"Assessing Behavior Difficulties in Students": A Special Issue of the European Journal of

Psychological Assessment

Assessment of Anticipated Emotions in Moral Transgressions

Dorinde Jansma[1], Tina Malti[2], Marie-Christine Opdenakker[1], and Greetje van der Werf[1]

[1]Department GION, Rijksuniversiteit Groningen, The Netherlands

[2]Department of Psychology, University of Toronto, Toronto, ON, Canada

Abstract

This paper describes the reliability and validity of the assessment of anticipated emotions in the context of moral transgressions in a sample of 1179 children age 6-13 (M=9.1; SD=1.8, 49.0% girls), with a special interest in the domain and developmental specificity of the instrument. To evaluate the concurrent and predictive validity, we also examined the relation between anticipated emotions and antisocial and prosocial tendencies and sympathy at two time points. The instrument consisted of six transgression scenarios covering three domains: unfairness (not winning fairly, not keeping word), omission of a prosocial duty (not sharing, not helping) and victimization (verbal bullying, relational bullying). Results show sufficient internal consistency and a one-factor structure of the anticipated emotions, indicating a lack of domain variability of the assessment of anticipated emotions. Additionally, emotions following hypothetical moral transgressions showed some developmental variability. Whereas no relation was found between anticipated emotions and antisocial tendencies, anticipated negative emotions following the moral transgressions were positively related to prosocial tendencies and sympathy. This provides preliminary evidence for the concurrent and predictive validity of the instrument.

Assessment of Anticipated Emotions in Moral Transgressions

An emotion is a subjective feeling that is mentally directed toward some object, i.e. a person, thing, or event, real or imagined, that is in some way important to the one experiencing the emotion (Gray, 2007). Given this importance, children's emotions greatly influence their ability to understand, differentiate, and remember moral and other types of social events. Also, emotions generally motivate some sort of action as a response to the eliciting event. This action is often not taken, but the emotion puts the child into a motivational and cognitive state in which there is an increased tendency to engage in behaviour (Haidt, 2003). Specifically, emotions in moral and social events are expected to be predictive of children's antisocial and prosocial behaviour (Arsenio, Gold & Adams, 2006; Lemerise & Arsenio, 2000).

A central approach to the study of children's emotions in the context of moral and social conflict has been to focus on the anticipation of emotions following moral transgressions, i.e. violations of a moral norm (Malti & Krettenauer, 2013). The underlying assumption is that children's emotion attributions represent authentic expressions of what is important to them in a given moral conflict scenario (Malti, 2016; see Nunner-Winkler, 1999). Interestingly, in spite of the fact that assessment of anticipated emotions following the transgression of moral rules has been in existence since the '80's, little work thoroughly evaluated the reliability and (aspects of) the validity of the assessment of children's self-evaluative emotions (Arsenio, 2014). This is surprising considering the scientific and practical relevance of good assessment in the area of emotions in everyday moral conflict. Up until now, however, several studies did contribute to the improvement of the assessment tool by comparing alternative ways of assessment (for a detailed overview see Malti & Ongley, 2014; Nunner-Winkler, 2013). For example, Keller, Lourenço, Malti and Saalbach (2003) showed that children more often attribute negative emotions when they are asked how they

would feel after a moral transgression compared to how a hypothetical wrongdoer would feel after the same transgression. On the other hand, when attributing emotions to hypothetical wrongdoers children more often report positive emotions than when attributing emotions to themselves. Yet, in the light of creating and evaluating interventions targeted at behaviour in social and moral events, it is crucial that assessment tools continue to be optimized and tested. Moreover, supportive evidence of reliability and validity is clearly a critical feature of meaningful research. Therefore, the current study examines the validity and reliability of the assessment of emotions in the context of moral transgressions in the light of two important aspects of this particular assessment method, i.e. domain and developmental variability, and its links to important criterion measures, i.e. aggressive and prosocial tendencies, and sympathy.

Assessing anticipated emotions following moral transgressions

In the recent paradigm emotions following moral transgressions are assessed in a one-on-one interview procedure in which children are provided with stories concerning hypothetical moral and social transgressions, such as inflicting harm on others, omitting prosocial duties, excluding others, etc. The interview presents several moral transgression scenarios in which the main character in the story violates a social or moral norm in order to achieve a personal goal. A moral norm "bears on the interest or welfare either of society as a whole or at least of persons other than the judge or agent" (Gewirth, 1984, p. 978). Following each scenario, children are asked how they would feel if they would be the one who transgressed the moral rule or obligation. Their spontaneously mentioned emotions are generally divided into negative, positive and mixed emotions and are indicative for the importance children attach to moral norms in contrast with need satisfaction. By attributing an emotion children indicate which of the two facts that are simultaneously true of a

wrongdoer – that s/he transgressed a moral norm and satisfied a personal desire – they deem more important (Nunner-Winkler & Sodian, 1988). Whereas negative emotions, such as sadness, and shame, are said to indicate guilt feelings and are seen as indicators of moral awareness, positive emotions, such as happiness, pride, and joy, are seen as indicators of a lack of moral awareness (Malti et al., 2009; Malti & Ongley, 2014). Mixed emotions, a little good and a little bad, point to the understanding that a moral transgression may cause positive and negative emotions at the same time (Mascolo & Fischer, 2010). Therefore, mixed emotions also indicate moral awareness (Keller et al., 2010; Perren, Gutzwiller-Helfenfinger, Malti & Hymel, 2012).

Domain variability in children's anticipated emotions in moral transgressions

Not surprisingly, children's anticipated emotions following a hypothetical moral transgression strongly depend on the specific scenario presented to them (e.g. Arsenio, 1988; Arsenio & Fleiss, 1996; Smetana, Compione-Barr & Yell, 2003; Wiersma & Laupa, 2000). Therefore, it is crucial to pick a variety of scenarios. An important selection criterion concerns the domain the scenario is in. Domains that are often distinguished are the neglect of a prosocial duty (e.g. not sharing), unfairness (e.g. not keeping word) and victimization (e.g. harming others) (Arsenio, 2014). Most researchers assess children's anticipated emotions using a mix of stimulus stories involving both acts of victimization, unfairness, and refusing to act prosocial (Arsenio, 2014) and collapse data for these different types of transgressions (Malti & Krettenauer, 2013). However, children generally see neglect of a positive prosocial duty as less objectionable and creating less psychological harm than actually harming others or being unfair (Malti, Gasser & Buchman, 2009; Miller, 2006; Smetana, 2006; Turiel, 2006). In line with this, Arsenio (2014) argues that researchers should separate findings for emotions following harm and unfair treatment and emotions following a

prosocial violation. The present study therefore examines whether the different domains of moral violation should be structurally distinguished.

Developmental variability in children's anticipated emotions in moral transgressions

Children's anticipated emotions in moral transgressions strongly depend on development. Already in the earliest studies (Arsenio, 1988; Arsenio & Ford, 1985; Barden, Zelko, Duncan, & Masters, 1980) striking age-related differences for emotions following moral transgressions were found. It is well established that the occurrence of negative emotions following a hypothetical transgression show an increase after age 6-7 years (Arsenio et al., 2006; Krettenauer, Malti & Sokol, 2008). The percentage of negative emotions ranges from 93% (Arsenio & Lover, 1995) to 55% (Nunner-Winkler, 2008) among 6-7 year olds, and from 67% (Lourenco, 1997) to 35% (Nunner-Winkler, 2008) among 8-9 year olds. The large discrepancies in negative emotions attributed in the same age group are likely a result of variations in assessment procedures (Nunner-Winkler, 2013). Generally, the percentages show a pattern of an increased attribution of negative emotions. However, for some individuals, the attribution of positive emotions remains well into adolescence, pointing to stable inter-individual differences in the anticipation of emotions later in life (Arsenio, et al., 2004; Krettenauer & Eichler, 2006; Malti & Ongley, 2014). The current study will take the apparent developmental variability of children's anticipated emotions in moral transgressions into account when examining the structure and validity of the assessment of these emotions.

Concurrent and predictive validity of anticipated emotions in moral transgressions

The predictive validity for emotions in moral transgressions can be checked quite nicely by relating them to behavioural tendencies. Studies of children's anticipated emotions

commonly assume that children remember the emotional antecedents and consequences of social situations and that this connection between events and emotions guides future behaviour (Arsenio, 2014). Negative emotions following moral transgression are said to provide an early foundation for the development of other-oriented behavioural tendencies, because they indicate that the self feels committed to a moral standard (Malti, Gummerum, Keller & Buchmann, 2009; Malti & Krettenauer, 2013; Tangney et al., 2007). Specifically, anticipated negative emotions restrict aggressive behaviour and motivate reparative behaviour, such as apologies (Asendorpf & Nunner-Winkler, 1992; Malti & Keller, 2010; Tangney et al., 2007). In a recent meta-analysis, Malti and Krettenauer (2013) showed positive small-size relations between negative emotion attributions and prosocial behaviour and negative moderate-size relations between negative emotion attributions and antisocial behaviour independent of age. Next to showing the association between emotions and behaviour, these results indicate that children's anticipated emotions are more strongly related to antisocial than to prosocial behaviour. This might be due to the fact that hypothetical scenarios in research on anticipated emotions present rule transgressions and actions that are harmful to others. Therefore, assessment of anticipated emotions in moral transgressions reflect emotions primarily in domains of antisocial behaviour instead of prosocial behaviour. Interestingly, the particular domain of the scenarios in which anticipated emotions are assessed may influence the relation between emotions and pro- and antisocial behaviour. That is why the current study will relate pro- and antisocial tendencies of children to their anticipated emotions in transgressions in different domains.

Additionally, the concurrent and predictive validity of the assessment of anticipated emotions following moral transgressions will also be tested using a measure of sympathy. Links between sympathy and anticipated emotions following moral transgressions are well established (Malti et al., 2009). Sympathy is "a vicarious emotional reaction that is based on

the apprehension of another's emotional state or situation, which involves feelings of sorrow

or concern for the other" (Eisenberg, Shea, Carlo & Knight, 2014, p.65). Both sympathy and

negative emotional reactions to moral transgressions arise from the concern for the other's

distress (Tangney & Dearing, 2002).

The present study

The aim of the current study is to look into the domain and developmental variability

of the assessment of children's anticipated emotions in moral transgressions and their links to

aggressive and prosocial tendencies and sympathy. To this end, we used a mix of scenarios

involving acts of unfairness, victimization, and omission of prosocial duty, to determine if

these together could be considered as a valid and reliable measure. Domain and

developmental variability were taken into account. Second, the concurrent and predictive

validity of the measure of anticipated emotions was evaluated. We examined the links of

anticipated emotions in moral transgressions to aggressive and prosocial tendencies at two

time points. As an additional check of the concurrent and predictive validity, self-reported

sympathy was related to anticipated emotions at two time points. The role of both domain

and developmental variation in responses was again taken into consideration.

Our first hypothesis relates to the factor structure of the measure of anticipated

emotions in moral transgressions and is rather open ended. We were particularly interested to

see whether a one- or three-factor structure of the instrument would best fit the data. The

custom of collapsing anticipated emotions from different scenarios suggests that the different

scenarios have one underlying dimension indicating that the self feels committed to moral

standards. However, taking into account the claim of Arsenio (2014) that children's

anticipated emotions depend on the specific domain of the transgression suggests that the

structure might depend on the domains used in the instrument. In our case, three different

domains were used, namely unfairness and victimization, and omission of prosocial duty. Thus, a three-factor structure would provide evidence for the domain variability of the assessment of anticipated emotions. With regard to the developmental variability, we expect to find the same factor structure across age even though the anticipation of negative and mixed emotions is assumed to increase after age 6-7 years.

Notwithstanding the lack of reports of reliability estimates, the custom of collapsing the data from different scenarios also suggests that the different scenarios provide a consistent measurement of individuals. Thus, we secondly hypothesized the reliability of the six scenarios to be satisfactory across age.

Based on the meta-analysis of Malti and Krettenauer (2013), children's anticipated negative and mixed emotions were expected to be positively related to prosocial tendencies and negatively to antisocial tendencies across different age groups. Depending on the outcome of the factor analysis, anticipated emotions in the domain of victimization and unfairness were expected to relate more (negatively) to aggressive than (positively) to prosocial tendencies since these scenarios reflect the domain of rule transgressions and actions that are harmful to others. On the other hand, anticipated emotions in the domain of the omission of prosocial duties were expected to relate more to prosocial than to aggressive tendencies. Finally, a positive relation was expected between sympathy and children's negative and mixed emotions following hypothetical transgressions (Malti et al., 2009). Since sympathy is related to prosocial tendencies rather than antisocial tendencies (Eisenberg et al., 2006), sympathy was thought to relate more to anticipated emotions in the domain of the omission of prosocial duties than to anticipated emotions in the domain of victimization and unfairness in case more than one factor was identified. No age differences were expected.

Method

Participants

The sample used in this study originates from a longitudinal research project that was designed to examine moral functioning and prosocial and antisocial behaviour of school-aged children. Ethical consent for the longitudinal research project was obtained from the Ethical Committee Pedagogical and Educational Sciences from the University of Groningen. Participants were recruited via the personal network of the researchers. First, school principals and teachers were asked for consent. Parental consent letters were then distributed to obtain permission for their children's participation (acceptance rate: 99%). The 1179 (601 boys and 578 girls) children attended 11 different elementary schools in the North of the Netherlands divided over 52 classrooms. The ages ranged from six up to and including 13 years (M=9.1; SD=1.8). The children attended regular education and comprised of predominantly white pupils of Dutch descent. Table 1 shows the sociodemographic and clinical data for the sample.

Table 1

Sociodemographic and clinical data for the sample (N=1179)

Age	M=9.1; SD=1.8
Sex	
- Girls	49.0%
Ethnicity	
- Dutch	94.3%
Education level of parents*	
- Low	23.4%
- Middle	47.7%
- High	29.9%
Diagnosed disorders	
- All	7.7%
- ADHD	1.7%

* International Standard Classification of Education (UNESCO, 2011)

Materials and Procedure

All children filled in an online questionnaire and participated in an one-on-one interview. All questions and measures were formulated and posed in Dutch. Both the online questionnaire and the interview were administered in the autumn of 2014, and the summer of 2015 by graduates from educational and pedagogical sciences together with Bachelor students from the same program. The graduates and students all received a training of two days. The children were instructed to provide their own responses to the questions and were informed that there were no right or wrong answers. Great care was taken to assure students that their answers would remain strictly confidential and would not be revealed to anyone else and accordingly, each child was given an anonymous ID number generated automatically in the coded data set.

Anticipated emotions following moral transgressions. In the autumn of 2014 children's anticipated emotions following moral transgressions were assessed. To this end, we modified six scenarios depicting hypothetical transgressions covering three moral domains: unfairness (not winning fairly, not keeping word), victimization (verbal bullying, relational bullying) and omission of prosocial duties (refusing to share pencils, refusing to help someone in pain). The modification of the scenarios involved both the translation in Dutch as well as adapting the scenarios to age groups and cultural context. The selection of the six stories was based on three studies, N=121, N=88 and N=145, piloting and validating fourteen scenarios. These fourteen scenarios were based on previous studies (i.e. Davidson, Turiel, & Black, 1983; Keller et al., 2003; Krettenauer & Eichler, 2006; Malti, Gummerum, Keller, & Buchmann, 2009; Malti & Keller, 2010; Malti, Ongley, Dys, & Colasante, 2012; Nunner-Winkler, 1999; Nunner-Winkler & Sodian, 1988; Nucci, 1981; Olthof, Schouten, Kuiper, Stegge, & Jennekens-Schinkel, 2000; Smetana, 1981) and were selected because of their variety in content, domain and severity of the transgression, and because there were

indications of their validity. No adults were involved to avoid confounding children's moral understanding with their understanding of authority. Following each scenario, children were asked how they would feel if they would have been the person who transgressed the moral rule (anticipated emotion) and why they would feel that way (justification for anticipated emotion). The interview took 15-25 minutes. The interviews were recorded and transcribed afterwards.

Table 2

The domain and content of the scenarios used for the assessment of emotions in moral transgressions

Domain of scenario	Content of scenario	Content of conflicting issue
Unfairness	Not winning fairly	Having more candy
Unfairness	Not keeping word	Earning more money
Omission of prosocial duty	Not sharing pencils	Making a drawing for a friend
Omission of prosocial duty	Not helping someone in pain	Attending the birthday party of a friend
Victimization	Verbal bullying	Belonging to the popular group
Victimization	Relational bullying	Becoming victimized

Table 2 gives an overview of the scenarios and the conflicting issues involved. In the sharing story, for example, the moral issue concerned sharing whereas the conflicting issue concerned making a drawing for a friend. Girls were read the following text: 'This is Samina. Samina is doing crafts in the hall of the school. She found all the good school pencils before getting started. She wants to craft something nice for her friend and that is why she needed the good pencils. Fenna, a girl from another class, comes up to Samina and says: "Hi Samina, I would also like to craft. May I take half of your pencils?" Samina thinks for a moment and replies: "No, you may not have the pencils. I would like to use all them myself." Samina

continues crafting. Fenna walks away sad.' After the story they were asked the questions 'How would you feel if you were Samina?' and 'Why would you feel […] if you were Samina?'. When the answer to the first question was ambiguous, children would be asked whether they would feel more positive or more negative. All moral transgression scenarios can be found in Appendix A.

All stories were gender-matched and illustrated with cartoons. Matching cartoons for the sharing scenario are provided in Appendix B. Participants could not judge the characters' emotions by looking at the pictures, since their faces were not visible after the transgression. The child sat at the side of the test administrator with the cartoons in front, so they could see them clearly. The cartoons remained in front of the child during the interview in order to prevent mistakes due to memory requirements.

Following Perren, Gutzwiller-Helfenfinger, Malti and Hymel (2012), anticipated emotions were coded as negative (e.g., bad), mixed (e.g. half well and half bad) or positive (e.g., happy) emotions. First, the spontaneously mentioned emotions were provided with category labels of nine emotions derived from the social-emotional responding task (SERT) coding scheme (Malti, 2016): happy, neutral, angry, scared, bad, sad, guilty, ashamed, or mean/disgusted. The exact coding scheme can be found in Appendix C. Then, *angry, scared, bad, sad, guilty, ashamed,* and *mean/disgusted* responses were coded as negative emotions, whereas *happy* responses were coded as positive emotions. In line with other research, *neutral* responses (ranging from 0.2% to 1.6%) were left out of the analysis because we had no specific hypotheses regarding these types of emotions (Malti, Killen and Gasser, 2012). Mixed emotions were coded if children mentioned both negative and positive emotions. Intercoder reliability of the coding of emotions was calculated with Cohen's Kappa, resulting in K=.97 for not winning fairly, K= .94 for not keeping word, K= .97 for not sharing pencils, K= .99 for not helping someone in pain, K= .94 for verbal bullying and K= 1.00 for relational

bullying. The raters discussed disagreement with each other until a consensus was reached and the consensus was then coded.

Behavioural measures. An online social network questionnaire was used to collect data on aggressive and prosocial tendencies in the autumn of 2014 and in the summer of 2015. The online questionnaire was preceded by a general introduction and instructions regarding the measure. The children were seated in groups of four to ten at computers spaced sufficiently to ensure privacy. At all times, a trained test administrator was available for help. Students in grade 1 and those with difficulty concentrating and/or reading were assessed one-on-one, where the researcher read out the questionnaire. In the questionnaire, peer ratings of aggressive ('Who quarrels a lot?' and 'Who says and does mean things?') and prosocial tendencies ('Who helps other children?' and 'Who says and does nice things?') were obtained. The children were given a roster with the names of their classmates and they could select as many, or as few, classmates as they wanted. This sociometric method of assessing behaviour has been used in other studies that established its validity (prosocial behaviour: Carlo, Koller, Eisenberg, Da Silva & Frohlich, 1996; Deković & Janssens, 1992; antisocial behaviour: Newcomb, Bukowski & Pattee, 1993; Veenstra et al., 2005). The frequency with which each participant was nominated was divided by the number of classmates who were nominating, in order to adjust for class size. Cronbach's alpha for aggressive and prosocial tendencies was .90 and .75 for the first measurement occasion and .89 and .77 for the second measurement occasion, respectively.

Sympathy. In the autumn of 2014 and in the summer of 2015 children's self-reported sympathy was measured with nine statements based on the validated empathic concern measure of Eisenberg, Fabes, Murphy, Karbon, Smith, and Maszk (1996). After each statement (e.g. "When I see someone being picked on, I feel sorry for them") children were asked whether the sentence described him/her or not, and if so, how strongly: 1="*No, this*

does not sound like me", 2= "*This is sort of like me*", and 3= "*This is really like me*".

Cronbach's alpha was .81 for the first measurement occasion and .84 for the second

measurement occasion.

Statistical Analysis

First, the percentages of anticipated negative, mixed and positive emotions following

the six scenarios were examined per domain and developmental period to get a feeling for the

developmental and domain variability of anticipated emotions in moral transgressions. After

that, the structure of the anticipated emotions following moral transgressions was analyzed.

In order to provide preliminary validity support for the instrument, a two-level categorical

exploratory factor analysis was executed using Mplus Version 7.31 (Muthén & Muthén,

2015). Confirmatory factor analysis is a popular approach to come up with a small set of

underlying dimensions of an instrument (i.e. factors or components) that represent most of

the information found in the original items (Fabrigar, Wegener, MacCallum & Strahan,

1999). Considering our interest in domain variability, a comparison had to be made between

a one factor structure and a three factor structure since our instrument included three different

domains. However, confirmatory factor models could not be identified because the three

factor model includes only two items per factor. A minimum of three items must load

significantly on each factor for all of the subscales to be successfully identified (Little,

Lindenberger & Nesselroade, 1999; Velicer & Fava, 1998). Therefore, an exploratory factor

analysis for categorical factor indicators using WLSM estimation was more in place.

Additionally, the design effect was 2.67 indicating that the hierarchical nature of the data

needed to be taken into account during estimation using multilevel analysis (Snijders &

Bosker, 2011). In the context of the present study, pupils (i.e. level 1 units of analysis) were

nested within classrooms (i.e. level 2 units of analysis).

Another issue involved the coding of mixed emotions; mixed emotions do not occur often and were mostly discarded in previous research (Lourenço, 1997; Menesini et al., 2003; Keller et al., 2003). Thus, on top of the theoretical notion that mixed and negative emotions indicate more moral awareness than positive emotions, it was difficult to determine whether mixed emotions would be less, equal to, or more indicative of moral awareness than negative emotions. In the exploratory factor analysis for categorical factor indicators we therefore tested three different options at the within level of the model: coding mixed emotions as less than negative emotions, more than negative emotions and equal to negative emotions. As Gorsuch (1983) recommended, we used multiple methods to determine the best coding system and the number of factors to retain, including the Eigenvalue >1 rule (Kaiser, 1960), commonly used indicators of model fit like the comparative fit index (CFI; Bentler, 1990), Tucker–Lewis Index (TLI; Tucker & Lewis, 1973), and root mean squared error of approximation (RMSEA; Steiger, 1989) (Cheung & Rensvold, 2002), and theory. The default rotation, the oblique rotation of Geomin, was used. Internal consistency of the scale(s) was measured through Cronbach's alpha (Nunnally & Bernstein, 1994). Finally, the results were examined across sex and age to check developmental variability.

Then, the concurrent and predictive validity of the measure was examined taking into account developmental variability. Domain variability was only taken into account in case the exploratory factor analysis would indicate more than one factor. Based on the factor structure, anticipated emotions were related to aggressive and prosocial tendencies and sympathy at two time points using multilevel techniques with pupils nested in classes in MLWiN 2.35 (Rasbash, Browne, Goldstein, & Yang, 2000). There were no predictors at the class level; we only controlled for the level-two effect. In all multilevel analyses, age was included as a moderator between anticipated emotion scores and pro- and antisocial

tendencies and sympathy to test the developmental variability of this relation. Sex, scholastic ability, parental education and diagnosed disorder were included as control variables.

Results

Missing data

In order to compute the factor analysis in Mplus and the multilevel analysis in MLwiN, missing data was deleted in a listwise manner. The percentage missing varied from 0.0% to 1.4% for the different scenarios and resulted in a total of 3.7% children missing one or more items due to item nonresponse. The children who answered all questions did not differ from the children with item(s) missing in terms of education level of parents, scholastic ability, antisocial tendencies, prosocial tendencies, sympathy, and emotions following moral transgressions ($t(1151)=1.29$; $p=.20$; $t(1147)=1.29$; $p=.20$; $t(1177)=.-1;71$ $p=.08$; $t(1177)=.10$; $p=.92$; $t(1175)=-.05$; $p=.96$; $t(1177)=.04$; $p=.99$). However, children with items missing were younger ($t(1177)=-.43$, $p<.01$) and comprised a higher percentage of girls ($\chi^2(1)=5.21$; $p=.01$) than the children with complete data.

Descriptive statistics of the assessment of emotions in moral transgressions

Before conducting the factor analysis and multilevel analysis, the domain and developmental variability of emotions following moral transgressions was examined descriptively. Table 3 presents the percentage of anticipated negative, mixed and positive emotions following the six scenarios per domain and developmental period. Age was split into three developmental periods (6-8 years, 9-10 years, and 11-12 years). The percentage of negative emotions ranges from 64.7 to 85.5, indicating that the vast majority of children attribute negative emotions to the self as hypothetical transgressor. The mean percentage of

Table 3

Percentages of anticipated negative, mixed and positive emotions following six scenarios per domain and per developmental period

Domain	Scenario	Developmental period	% negative emotions	% mixed emotions	% positive emotions
Omission of prosocial duty	Not sharing		85.5	3.6	10.9
		6-8 years	83.6	2.1	14.2
		9-10 years	87.8	4.1	8.0
		11-12 years	85.1	4.5	10.4
	Not helping		74.8	9.6	15.5
		6-8 years	71.5	5.3	23.1
		9-10 years	75.9	10.7	13.4
		11-12 years	76.9	12.5	10.6
Unfairness	Not winning fairly		64.7	10.0	25.3
		6-8 years	65.3	7.2	27.5
		9-10 years	65.1	11.3	23.6
		11-12 years	63.9	11.3	24.8
	Not keeping word		56.8	17.2	26.0
		6-8 years	61.6	8.7	29.6
		9-10 years	55.7	18.5	25.8
		11-12 years	53.5	23.6	22.9
Victimization	Relational bullying		75.5	4.0	20.5
		6-8 years	66.9	3.5	29.5
		9-10 years	78.3	4.2	17.5
		11-12 years	80.6	4.3	15.1
	Verbal bullying		73.7	6.7	19.6
		6-8 years	78.1	2.4	19.5
		9-10 years	75.2	6.5	18.3
		11-12 years	68.4	10.6	21.0
	Total		70.8	8.4	19.4
		6-8 years	70.0	4.8	23.5
		9-10 years	72.0	9.1	17.6
		11-12 years	70.8	11.0	17.3

negative emotions is highest within the domain of the omission of prosocial duties (scenarios: not sharing, not helping) and lowest within the domain of unfairness (scenarios: not winning fairly, not keeping word). Mixed emotions did not occur often, 3.6% to 17.2 %.

Positive emotions were least frequent for the scenarios in the domain omission of prosocial

duty in comparison to the other domains, 13.2% versus 22.9%. With regard to developmental variability, children age 6-8 years reported most positive emotions, whereas children age 9-12 years reported most mixed emotions across scenarios.

Factorial structure and reliability of the assessment of emotions in moral transgressions

To investigate the factorial structure of the assessment of emotions in moral contexts, multiple exploratory factor analyses for categorical factor indicators were executed. Specifically, we compared three different coding possibilities: coding mixed emotions as less than negative emotions, more than negative emotions and equal to negative emotions. Table 4 reports the number of free parameters, the RMSEA, the CFI, and the TLI for the different models. Throughout the different factor solutions, the best model fit was found when mixed emotions were coded equal to negative emotions. The one within factor one between factor model with mixed emotions coded equal to negative emotions had the least parameters and a relatively good fit. The best fit statistics were found for the two within one between factor combination and the two within two between factor combination with mixed emotions coded as less than or equal to negative emotions. However, the two factor models barely added extra fit. The most parsimonious model is the one within and one between factor solution with mixed emotions coded equal to negative emotions. Table 5 presents the geomin rotated loadings belonging to this model. All factor loadings were similar and greater than .70 indicating that all scenarios contribute more or less equally to the content or meaning of the factor. The internal consistency of the scores based on the factor, as measured by Cronbach's alpha, was adequate, namely .76 (Henson, 2001). The factor structure and Cronbach's alpha seem similar for boys and girls, with slightly higher factor loadings and reliability for girls (RMSEA= .000 [.000; .011], CFI= 1.000, TLI=1.000) than for boys (RMSEA= .027 [.000;

.048], CFI =.985, TLI =.975). It therefore seems there is no domain variability in the

assessment of anticipated emotions in moral transgressions.

Table 4

Fit statistics for models with one and two between factors, and one and two within factors for

coding mixed emotions as less than negative emotions, more than negative emotions and

equal to negative emotions

Model	# of free parameters	RMSEA [90% CI]	CFI	TLI
One between factor:				
1a. One within factor – positive is coded as 1, negative as 2, mixed as 3	30	.042 [.030; .055]	.950	.916
1b. One within factor – positive is coded as 1, negative as 3, mixed as 2	30	.028 [.014; .042]	.990	.984
1c. One within factor – positive is coded as 1, negative as 2, mixed as 2	24	.021 [.000; .036]	.993	.988
2a. Two within factors – positive is coded as 1, negative as 2, mixed as 3	35	.036 [.021; .052]	.973	.938
2b. Two within factors – positive is coded as 1, negative as 3, mixed as 2	35	.014 [.000; .034]	.998	.996
2c. Two within factors – positive is coded as 1, negative as 2, mixed as 2	29	.008 [.000; .031]	.999	.998
Two between factors:				
1a. One within factor – positive is coded as 1, negative as 2, mixed as 3	35	.048 [.034; .063]	.953	.890
1b. One within factor – positive is coded as 1, negative as 3, mixed as 2.	35	.028 [.010; .045]	.993	.988
1c. One within factor – positive is coded as 1, negative as 2, mixed as 2	29	.023 [.000; .040]	.994	.986
2a. Two within factors – positive is coded as 1, negative as 2, mixed as 3	40	.045 [.027; .064]	.975	.906
2b. Two within factors – positive is coded as 1, negative as 3, mixed as 2	40	.000 [.000; .028]	1.000	1.004
2c. Two within factors – positive is coded as 1, negative as 2, mixed as 2	34	.000 [.000; .034]	1.000	1.000

With regard to developmental variability, the factor structure and reliability of the six scenarios assessing emotions following moral transgressions was examined for the three developmental periods separately. The RMSEA, CFI, and TLI were .040 [.005; .066], .980, and .967 for the model including children age 6-8; .000 [.000; .023], 1.000 and 1.000 for the model including children age 9-10 and .000 [0.000; .014], 1.000 and 1.000 for the model including children age 11-12. Table 5 shows that the factor loadings and Cronbach's alpha differ across the age groups, but not greatly. Age 6-8 reveals the highest factor loadings and reliability. As we found a one-factor structure that holds across sex and age, we added the scores of the anticipated emotions across the six scenarios and took the mean as an indicator of children's self-evaluated emotions in moral transgressions.

Table 5

Factor loadings based on an exploratory factor analysis with geomin rotation for 6 scenarios assessing emotions following moral transgressions separated for sex and age

Scenario	Factor loadings	Factor loadings girls	Factor loadings boys	Factor loadings age 6-8	Factor loadings age 9-10	Factor loadings age 11-12
Not sharing	.76*	.78*	.74*	.70*	.94*	.79*
Not helping	.74*	.81*	.70*	.82*	.65*	.64*
Not winning fairly	.79*	.80*	.77*	.89*	.77*	.74*
Not keeping word	.78*	.81*	.78*	.81*	.78*	.65*
Relational bullying	.76*	.82*	.71*	.67*	.80*	.81*
Verbal bullying	.72*	.75*	.68*	.80*	.81*	.66*
Cronbach's alpha	.76	.79	.71	.80	.75	.70

* Significant at the .05 level.

Concurrent and predictive validity of the assessment of emotions in moral transgressions

Table 6 reports the results of the multilevel analysis predicting the mean score of prosocial and antisocial tendencies and sympathy for both time points from anticipated emotions across the moral transgression scenarios while controlling for age, gender, scholastic ability, parental education and diagnosed disorders. Descriptive statistics for the aforementioned relations can be found in Appendix D. Anticipated emotions of children across scenarios were not significantly related to antisocial tendencies at both time points and to prosocial tendencies at time point two. A significant positive relation was found between anticipated emotions and prosocial tendencies at the first time point ($\beta=6.41$; $p<0.05$). The association between anticipated emotions and sympathy was significant and positive for both measurement occasions ($\beta=.31$; $p<0.01$; $\beta=.20$; $p<0.01$).

The above findings were true independent of age, except for the relation between reported anticipated emotions and antisocial tendencies at the first time point. In comparison to the anticipated emotions children age 6-8 report, the anticipated emotions of children age 9-10 show a stronger and positive relation with antisocial tendencies ($\beta=12.51$; $p<0.05$). This result directs to developmental variability in the relations between anticipated emotions and the criterion measures.

Discussion

This paper presents an instrument for the assessment of children's anticipated emotions following moral transgressions. The instrument consisted of six scenarios covering

Table 6

Multilevel regression models predicting antisocial and prosocial tendencies and sympathy from anticipated emotions following moral

transgressions

	T1 Antisocial tendencies		T2 Antisocial tendencies		T1 Prosocial tendencies		T2 Prosocial tendencies		T1 Sympathy		T2 Sympathy	
Fixed effects	*Estimate*	*S.E.*	*Estimate*	*S.E.*	*Estimate*	*S.E.*	*Estimate*	*S.E.*	*Estimate*	*S.E.*	*Estimate*	*S.E.*
Intercept	27.06	1.27	26.12	1.26	35.81	1.60	36.50	1.84	1.97	.04	1.90	.04
Level 1 (pupil) variables												
Sex (girl)	-16.21*	1.09	-13.26*	1.07	13.18*	.78	13.32*	.96	.21*	.02	.23*	.03
Age (9-10)	-2.01	1.56	-5.63*	1.55	4.60*	1.61	5.81*	1.93	-.02	.04	-.03	.04
Age (11-12)	-3.61*	1.59	-5.95*	1.58	8.01*	1.95	8.30*	2.29	.05	.05	.03	.05
Socioeconomic status	-3.09*	.68	-1.94*	.67	2.31*	.52	1.99*	.64	.00	.02	.03	.02
Scholastic ability	-2.91*	.52	-2.89*	.51	4.34*	.38	4.44*	.47	.05*	.01	.04*	.01
Diagnosed disorder	15.04*	3.00	17.79*	2.96	-7.67*	3.03	-2.05	3.50	-.05	.08	-.06	.08
Anticipated emotions	-6.22	3.43	-2.05	3.38	6.41*	2.53	5.60	3.11	.31*	.09	.20*	.09
Anticipated emotions *Age (9-10)	12.51*	5.11	7.84	5.04	-6.98	3.74	-6.88	4.60	.05	.13	.16	.14
Anticipated emotions* Age (11-12)	6.03	5.01	4.12	4.94	-2.67	3.65	.68	4.49	-.02	.13	.07	.14
Random effects	*Var.*	*S.E.*	*Var.*	*S.E.*	*Var.*	*S.E.*	*Var.*	*S.E.*	*Var.*	*S.E.*	*Var.*	*S.E.*
Class level variance	10.99	4.18	11.77	5.65	115.73	18.82	133.68	27.65	.02	.01	.01	.01
Pupil level variance	317.91	14.31	307.04	13.48	152.95	6.91	233.84	10.56	.19	.01	.22	.01

* p<.05

three domains: unfairness (not winning fairly, not keeping word), omission of a prosocial duty (not sharing, not helping) and victimization (verbal bullying, relational bullying). The reliability and validity of this instrument was examined with a special interest in its domain and developmental specificity. To evaluate the concurrent and predictive validity of the instrument, we examined the relations between anticipated emotions and aggressive and prosocial tendencies and sympathy at two time points. Again, domain and developmental variability were taken into consideration.

Structure and reliability of the assessment of emotions in moral transgressions

First of all, the present study offers preliminary evidence for a one-factor structure of the instrument used to assess anticipated emotions in moral transgressions. The most parsimonious model was the model with one within and one between factor solution with mixed emotions coded equal to negative emotions. Based on this result, we decided to dichotomize the anticipated emotions of the children into positive versus mixed/negative emotions. However, the higher fit indices obtained for this model are partly due to the relatively low occurrence of mixed emotions. Interestingly, children who reported mixed emotions (in comparison to positive and negative emotions) show the highest mean scores on prosocial and sympathy and lowest mean scores on antisocial tendencies. Based on these results - that are not reported in the current paper, but available on request - one could also decide to code mixed emotions as higher than negative emotions. Nevertheless, the reported factor analysis and the low occurrence of mixed emotions plead for the integration of mixed and negative emotions.

There seems to be no domain variability in the assessment of anticipated emotions in moral transgressions. Considering that all scenarios contribute more or less equally to one factor across sex and age, it seems that the different scenarios have one underlying dimension

indicating that the child feels committed to moral standards. This is consistent with the current custom of collapsing the reported emotions from different scenarios (Malti & Krettenauer, 2013). As expected, the instrument also appeared to be reliable. However, as factor analysis is generally sample dependent, one should be cautious in applying the current findings to other samples with different characteristics. Moreover, one could opt for a more nuanced view on emotions using different scenarios separately. Considering this is the first thorough attempt to look at the reliability and validity of the assessment of emotions in moral transgressions, we encourage future studies to report about the structure and reliability of the instrument assessing anticipated emotions to confirm and complement our findings. Additionally, the small indications for domain variability in the assessment of anticipated emotions - differences in the associations between anticipated emotions and the criterion measures for the different scenarios; differences in the percentages of negative emotions between scenarios - are worth studying further. For example, the mean percentage of negative emotions is highest within the domain of the omission of prosocial duties and lowest within the domain of unfairness. This contrasts with the research of Smetana (2006), Turiel (2006), Miller (2006) and Malti, Gasser and Buchman (2009), indicating that neglect of a positive prosocial duty is generally seen as less objectionable and creating less psychological harm than actually harming others or treating others unfairly. A possible explanation for this adverse finding might be related to the coding of emotions in this study. A more detailed coding scheme, as well as a measure of the intensity of emotions, might stronger reflect the difference in severity between the different domains of moral transgressions (Malti & Krettenauer, 2013). Another explanation might lie in the specific scenarios used in this study. It could be that the scenarios were not contrasting the domains well enough. For example, the scenario about relational bullying clearly involves victimization. However, it also involves the omission of a prosocial duty. Generally speaking, most scenarios used in research on

anticipated emotions seem to simultaneously reflect different domains (Nunner-Winkler, 2013).

Developmental variability was found for the structure and reliability of the assessment of anticipated emotions. As expected, children age 6-8 years reported most positive emotions, whereas children age 9-12 years reported most mixed and negative emotions across scenarios (e.g. Arsenio et al., 2006; Krettenauer, Malti & Sokol, 2008). Moreover, the one-factor structure showed the best fit and highest reliability for children age 6-8 years in comparison to the other age groups. However, these differences were relatively small. As Arsenio, Gold and Adams (2004), Krettenauer and Eichler (2006) and Malti and Ongley (2014) suggest, the absence of a strong developmental pattern might indicate stable inter-individual differences in the anticipation of emotions. Since most children in our sample already passed the happy victimizer phenomenon that takes place around age 7-8 years, the developmental pattern might not be apparent in older children. Future studies could try to magnify the conflicting issues in the scenarios in order to increase the number of anticipated positive emotions and avoid a ceiling effect in older children, i.e. bunching of scores at the upper level of an instrument. This might also lead to higher factor loadings in the older age groups.

Concurrent and predictive validity of the assessment of emotions in moral transgressions

To evaluate the concurrent and predictive validity of the measure, we related anticipated emotions to aggressive and prosocial tendencies and sympathy at two time points. As we found a one-factor structure that held across sex and age, we added the scores of the anticipated emotions across the six scenarios and took the mean as an indicator of children's anticipated emotions following moral transgressions. The results reveal some indications for the concurrent and predictive validity of the assessment of emotions in moral transgressions.

In line with the results obtained by Malti et al. (2009), we found positive relations between sympathy and children's negative emotions following hypothetical transgressions. Furthermore, prosocial tendencies were weakly related to anticipated negative emotions at the first time point. Surprisingly, no relation was found between self-evaluated emotions and antisocial tendencies. This in contrast with the findings in the meta-analysis of Malti and Krettenauer (2013) where anticipated negative emotions were more related to antisocial than to prosocial tendencies across different age groups. The absent relation between emotions and antisocial tendencies might be due to the way in which the antisocial tendencies of children were assessed. Malti et al. (2009) suggest that observed behaviour is more closely related to anticipated emotions than other-reported behaviour. Since observed behaviour reflects children's conceptions of sociomoral events it might relate more closely to what children say they would feel in hypothetical situations than would peer reported behaviour. Also, a more detailed coding scheme, as well as a measure of intensity of emotions, may provide a stronger relation between emotions following moral transgressions and behaviour (Malti & Krettenauer, 2013). Moreover, data were collected using a one-on-one interview, and childrens' responses may have been influenced by the presence of an adult. Children might have responded more positively than they actually expected their emotions to be after transgressing a moral rule, even though the open answer format reduces the number of social desirable responses (Nunner-Winkler, 2013). Alternative approaches for measuring emotion, such as physiological measures and neuroimaging approaches, might be less biased (Pekrun, 2016).

Domain variability within the concurrent and predictive validity of the assessment of anticipated emotions in moral transgressions was not thoroughly assessed because of the apparent one factor structure. Further studies could explore whether the relations with sympathy, and pro- and antisocial tendencies hold for specific scenarios and not in others.

This would indicate the importance of relating the situations of the moral scenarios to the moral behaviour you want to measure, as Malti and Krettenauer (2013) suggest.

With regard to developmental variability, one interesting result was found when looking into the concurrent and predictive validity of the instrument. In comparison to the anticipated emotions children age 6-8 report, the anticipated emotions of children age 9-10 show a stronger and positive relation with antisocial tendencies. This might reflect social desirable responses of the 9-10 year olds specifically. The younger children might be less inclined to answer in a social desirable way and the older children might be more confident in giving the answer they are thinking of. Another explanation of this unexpected result might again lie in the way in which the antisocial tendencies of children were assessed. Further research could look into the different ways antisocial tendencies can be assessed and how this reflects differences in relations with other constructs, such as anticipated emotions.

Concluding remarks

The potential value of a measure of children's anticipated emotions following moral transgressions seems particularly salient in the current educational environment in which there is an increasing awareness to encourage the acquisition of prosocial values and behaviour. It is our hope that the proposed instrument for the assessment of anticipated emotions in moral transgressions can be used to further the valuable applied work and research on this topic.

References

Arsenio, W. F. (1988). Children's conceptions of the situational affective consequences of

    sociomoral events. *Child Development,* 56(6), 1611-1622. doi: 10.2307/1130675

Arsenio, W. F. (2014). Moral emotion attributions and aggression. In M. Killen & J.G.

    Smetana (Eds.), *Handbook of moral development* (pp. 235-255). New York:

    Psychology Press.

Arsenio, W. F., & Fleiss, K. (1996). Typical and behaviourally disruptive children's

    understanding of the emotional consequences of socio-moral events. *British*

    Journal of Developmental Psychology, *14*(2), 173-186. doi: 10.1111/j.2044-

    835X.1996.tb00700.x

Arsenio, W. F., & Ford, M. E. (1985). The role of affective information in social-cognitive

    development: Children's differentiation of moral and conventional events. *Merrill-*

    Palmer Quarterly, *31*(1), 1-17. Retreived from http://www.jstor.org/stable/23086131

Arsenio, W., Gold, J., & Adams, E. (2006). Children's conceptions and displays of moral

    emotions. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (pp.

    581–610). Mahwah, NJ: Erlbaum.

Arsenio, W., & Lover, A. (1995). Children's conceptions of sociomoral affect: Happy

    victimizers, mixed emotions, and other expectancies. In M. Killen & D. Hart (Eds.),

    Morality in everyday life: Developmental perspectives (pp. 87-128). Cambridge:

    Cambridge University Press.

Asendorpf, J. B., & Nunner-Winkler, G. (1992). Children's moral motive strength and

    temperamental inhibition reduce their immoral behavior in real moral conflicts. *Child*

    Development, 63(5), 1223-1235. doi: 10.1111/j.1467-8624.1992.tb01691.x

Barden, R. C., Zelko, F. A., Duncan, S. W., & Masters, J. C. (1980). Children's consensual

    knowledge about the experiential determinants of emotion. *Journal of Personality*

    and Social Psychology, *39*(5), 968. doi: 10.1037/0022-3514.39.5.968

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin,*

    107(2), 238 -246. doi: 10.1037/0033-2909.107.2.238

Carlo, G., Koller, S. H., Eisenberg, N., Da Silva, M. S., & Frohlich, C. B. (1996). A cross-

    national study on the relations among prosocial moral reasoning, gender role

    orientations, and prosocial behaviors. *Developmental Psychology*, *32*(2), 231. doi:

    10.1037/0012-1649.32.2.231

Cheung, G. W., & Rensvold, R.B. (2002). Evaluating Goodness-of-Fit Indexes for Testing

    Measurement Invariance, *Structural Equation Modeling: A Multidisciplinary Journal*,

    9(2), 233-255, doi: 10.1207/S15328007SEM0902_5

Davidson, P., Turiel, E., & Black, A. (1983). The effect of stimulus familiarity on the use of

    criteria and justifications in children's social reasoning. *British Journal of*

    Developmental Psychology, 1(1), 49-65. doi: 10.1111/j.2044-835X.1983.tb00543.x

Deković, M., & Janssens, J. M. (1992). Parents' child-rearing style and child's sociometric

    status. *Developmental psychology*, *28*(5), 925. doi: 10.1037/0012-1649.28.5.925

Eisenberg, N., Fabes, R. A., Murphy, B., Karbon, M., Smith, M., & Maszk, P. (1996). The

    relations of children's dispositional empathy-related responding to their emotionality,

     regulation, and social functioning. *Developmental psychology, 32*(2), 195.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial behavior. In N. Eisenberg

    (Vol. Ed.) and W. Damon & R.M. Lerner (Series Eds.), *Handbook of child*

    psychology, *Vol. 3 Social, emotional, and personality development* (6th ed.; pp. 646-

    718). Hoboken, NJ: John Wiley & Sons.

Eisenberg, N., Shea, C. L., Carlo, G., & Knight, G. P. (2014). Empathy-related responding

and cognition: A "chicken and the egg" dilemma. In W.M. Kurtines & J.L. Gewirtz

(Eds.) *Handbook of moral behavior and development* (Vol. 2; pp. 63-88). New York:

Psychology Press.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the

use of exploratory factor analysis in psychological research. *Psychological methods*,

4(3), 272-299. doi: 10.1037/1082-989X.4.3.272

Gorsuch, R. L. (1990). Common factor analysis versus component analysis: Some well and

little known facts. *Multivariate Behavioral Research*, *25*(1), 33-39. doi:

10.1207/s15327906mbr2501_3

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational

and psychological measurement*, *20*(1), 141-151. doi: 10.1177/001316446002000116

Keller, M., Lourenço, O., Malti, T., & Saalbach, H. (2003). The multifaceted phenomenon of

'happy victimizers': a cross-cultural comparison of moral emotions. *British Journal of

Developmental Psychology*, *21*(1), 1-18. doi: 10.1348/026151003321164582

Krettenauer, T., & Eichler, D. (2006). Adolescents' self-attributed moral emotions following

a moral transgression: Relations with delinquency, confidence in moral judgment and

age. *British Journal of Developmental Psychology*, *24*(3), 489-506. doi:

0.1348/026151005X50825

Krettenauer, T., Malti, T., & Sokol, B. W. (2008). The development of moral emotion

expectancies and the happy victimizer phenomenon: A critical review of theory and

application. *International Journal of Developmental Science*, *2*(3), 221-235. doi:

10.3233/DEV-2008-2303

Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child development*, *71*(1), 107-118. doi: 10.1111/1467-8624.00124

Little, T. D., Lindenberger, U., & Nesselroade, J. R. (1999). On selecting indicators for multivariate measurement and modeling with latent variables: When" good" indicators are bad and" bad" indicators are good. *Psychological Methods, 4*(2), 192-211. doi: 10.1037/1082-989X.4.2.192

Lourenço, O. (1997). Children's attributions of moral emotions to victimizers: Some data, doubts and suggestions. *British Journal of Developmental Psychology*, *15*(4), 425-438. doi: 10.1111/j.2044-835X.1997.tb00739.x

Malti, T. (2016). Toward an integrated clinical-developmental model of guilt. *Developmental Review, 39,* 16-36. doi: 10.1016/j.dr.2015.11.001

Malti, T., Gasser, L., & Buchmann, M. (2009). Aggressive and prosocial children's emotion attributions and moral reasoning. *Aggressive Behavior*, *35*(1), 90-102. doi: 10.1002/ab.20289

Malti, T., Gummerum, M., Keller, M., & Buchmann, M. (2009). Children's moral motivation, sympathy, and prosocial behavior. *Child development*, *80*(2), 442-460. doi: 10.1111/j.1467-8624.2009.01271.x

Malti, T., & Keller, M. (2010). Development of moral emotions in cultural context. In W. Arsenio & E. Lemerise (Eds.), *Emotions, aggression, and morality in children: Bridging development and psychpathology* (pp. 177–198). Washington, DC: American Psychological Association. doi:10.1037/12129-009

Malti, T., Killen, M., & Gasser, L. (2012). Social judgments and emotion attributions about exclusion in Switzerland. *Child Development, 83*(2), 697-711. doi: 10.1111/j.1467-8624.2011.01705.x

Malti, T., & Krettenauer, T. (2013). The relation of moral emotion attributions to prosocial and antisocial behavior: A meta-analysis. *Child development*, *84*(2), 397-412. doi: 10.1111/j.1467-8624.2012.01851.x

Malti, T., & Ongley, S.F. (2014). The development of moral emotions and moral reasoning. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (pp.163-183). New York: Taylor & Francis.

Malti, T., Ongley, S. F., Dys, S. P., & Colasante, T. (2012). Adolescents' emotions and reasoning in contexts of moral conflict and social exclusion. *New Directions for Student Leadership, 2012*(136), 27-40. doi: 10.1002/yd.20036

Mascolo, M., & Fischer, K. (2010). The dynamic development of thinking, feeling, and acting over the life span. In W. F. Overton & R. M. Lerner (Eds.), *The handbook of life-span development* (Vol. 1, pp. 149–194). Hoboken, NJ: Wiley.

Menesini, E., Sanchez, V., Fonzi, A., Ortega, R., Costabile, A., & Lo Feudo, G. (2003). Moral emotions and bullying: A cross-national comparison of differences between bullies, victims and outsiders. *Aggressive behavior, 29*(6), 515-530. doi: 10.1002/ab.10060

Miller, J. G. (2006). Insights into moral development from cultural psychology. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (pp. 375-398). New York: Taylor & Francis.

Muthén, L.K. and Muthén, B.O. (1998-2015). *Mplus User's Guide. Seventh Edition.* Los Angeles, CA: Muthén & Muthén.

Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: a meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological bulletin*, *113*(1), 99-128. doi: 10.1177/001316446002000116

Nucci, L. (1981). Conceptions of personal issues: A domain distinct from moral or societal concepts. *Child development, 52*(1), 114-121. doi: 10.2307/1129220

Nunnally, J.C. & Bernstein, I.H. (1994). *Psychometric theory* (3rd ed.). New York: McGras-Hill.

Nunner-Winkler, G. (1999). Development of moral understanding and moral motivation. In F. E Weinert & W. Schneider, (Eds.), *Individual development from 3 to 12. Findings from the Munich Longitudinal Study* (pp. 253–290). New York: Cambridge University Press.

Nunner-Winkler, G. (2007). Development of moral motivation from childhood to early adulthood. *Journal of Moral Education*, *36*(4), 399-414. doi: 10.1080/03057240701687970

Nunner-Winkler, G. (2008). From super-ego and conformist habitus to ego-syntonic moral motivation. Sociohistoric changes in moral motivation. *International Journal of Developmental Science*, *2*(3), 251-268. doi: 10.3233/DEV-2008-2305

Nunner-Winkler, G. (2013). Moral motivation and the happy victimizer phenomenon. In K. Heinrichs, F. Oser &T. Lovat (Eds.), *Handbook of Moral Motivation* (pp. 267-287). Rotterdam: SensePublishers.

Nunner-Winkler, G., & Sodian, B. (1988). Children's understanding of moral emotions. *Child development*, *59*(5), 1323-1338. doi: 10.2307/1130495

Olthof, T., Schouten, A., Kuiper, H., Stegge, H., & Jennekens-Schinkel, A. (2000). Shame and guilt in children: Differential situational antecedents and experiential correlates. *British Journal of Developmental Psychology, 18*(1), 51-64. doi: 10.1348/026151000165562

Pekrun, R. (2016). Academic emotions. In K. R. Wentzel & D.B. Miele (Eds.), *Handbook of Motivation at School* (pp. 120-144). New York: Routledge.

Perren, S., Gutzwiller-Helfenfinger, E., Malti, T., & Hymel, S. (2012). Moral reasoning and

emotion attributions of adolescent bullies, victims, and bully-victims. *British Journal

of Developmental Psychology, 30*(4), 511-530. doi: 10.1111/j.2044-

835X.2011.02059.x

Rasbash, J., Browne, W., Goldstein, H., Yang, M., Plewis, I., Healy, M., ... & Lewis, T.

(2000). *A user's guide to MLwiN.* London: Institute of Education.

Schwarz, N., & Clore, G. L. (1996). Feelings and phenomenal experiences. In E. T. Higgins

& A. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 433–

465). New York: Guilford.

Smetana, J. G. (1981). Preschool children's conceptions of moral and social rules. *Child

Development, 52*(4), 1333-1336. doi: 10.2307/1129527

Smetana, J. G. (2006). Social-cognitive domain theory: Consistencies and variations in

children's moral and social judgments. . In M. Killen & J. Smetana (Eds.), *Handbook

of moral development* (pp. 119-153). New York: Taylor & Francis.

Smetana, J. G., Campione-Barr, N., & Yell, N. (2003). Children's moral and affective

judgments regarding provocation and retaliation. *Merrill-Palmer Quarterly*, *49*(2),

209-236. doi: 10.1353/mpq.2003.0010

Snijders, T.A.B., & Bosker, R.J. (2011). *Multilevel Analysis: An introduction to basic and

advanced multilevel modeling.* New York: Sage Publishers.

Steiger, J. H. (1998). A note on multiple sample extensions of the RMSEA fit index.

Structural Equation Modeling: A Multidisciplinary Journal, 5(4), 411-419. doi:

10.1080/10705519809540115

Tangey, J.P., & Dearing, R.L. (2002). *Shame and guilt.* New York: Guilford Press.

Tangney, J. P., Stuewig, J., & Mashek, D. J. (2007). Moral emotions and moral behavior.

Annual Review of Psychology, *58*, 345. doi: 0.1146/annurev.psych.56.091103.070145

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*(1), 1-10. doi: 10.1007/BF02291170

Turiel, E. (2006). Thought, emotions, and social interactional processes in moral development. In M. Killen & J. Smetana (Eds.), *Handbook of moral development* (pp. 7-35). New York: Taylor & Francis.

United Nations Educational, Scientific, and Cultural Organization (2011). International Standard Classification of Education 2011. Montreal, Canada: UNESCO Institute for Statistics.

Veenstra, R., Lindenberg, S., Oldehinkel, A. J., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2005). Bullying and victimization in elementary schools: a comparison of bullies, victims, bully/victims, and uninvolved preadolescents. *Developmental psychology*, *41*(4), 672. doi: 0.1037/0012-1649.41.4.672

Velicer, W. F., & Fava, J. L. (1998). Affects of variable and subject sampling on factor pattern recovery. *Psychological Methods, 3*(2), 231-251. doi: 10.1037/1082-989X.3.2.231

Wiersma, N., & Laupa, M. (2000). Young children's conceptions of the emotional consequences of varied social events. *Merrill-Palmer Quarterly, 46*(2), 325-341. Retrieved from http://www.jstor.org/stable/23093719

Appendix A

Moral transgression scenarios

Fairness – not winning fairly

Picture 1: Sem are Levi are running a race. They are trying really hard. The winner gets a bag of sweets. Julian is the referee.

Control question: do you know what a referee is?

Picture 2: The race is run. Sem and Levi are equally fast. It is exactly equal!

Picture 3: Julian, the referee, says: "Levi, you were the fastest. You won the race." Julian gives the bag of sweets to Levi.

Picture 4: Levi says: "I won. I keep the candy." Sem feels sad.

Fairness – not keeping word

Picture 1: Lotte wants to sell her bike. She wants to sell it for 100 euros. Eva wants to buy the bike for 50 euros, half of the money Lotte wants. Lotte eventually agrees with 50 euros. Then Eva says: "Sorry, I don't have the money on me; I'll quickly run home to get it. I'll be back in half an hour." Lotte says: "Agreed, I'll wait for you."

Picture 2: Shortly after Eva is gone, Sofie shows up. Sofie is willing to pay the full price.

Picture 3. Lotte sells the bike to Sofie for 100 euros. Shortly after that, Eva returns. When Eva finds out the bike is sold, she feels sad.

Omission of prosocial duty – not helping someone in pain

Picture 1: Lucas is on his way to a party. He's very excited. It is the party of his best friend. Then he sees a boy laying the ground. The boy called Jesse. Jesse fell and hurt his leg. Jesse asks Lucas to help him and go to his house to get his parents. There are no other people around and Jesse does not know the phone number of his parents anymore. Unfortunately, his

parents live quite far away. If Lucas would go to the parents of Jesse, he'll be late for the party. He will miss all the nice food and fun games.

Picture 2: Lucas says, " I will not get your parents because I am going to a party of my best friend." Lucas continues walking. Jesse is sad.

Omission of prosocial duty – not sharing pencils

Picture 1: This is Samina. Samina is doing crafts in the hall of the school. She found all the good school pencils before getting started. She wants to craft something nice for her friend and that is why she needed the good pencils. Fenna, a girl from another class, comes up to Samina and says: "Hi Samina, I would also like to craft. May I take half of your pencils?"

Picture 2: Samina thinks for a moment and replies: "No, you may not have the pencils. I would like to use all them myself." Samina continues crafting. Fenna walks away sad.

Victimization – relational bullying

Picture 1. Children are playing a schoolyardgame. The game starts in a circle. Milan is just in time for the game. There is one empty spot left, the spot next to Tomas. Tomas often wears funny clothes and does not talk much. Luuk, another boy in the circle, says: "I would not stand next to Tomas, he is weird!" Other children laugh. It is not the first time Tomas is laughed at. The teacher is not around.

Picture 2. Milan quickly squeezes himself between two other kids. Tomas looks sad.

Victimization – verbal bullying

Picture 1. Fatima is new in the classroom. Fleur tells Fatima that Shireen, another girl in class, talks weirdly because she stutters.

Control question: do you know what stuttering is?

Fatima already noticed that Shireen often plays alone. Shireen is often not allowed to join Fleur and the other children. Fatima wants to be friends with Fleur and her friends. Everyone wants to be friends with Fleur. Fleur is very cool. Fatima thinks she could say something funny to Shireen. Fleur will probably like that.

Picture 2. Fatima says, "Shireen, you are talking weirdly. You stutter, I do not understand you." The class laughs and Fleur winks at Fatima. Shireen looks sad. The teacher is not around.

Appendix B

Matching cartoons for the girl version of the not sharing scenario by Emma Wilson

Appendix C

Coding scheme attributed emotions in moral transgressions

Main Categories	Examples
(1) **Happy**	**happy, good, great, proud, pleased, glad, fine, joyful, excited, satisfied, nice, enthusiastic, helpful,** not bad, funny.
(2) **Neutral**	**normal, okay, as usual, regular,** wouldn't care, wouldn't feel bad, wouldn't be affected, not concerned, wouldn't think about it.
(3) **Angry**	**angry, mad, frustrated, irritated, annoyed, furious, rage, defensive, offended.**
(4) **Scared**	**scared, afraid, frightened, horrified, terrified, anxious, worried, nervous.**
(5) **Bad**	**bad, upset, terrible, miserable, lousy,** unhappy, not good, not great, not nice, not helpful, ungrateful, rude, wouldn't feel proud, wouldn't feel right, uneasy, wrong.
(6) **Sad**	**sad, sorry, sorrow**.
(7) **Guilty**	**guilty, regretful, remorseful, blameworthy.**
(8) **Ashamed**	**embarrassed, ashamed, shameful, disgraced, humiliated.**
(9) **Disgusted/mean**	**disgusted, mean, selfish, greedy, unfair, disappointed, gross, sick.**

Appendix D

Mean and standard deviation of age, prosocial tendencies, antisocial tendencies, and sympathy for positive and negative attributed emotions at the same time and a year later for all the scenarios separately and across scenarios

Scenario	Anticipated emotions	M (SD) Age	T1: M (SD) Antisocial tendencies	T1: M (SD) Prosocial tendencies	T2: M (SD) Antisocial tendencies	T2: M (SD) Prosocial tendencies	T1: M (SD) Sympathy	T2: M (SD) Sympathy
Not sharing	Positive	8.82 (1.9)	16.5 (21.2)	44.2 (20.1)	15.5 (20.5)	42.1 (20.0)	2.00 (.49)	1.88 (.51)
	Negative	9.14 (1.8)	17.7 (20.8)	46.9 (18.7)	16.2 (20.2)	47.4 (20.5)	2.11 (.48)	2.07 (.50)
Not helping	Positive	**8.43 (1.8)**	17.4 (21.9)	**40.5 (19.4)**	16.2 (20.6)	**42.9 (20.5)**	1.91 (.50)	1.91 (.51)
	Negative	**9.23 (1.8)**	17.5 (20.6)	**47.6 (18.6)**	15.9 (19.9)	**47.5 (20.4)**	2.13 (.46)	2.07 (.50)
Not winning fairly	Positive	9.02 (1.8)	16.1 (20.5)	45.8 (19.6)	14.6 (20.7)	47.0 (20.7)	2.00 (.48)	1.96 (.50)
	Negative	9.14 (1.8)	18.0 (20.9)	46.8 (20.5)	16.5 (20.5)	46.7 (20.5)	2.13 (.48)	2.07 (.50)
Not keeping word	Positive	**8.90 (1.8)**	17.6 (21.4)	**43.1 (19.1)**	14.9 (19.3)	**44.0 (20.2)**	2.00 (.49)	1.96 (.51)
	Negative	**9.18 (1.8)**	17.5 (20.7)	**47.7 (18.7)**	16.4 (20.4)	**47.7 (20.6)**	2.13 (.47)	2.07 (.50)
Relational bullying	Positive	**8.51 (1.8)**	17.2 (21.6)	**42.4 (19.5)**	16.1 (21.7)	**43.6 (21.0)**	1.97 (.51)	2.00 (.54)
	Negative	**9.26 (1.8)**	17.8 (20.8)	**47.6 (18.7)**	16.0 (19.8)	**47.5 (20.3)**	2.13 (.47)	2.06 (.49)
Verbal bullying	Positive	9.13 (1.9)	16.4 (20.1)	45.2 (19.4)	15.0 (20.4)	45.5 (20.4)	2.03 (.50)	1.97 (.51)
	Negative	9.10 (1.8)	17.9 (20.9)	46.9 (18.8)	16.3 (20.5)	47.1 (20.5)	2.11 (.48)	2.06 (.50)
Total		.11*	.02	.11*	.03	.08*	.16*	.13*

Notes. In bold: significant differences using p<0.05.

* Pearson correlation coefficients (r) is significant using p<0.05.