
20	**.82**	
21	**.71**	
22	**.71**	
23	**.46**	
24	**.51**	
25	**.71**	
26	**.60**	
27	**.66**	
28	**.510**	
29		**-.52**
30	**.78**	
31	**.75**	
Eigen values	9.38	3.42
% Of variance	30.24	11.04
α	.93	.27

Note. Loadings in boldface are > or

approaching .40. Varimax normalized rotation was used.

Appendix L

Table no. 2.2

Factor Analysis for the Questionaire of Cognitive and Affective Empathy

Item	Rotated factor loadings	
	cognitive	affective
1		**-.59**
3	**.53**	
4	**.63**	
5	**.72**	
6	**.70**	
7	**.37**	**.65**
8		**.37**
9	-.32	**.43**
10		**.72**
11		**.52**
12	-.31	
13		**.42**
14		**.72**
15	**.69**	
16	**.56**	
18	**.69**	
19	**.79**	
20	**.84**	
21	**.70**	
22	**.72**	-.31
24	**.50**	
25	**.72**	
26	**.59**	
27	**.66**	
28	**.52**	
30	**.78**	
31	**.76**	
Eigen values	8.81	3.16
% Of variance	32.63	11.70
α	.93	.66

Note. Loadings in boldface are > or approaching .40. Varimax normalized rotation was used.

Appendix M

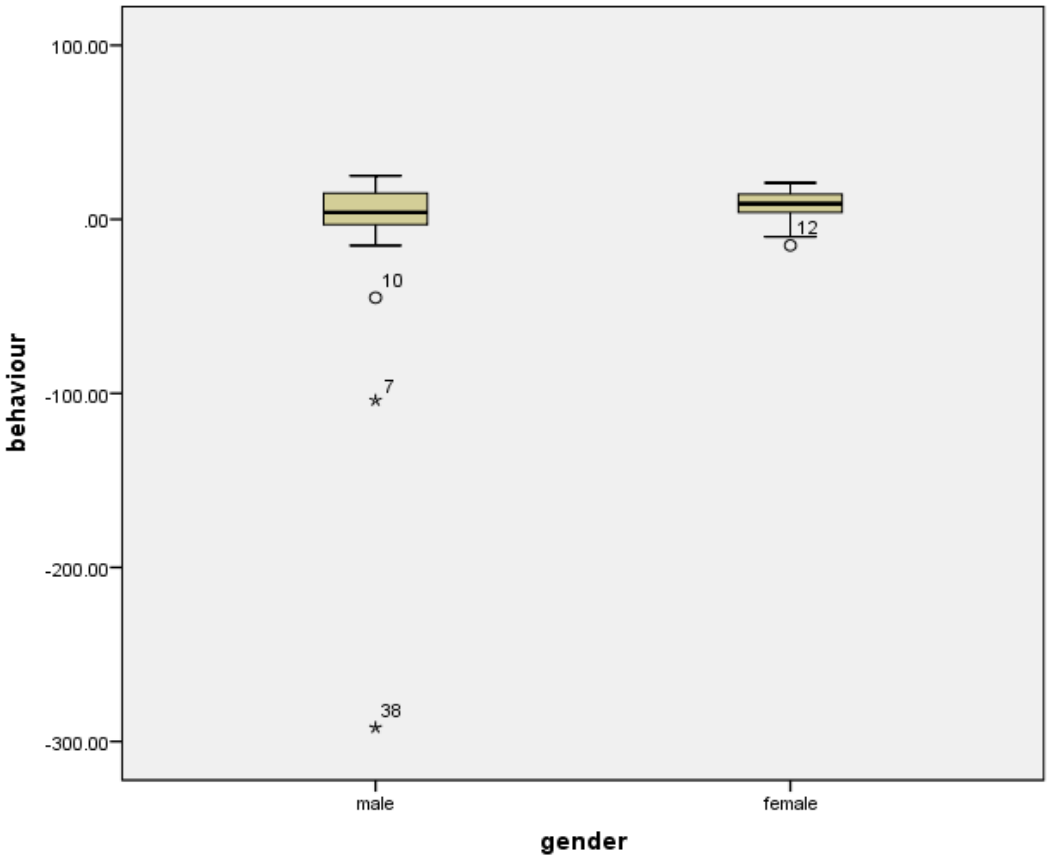

Figure 2. Boxplot displaying behaviour across gender.

Appendix N

Table 5
Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
	B	Std. Error	Beta	*t*	Sig.	zero-order	partial	part	tolerance	VIF
QCAE Cognitive	0.06	0.13	0.08	0.46	.65	.16	.08	.08	.93	1.08
QCAE Affective	-0.44	0.44	-0.19	-1.00	.32	-0.23	-0.18	-0.17	.84	1.20
1st Order False Belief	3.65	3.29	0.20	1.11	.28	-0.18	0.20	0.19	.88	1.13
2nd Order False Belief	-1.90	2.97	-0.12	-0.64	.53	-0.13	-0.11	-0.11	.78	1.28
Pain Empathy Score	-0.02	0.18	-0.02	-0.09	.93	-0.13	-0.02	-0.02	.78	1.28

a. Dependent Variable: Behaviour

Appendix M

The key below indicates how behaviour was weighted and scored. Prosocial behaviours are scored positively. Antisocial behaviours are scored negatively.

Antisocial behaviours:	score	**Prosocial behaviours:**
Careless with toys/objects	1	Shows something
Sulking	1	Smile at others
	1	laughs
Yelling/shouting at things	2	
Name calling	2	Friendly towards others
Mocking/teasing	2	Friendly verbal interaction with peers
Argues	3	Plays with others
Yelling/shouting at people	3	Joins in games/activities
Swearing	3	
Throwing stuff	4	Friendly nonverbal interaction with peers
Pretend to hurt toy	4	
Pretend to hurt child	4	
Spitting	4	
Forcefully move child out of way/off toy	5	Caring behavior to toy
Grabs toys	5	Gentle touching gesture
Poke/pinch	5	
Pulling	6	Hugs/walks arm in arm
Wrestles	6	Hold hands
Pushing	6	
Shove	6	
Breaking things	7	Wait patiently for turn on swings/toys
Hit things	7	Shares
Pulling hair	8	Offers help
Hit people	8	Helps
Kicking	8	Comforts
Using ‘weapons’	8	Tries to intervene in peer conflicts
Bites	8	
