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The Early Childhood Generalized Trust Belief Scale

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Abstract

The study was designed to develop and evaluate the Early Childhood Generalized Trust Belief Scale (ECGTBS) as a method of assessing 5- to 8-year-olds' generalized trust. Two hundred and eleven (103 male and 108 female) children (mean age 6 years and 2 months at Time 1) completed the ECGTBS twice over a year. A subsample of participants completed the ECGTBS after two weeks to assess the scale's test-retest reliability. Exploratory and confirmatory factor analyses confirmed that the ECGTBS assessed the expected three factors: reliability, emotional trust, and honesty with item-pairs loading most strongly on their corresponding factor. However, the ECGTBS demonstrated low to modest internal consistency and test-retest reliability which indicates a need for further development of this instrument. As evidence for the convergent validity of the ECGTBS, the reliability and emotional trust items were associated with the children's trust in classmates at Time 2. Concurrent asymmetric quadratic relationships indicated the importance of midrange generalized trust. Specifically, children with very high generalized trust experienced greater loneliness and children with very low generalized trust had fewer friendships than children with midrange trust.

Key words: Generalized trust, early school-age children, scale development, loneliness, friendships

The Early Childhood Generalized Trust Belief Scale

Generalized trust reflects the propensity to believe that an individual's or a group's word, actions, honesty, and ability to maintain confidentiality can be relied upon in a range of social contexts (Rotter, 1967, 1971). The intentions behind these actions may be unclear and as such there is a level of vulnerability on the part of the trusting individual where the trusted party is expected to be competent, reliable, and honest (Mishra, 1996; Tschannen-Moran & Hoy, 2000). From a developmental perspective, generalized trust is central to the formation, maintenance, and survival of relationships (Rotter, 1971) and relies on an individual's ability to develop a sense of basic trust rather than mistrust during infancy (Erikson, 1995). Erikson's seminal contribution to our understanding of trust suggests that trust emerges when infants experience responsive care-giving; conversely, mistrust emerges when infants have to wait excessively for comfort and are treated harshly (Crain, 2005; Erikson, 1995). Trust is also important for learning and social cognition, with very young children showing the ability to distinguish between trustworthy and untrustworthy sources (Harris, 2007; Koenig, Clément, & Harris, 2004; Koenig & Harris, 2005a). Specifically, when asked to select the name of an unfamiliar object, children as young as three display a propensity to believe the claims of an individual who has been shown to be reliable in the past rather than an individual who has been shown to be unreliable on at least one occasion (Koenig & Harris, 2005a, 2005b). However, as trust is a complex phenomena that requires individuals to interpret subtleties in the behavior of others and the ability to infer the intentions of others in potentially ambiguous situations, it is likely that there are developmental changes in children's trust reflecting their developing cognitive abilities (Harbaugh, Krause, Liday, & Vesterlund, 2003).

The propensity to trust others underpins, and facilitates, the development of social relationships (Ferrin, Bligh, & Kohles, 2007; Rotter, 1971, 1980). Empirically, the

importance of trust has been evidenced through the significant relationships found between trust and psychosocial adjustment in adults (Barefoot, Maynard, Beckham, Brummett, & Siegler, 1998; Fletcher, Simpson, Thomas, & Giles, 1999; Rotter, 1980) and, to a lesser extent, in children (Imber, 1973; Rotenberg, Boulton, & Fox, 2005). For example, Imber (1973) reported linear relationships between older children's generalized trust and academic performance: children with high trust in fathers and teachers performed better academically. Similarly, Rotenberg, Boulton, and Fox (2005) reported a modest negative linear association between trust in peers and internalized maladjustment in their longitudinal study of 9- to 11-year-olds. The linear relationship was qualified by a quadratic pattern: children with very low or very high trust showed greater internalized maladjustment than expected in a linear relationship and also greater maladjustment than children with midrange trust. Further, this pattern was asymmetric: children with very high trust were less disadvantaged than children with very low trust. To explain these findings, Rotenberg, Boulton et al. (2005) proposed that extreme trust violated the peer norms of trust which resulted in peer rejection and elevated levels of internalized maladjustment. Specifically, children with very low trust adopt a cynical approach towards their peers and believe that their peers will not keep promises or secrets. Conversely, children with very high trust adopt a naïve approach believing that all of their peers will keep promises and secrets. Therefore, Rotenberg, Boulton et al. (2005) argue that children with extreme trust violate the peer group norm which recognizes that in some instances promises and secrets will be kept whereas in others they will not. Further, children with very high trust may experience loneliness because their naïve approach may leave them vulnerable to betrayal by their peers and thus weaken their peer relationships (Rotenberg, Boulton et al., 2005).

Children's generalized trust has primarily been assessed using three scales: Imber's Children's Trust Scale (ICTS; Imber, 1973) for fourth grade children; the Children's

Interpersonal Trust Scale (CITS; Hochreich, 1973) for sixth grade children; and the Childhood Generalized Trust Belief Scale (CGTBS; Rotenberg, Fox et al., 2005) for 9- to 11-year-olds. Both the ICTS and CGTBS were developed to assess children's trust in the general categories of mothers, fathers, teachers, and peers to reflect children's normative interaction partners. The CITS was designed to assess children's trust in a range of unspecified social agents. The conceptualization of trust in the ICTS and the CITS is rather narrow in scope: focusing either on situational trust or promise-keeping respectively. Further, the ICTS and CITS have limited psychometric properties (see Bernath & Feshbach, 1995; Rotenberg, Fox et al., 2005). Additionally, although children as young as three can conceptualize and express trust (Harris, 2007), there is no corresponding measure of generalized trust for children during the early school years (5- to 8-year-olds). Consequently, the present study aimed to develop the ECGTBS as an age- and gender-appropriate scale to assess generalized trust which reflected the multifaceted nature of trust.

The construction of the ECGTBS is important for two reasons. *First*, there is limited research on early school-age children's trust and a scale would facilitate research. *Second*, it is during early childhood that children begin to conceptualize the underlying social attributes of others (Heller & Berndt, 1981; Kalish, 2002). Establishing a psychometrically sound scale would suggest children conceptualize the trust attributes of others at least implicitly (see Harris, 2007). The ability to conceptualize the trust attributes of others is important for understanding the motives of others and also in gaining knowledge (Harris, 2007; Koenig et al., 2004).

Rotenberg's (1994, 2001) three bases x two dimensions of target x two domains interpersonal trust framework was used to guide the development of the ECGTBS. The reliability base pertains to the extent to which an individual fulfils their promises. The emotional base refers to the extent to which an individual refrains from causing emotional

harm to others through being receptive to disclosures, maintaining confidentiality, refraining from criticism, and avoiding acts that elicit embarrassment. The honesty base reflects the extent to which an individual is telling the truth and engages in behaviors with a benign rather than a malicious intent. The target dimensions pertain to how familiar and specific the target is to the individual providing the ratings. The cognitive/affective and behavioral domains further differentiate the bases of trust. The cognitive/affective domain pertains to an individual's belief that another individual would engage in behavior pertinent to the associated base of trust. The behavioral domain corresponds to an individual's behavioral reliance on others.

Rotenberg's (1994, 2001) interpersonal trust framework was used to guide the development of the CGTBS to assess the generalized trust of 9- to 11-year-olds (see Rotenberg, Fox et al., 2005). Whilst developing the CGTBS, Rotenberg, Fox et al. (2005) simplified the definitions of the reliability, emotional trust, and honesty bases from Rotenberg's (1994, 2001) trust framework to focus on promise-keeping, secret-keeping, and telling the truth respectively. In the current study, the definitions were further simplified to reflect the young age of the sample and the salient aspects of trust. Although the CGTBS employed simplified definitions of the bases of trust, further refinement of the scale was needed for early school-age children for two reasons. First, the scenarios and interactions described in the items of the CGTBS were modified and simplified for early school-age children so that they were age-appropriate, something which Bernath and Feshbach (1995) argue is particularly important when assessing generalized trust. Second, compared to older children and adults, early school-age children are less able to infer from an individual's previous actions how they will behave in the future (Alvarez, Ruble, & Bolger, 2001; Barenboim, 1981; Heller & Brendt, 1981; Kalish, 2002; Rholes, Jones, & Wade, 1988). Consequently, relying on a single item may not give a reliable indicator of generalized trust.

To address these issues, the present research aimed to develop an age-appropriate measure of early school-age children's generalized trust through using the aggregate of item-pairs to assess the underlying factors of generalized trust. This procedure has been successfully used in the CGTBS with 9- to 11-year-olds (Rotenberg, Fox et al., 2005).

One salient aspect of trust, identified in Rotenberg's (1994, 2001) trust framework, is the target of trust. Specifically, trust may vary according to the target. In support of this, Rotenberg, Fox et al. (2005) reported that 9- to 11-year-olds had higher generalized trust in mothers, fathers, and peers than in teachers. Moreover, Furman and Buhrmester (1985) report that 11- to 13-year-olds experience differences in relationship quality according to their interaction partner. Specifically, children's relationships with their mothers and friends were characterized by the greatest intimacy whilst children relied on teachers most for instrumental aid. However, it remains unclear at what age the ability to differentiate between targets emerge. The ECGTBS was designed to assess generalized trust in the targets of mothers, fathers, teachers, and peers. Therefore, the potential differences and changes in children's trust according to the target were examined.

It is widely acknowledged that children primarily affiliate with their same-gender peers from as young as three (Hay, Payne, & Chadwick, 2004; Maccoby, 1988, 1990) and that the qualities of children's relationships differ according to their gender (Berndt, 1982; Hussong, 2000; Kuttler, La Greca, & Prinstein, 1999; Sharabany, Gershoni, & Hoffman, 1981). Therefore, two versions of the ECGTBS were developed: one with male protagonists and one with female protagonists so that children respond to scenarios involving same-gender protagonists. Also, it was expected that gender differences would emerge in the children's generalized trust because girls' social relationships tend to be characterized by higher intimacy, companionship, and prosocial support compared to boys (Berndt, 1982; Hussong, 2000; Kuttler et al., 1999; Sharabany et al., 1981).

The purpose of the present study was threefold. First, the study aimed to construct and evaluate the ECGTBS as a method of assessing early school-age children's generalized trust. The ECGTBS was designed to assess Rotenberg's (1994, 2001) three bases of trust (reliability, emotional trust, and honesty) as applied to the cognitive domain (trust beliefs) and to the targets of mothers, fathers, teachers, and peers. The bases were operationalized as promise-keeping, secret-keeping, and telling the truth respectively through asking children to identify with the protagonist in fictitious situations. Such a methodology was employed to enable standardized assessment of generalized trust through exposing children to the same scenarios. Additionally, this methodology reflects the fact that generalized trust includes interactions with others in a range of situations which may not have previously been encountered (Rotter, 1980). Further, similar methodologies have been used successfully to assess children's beliefs about other experiences such as pain (Stanford, Chambers, & Craig, 2006) and the intentions of others (Shiverick & Moore, 2007).

As convergent evidence for the ECGTBS, in the present study, a linear relationship was expected between the children's general reliability and emotional trust in peers, as a general category of target individuals assessed using the ECGTBS and the children's trust in their classmates who represent more specific targets. A modest linear correlation was expected because the former is a more general category than the later and because children may have experiences with peers beyond their classmates. Such a linear relationship was expected, at least after a year, because generalized trust guides an individual's propensity to trust others in specific situations (Rotter, 1967, 1971, 1980).

The second aim of the study was to examine differences in early school-age children's generalized trust. Specifically, it was expected that children's generalized trust would vary according to target, time, and that there would be gender differences in children's generalized trust although no direct predictions regarding these differences were made. Finally, the study

aimed to examine the relationship between generalized trust and psychosocial adjustment. It was expected that concurrent quadratic relationships would be found between generalized trust, number of friendships, and loneliness because previous research with older children suggests that children with very high or very low trust deviated from peer norms of trust and thus were at risk of peer rejection (Rotenberg, Boulton et al., 2005).

<div align="center">Method</div>

Participants

At Time 1 (November to January), 271 (140 male and 131 female) 5- to 7-year-olds (M_{age} = 6 years 2 months SD_{age} = 7 months) were recruited from 12 classrooms across 4 schools in the UK. Three schools had catchment areas above the national average for professional employment and below the national average for unemployment, whilst one school's catchment area was below the national average for professional employment and above the national average for unemployment (Office for National Statistics, 2001). The sample was predominately White (97%) and all of the children had completed at least one year in compulsory education before they participated in the research.

Forty-seven (26 male and 21 female) children from one school completed the ECGTBS two weeks after the initial testing. Approximately one year after the initial testing, 211 (103 male and 108 female) children from the original sample completed the measures (M_{age} = 7 years 1 month SD_{age} = 6 months).

Measures

ECGTBS. Following the recommendations of DeVellis (1991), initially an item pool twice the size of the final scale was constructed. The 48 items were designed to assess generalized trust comprising reliability, emotional trust, and honesty in the general targets of mothers, fathers, teachers, and peers adapting the methodology used in the CGTBS (Rotenberg, Fox et al., 2005). The gender of the protagonist was varied so that children

identified with a same-gender protagonist and reported the extent to which they trusted the target (1-- *Very Unsure* to 5 -- *Very Sure*). High scores indicated greater trust. The final items which were the same for both genders except the gender of the protagonist (see Appendix for the girls' version) were presented without visual aids to represent the abstract nature of the task (see Chambers & Johnston, 2002).

Trust in classmates. Participants reported "how often each classmate keeps promises that he/she has made" and "how often each classmate keeps secrets that he/she has made" using a five-point scale (1 -- *Never Ever* to 5 -- *Always*). The children's reports were summed and divided by the number of classmates rated separately for promise-keeping and secret-keeping. Children rated all of their classmates except those children without parental consent ($M_{Time\ 1}$ = 22.92, $SD_{Time\ 2}$ = 7.66, $M_{Time\ 2}$ = 24.56, $SD_{Time\ 2}$ = 6.37). Promise-keeping and secret-keeping were correlated at Time 1, $r(269) = .77$, $p < .001$, and at Time 2, $r(209) = .74$, $p < .001$. Therefore, as these items assessed related components of trust, they were summed to create a composite score of trust in classmates. High scores indicated higher trust in classmates (see Rotenberg, MacDonald, & King, 2004). The composite score of trust reflected children's specific trust in their classmates because this measure asked about specific named individuals that were known to the child.

Loneliness. Loneliness in school was assessed using a four-item measure of loneliness (Ladd & Coleman, 1997). Responses were made using a five-point scale (1-- *Not true at all* to 5 -- *Always true*): high scores indicated greater loneliness.

Number of friendships. At Time 2, participants were read a list of their classmates and asked to report which classmates were their friends (unrestricted). Reciprocal friendships were identified when one child nominated a second child and the second child reciprocated this nomination (Parker & Asher, 1993). The number of reciprocated friendships were standardized to adjust for class size.

Procedure

The ECGTBS (48 items at Time 1 and 24 items at Time 2) and loneliness scale were read to participants in groups of 5 or 6 same-gender peers. Participants were instructed to work independently, and that there were no right or wrong answers. Children completed the trust in classmates and friendship (Time 2 only[1]) measures individually and away from the classroom. Prior to completing the trust in classmates measure, children were provided with definitions of promise-keeping and secret-keeping. British Psychological Society ethical practices were followed.

<div align="center">Results</div>

Sample Attrition

A series of t tests were used to investigate whether there were significant differences for trust in classmates and loneliness between those children that remained in the sample at Time 2 and those that withdrew. Children who remained in the sample at Time 2 had significantly higher trust in their classmates than those children who withdrew from the study, $t(267) = 3.94$, $p < .05$, $\eta^2 = .055$, $M_{remained} = 7.47$, $SD_{remained} = 1.27$, $M_{withdrew} = 6.74$, $SD_{rwithdrew} = 1.30$. Similar analyses revealed that the subsample of children who completed the ECGTBS two-weeks after the initial testing had significantly higher trust in their classmates than the children from the full sample at Time 1, $t(256) = 5.15$, $p < .001$, $\eta^2 = .094$, $M_{full} = 8.12$, $SD_{full} = .94$, $M_{retest} = 7.08$, $SD_{retest} = 1.31$. There were no other significant differences between the groups.

Scale Analysis

The ECGTBS items were developed to correspond with the three bases of Rotenberg's (1994, 2001) interpersonal trust framework and three analyses were performed to examine which items best represented these bases: (1) selection of item pairs that represented each base of trust per target with acceptable facility indexes, (2) factor analysis of the items at

Time 1 in order to guide the selection of representative items, and (3) confirmatory factor

analysis at Time 2 to confirm the hypothesized three-factor structure.

Step 1: Following Rust and Golombok's (1999) recommendations, item analyses were

performed to ensure that each item demonstrated an acceptable facility index ($\geq$ 0.5 and $\leq$

4.5) and a positive corrected item-total correlation: all items did. Following the procedure of

Rotenberg, Fox et al. (2005), the means of the two most strongly correlated items for each

base and target were selected for subsequent analyses (rs >.16 and < .34 p < .01). Item pairs

were used to provide a more stable measure of children's generalized trust and to reflect the

children's developing person-perception abilities (Barenboim, 1981; Heller & Berndt, 1981;

Micheals, Messe, & Stollak, 1983; Rholes & Ruble, 1986; Shikiar & Coates, 1978).

Step 2: The resulting 12 item-pairs were subjected to Principal Axis Factoring and

Promax rotation. The initial analysis yielded the expected three-factor structure (reliability,

emotional trust, and honesty) but the honesty item for teachers loaded equally on two factors.

Therefore, a different item-pair was selected with a marginally lower correlation and the

analysis repeated, the remaining items were not included in the analysis. The final three-

factor solution (Table 1), accounted for 52 percent of the variance and the item-pairs loaded

above the recommended .30 (Child, 1990).

Insert Table 1 here

Step 3: Confirmatory Factor Analysis of the ECGTBS items at Time 2 showed that the

three-factor structure was a good fit. The Comparative Fit Index (CFI) = .91 and Root Mean

Square Error of Approximation (RMSEA) = .048 exceeded the criteria required for a good fit

(Bryant & Yarnold, 1995; Byrne, 2001). The chi-square attained significance, χ^2 (51) = 76.15,

p = .013, indicating that the model is not a complete fit, but such a result is frequently

obtained when other fit criteria are met (Bentler, 1990; Schumacker & Lomax, 1996). As shown in Figure 1, all of the item-pairs loaded most strongly on their corresponding factor above .30 (Kline, 2005). Also, the factors were correlated with the reliability and emotional trust factor most strongly associated. Together these results suggest that the item-pairs were assessing their intended factors and that the reliability and emotional trust factor were the most strongly associated. The three-factor model showed a significantly better fit of the data than the one-factor model, $\Delta\chi^2(3) = 19.07$, $p < .001$, and a randomly generated two-factor model, $\Delta\chi^2(2) = 16.18$, $p < .001$. Neither the one-factor nor the two-factor models met the fit requirements, CFI = .86, RMSEA = 0.60, $\chi^2 (54) = 95.22$, $p < .001$, and CFI = .87, RMSEA = .059, $\chi^2 (53) = 92.33$, $p = .001$ respectively. The final scale comprised of 24 items with 2 items for each of the 4 targets across the 3 bases of trust.

Insert Figure 1 here

Convergent validity. Consistent with expectation, the combined reliability and emotional trust ECGTBS items for peers at Time 2 were correlated with trust in classmates, $pr(208) = .17$, $p < .05$ when age was controlled for.

Reliability and stability. The ECGTBS demonstrated low to moderate internal consistency at Time 1 ($\alpha = .79$, $n = 12$ item-pairs) and Time 2 ($\alpha = .72$, $n = 12$ item-pairs), given its multi-factorial nature. Given the number of items, the reliability, emotional trust, and honesty subscales also demonstrated low to moderate internal consistency at Time 1 ($\alpha = .66$, $\alpha = .61$, $\alpha = .75$ respectively, $n = 4$ item-pairs) and at Time 2 ($\alpha = .47$, $\alpha = .58$, $\alpha = .60$ respectively, $n = 4$ item-pairs). The internal consistencies were comparable to those of Rotenberg, Fox et al.'s (2005) CGTBS. Additionally, the ECGTBS demonstrated acceptable

test-retest reliability over two weeks, $r(39) = .56$, $p < .001$, and stability over a year, $r(207) =$ .33, $p < .001$.

Target of Trust, Time, and Gender Differences

A 4 (target: mother, father, teacher, peer) x 2 (Time: Time 1, Time 2) x 2 (gender: male, female) mixed ANOVA, with target and Time as repeated measures, was used to examine differences in the target of trust, time, and gender. See Table 2 for the means and standard deviations. There was a significant main effect of time, $F(1,205) = 7.56$, $p < .01$, $\eta^2 = .036$: trust at Time 1 was higher than at Time 2. Tukey post hoc tests revealed that children had higher trust in mothers at Time 1 than at Time 2 and higher trust in peers at Time 1 than at Time 2 ($p < .05$). There was no significant main effect for target of trust or gender. Although there was a significant interaction between target and time, $F(2.98,611.43) = 2.79$, $p < .05$, $\eta^2 = .013$, indicating some evidence of target effects that varied according to time. Tukey post hoc tests revealed that children had higher trust in teachers than in peers at Time 2 ($p < .05$). Also, there was a significant three-way interaction between target, time and gender, $F(2.98,611.43) = 3.24$, $p < .05$, $\eta^2 = .016$. To further investigate this interaction simple comparisons were used. Simple comparisons revealed that there were significant differences in girls' generalized trust across the targets at Time 1, $F(2.98,611.42) = 2.65$, $p < .05$, $\eta^2 = .021$ and at Time 2, $F(2.98,611.42) = 4.01$, $p < .01$, $\eta^2 = .040$. Tukey post hoc tests revealed that at Time 1 girls had higher trust in mothers than in teachers and in fathers and higher trust in peers than in teachers ($p < .05$). At Time 2 girls had higher trust in mothers, in fathers, and in teachers than in peers ($p < .05$). There were no such significant differences in boys' generalized trust according to target at Time 1 or Time 2, $F(2.98,611.42) = 2.18$, $p > .05$, $\eta^2 = .015$ and, $F(2.98,611.42) = .47$ $p > .05$, $\eta^2 = .004$ respectively.

Insert Table 2 here

The ECGTBS and psychosocial adjustment

The ECGTBS total score at Time 1 was concurrently associated with loneliness whilst controlling for trust in classmates and age at Time 1, $pr(264) = .16$, $p < .01$. Trust in classmates was controlled for as this may influence children's experience of loneliness at school. Concurrent quadratic relationships occurred between ECGTBS total score and loneliness at Time 1, $\beta = .90$, $t(268) = 2.30$, $p = .022$, $R^2 = .05$, and number of friendships at Time 2, $\beta = -1.30$, $t(205) = -2.81$, $p < .01$, $R^2 = .04$. Children with very high or very low ECGTBS scores had higher levels of loneliness and fewer friendships than those with midrange scores. To further examine these relationships, children were grouped according to low (bottom 10%), midrange, and high (top 10%) ECGTBS scores and one-way ANOVAs performed to compare these groups. Children's loneliness at Time 1 differed according to low ($M = 10.06$, $SD = 4.54$), midrange ($M = 10.30$, $SD = 4.23$), or high ($M = 13.22$, $SD = 5.66$) trust, $F(2,268) = 5.48$, $p < .01$, $\eta^2 = .039$. Tukey post hoc tests revealed that children with high trust had higher loneliness than those with midrange or low trust ($p < .05$). Similarly, there were significant differences in the number of friendships at Time 2 according to low ($M = .45$, $SD = .13$), midrange ($M = .54$, $SD = .17$) or high ($M = .49$, $SD = .15$) trust, $F(2,211) = 3.24$, $p < .05$, $\eta^2 = .030$. Tukey post hoc tests revealed that children with low trust had fewer friends than those with midrange trust ($p < .05$).

Trust in classmates and psychosocial adjustment

Trust in classmates at Time 2 was associated with reciprocal friendships at Time 2, $pr(208) = .33$, $p < .001$. There were no significant relationships between trust in classmates

and loneliness at Time 1 or Time 2. Further, there was no significant relationship between loneliness and reciprocal friendships at Time 2.

Discussion

The study succeeded in constructing a generalized trust scale for early school-age children: the ECGTBS. The ECGTBS assessed early school-age children's generalized trust in mothers, fathers, teachers, and peers across the reliability, emotional trust, and honesty base identified in Rotenberg's (1994, 2001) interpersonal trust framework. The ECGTBS met many of the required psychometric standards and the expected three-factor structure of reliability, emotional trust, and honesty was identified through exploratory factor analysis at Time 1 and confirmed at Time 2 through the use of confirmatory factor analysis. Further, given the age of the sample, the stability of the ECGTBS assessed as test-retest reliability was also acceptable over two-weeks and a year. Also, the children's generalized trust was modestly and linearly associated with the children's trust in their classmates at Time 2. Such a linear relationship is consistent with the theory that generalized trust influences the development of trust in specific relationships (Rotter, 1967, 1971, 1980). Finally, the subscales of the ECGTBS attained modest levels of internal consistency with one exception: the reliability subscale at Time 2.

The ECGTBS attained levels of internal consistency, test-retest reliability, stability, and factor loadings that were acceptable and equal to those found with other social-personality scales for young children. For example, the Pictorial Scale of Perceived Competence and Social Acceptance has pattern coefficients between -.03 and .93 and internal consistencies between .48 and .88 (Mantzicopoulos, French, & Maller, 2004), and a similar range of results were obtained in a meta-analysis of self-esteem measures (Davis-Kean & Sandler, 2001). Further, in comparison to the CGTBS (Rotenberg, Fox et al., 2005), the factor structure of the ECGTBS accounted for a similar proportion of the variance, and the stability of the ECGTBS

was similar although the internal consistency of the CGTBS was higher. A potential

explanation for the lower internal consistency of the ECGTBS resides in the age differences

in the sample assessed. The low to moderate internal consistencies may also have occurred

because the assessment of trust may not be consistent across all of the items or because of the

small number of items included in the final scale. Therefore, future research should further

examine the internal consistency of the ECGTBS.

The items within the ECGTBS loaded on their corresponding factor. However, for some

items these loadings were modest in strength. There are two explanations for these modest

loadings. First, the modest loadings may reflect the children's developing ability to determine

the trust attributes of others (Koenig et al., 2004). Second, the loadings may reflect the

children's person-perception abilities. Previous research has demonstrated that young

children do not expect an individual who has behaved in a certain way in the past to continue

to do so in the future (Heller & Berndt, 1981; Heyman & Gelman, 2000; Kalish, 2002;

Rholes et al., 1988). Therefore, it may be that some early school-age children are unable to

generalize from past experiences to future hypothetical scenarios when completing the

ECGTBS and this could influence the ECGTBS' psychometric properties. However, this

explanation contradicts attachment theory and the role of internal working models to guide

future behavior (Bridges, 2003; Mikulincer, 1998). Consequently, the effect of the children's

limited person perception may be particularly evident for those children with insecure

attachments. Future research should further explore this potential explanation.

There was also some evidence that children's generalized trust also varied according to

the target and these are consistent with the argument that children have different relationship

qualities with different targets (Furman & Buhrmester, 1985). In particular, children had

higher generalized trust in teachers than in peers. This difference suggests that children's trust

may change with age as Rotenberg, Fox et al. (2005) found that older children had lower trust

in teachers than in peers. One explanation for the current findings may reside in the different type of relationship early school-age children have with their teachers compared with their peers. Specifically, during the early years of school, a close relationship with teachers is particularly important for facilitating school adjustment (Birch & Ladd, 1997, 1998; Kesner, 2000; Murray & Murray, 2004). The differences in trust in teachers and peers may also reflect the confidence in communication hypothesis proposed by Imber (1973). Imber (1973) argued that it is important for children to have high trust in teachers because children with high trust may be comparably more inclined to believe what their teachers say and thus learn more from communication with them compared to those children with low trust. Therefore, these findings may have occurred because children regard teachers as a more viable source of information than their peers. Future research is needed to explore these issues.

The results indicate that children's generalized trust was lower at Time 2 than Time 1. One possible explanation for the reduction in generalized trust is that during this developmental period, the children may be revising their otherwise relatively stable internal working models which they use to guide social interactions (Thompson, 2000). The reduction in generalized trust may also reflect early school-age children's developing cognitive abilities (Harbaugh et al., 2003) and their person perception abilities. For example, researchers have reported that young children have limited abilities to infer the dispositional attributes of others (Alvarez et al., 2001; Liversley & Bromley, 1973), hold stable perceptions of these attributes (Rotenberg, 1982), and cognitively organize these within a network of dispositional qualities (Barenboim, 1981; Heller & Berndt, 1981). Therefore, it may be possible that young children have limited abilities to spontaneously infer the trusting attributes of generalized others, to maintain stable perceptions of these attributes, and to organize these attributes in to a network.

There was also evidence of gender differences in trust with girls reporting higher trust in mothers than in teachers and in fathers at Time 1. Also, at Time 1 girls reported higher trust in peers than in teachers. At Time 2, girls reported higher trust in mothers, in fathers, and in teachers than in peers. There was no evidence of such differences in boys' trust at Time 1 or Time 2. This finding provides further evidence that the qualities of children's relationships differ according to gender (Berndt, 1982; Hussong, 2000). However, the complex findings suggest that although there is evidence that girls' social relationships tend to be characterized by higher intimacy, companionship, and prosocial support compared to boys (Berndt, 1982; Hussong, 2000; Kuttler et al., 1999; Sharabany et al., 1981), these effects may be influenced by the target of trust and changes occur with time. Further, the children's generalized trust also decreased over time. One potential explanation for this is that as children engage in social relationships these experiences cause children to revise their cognitive schema of the expectations of others and the children may develop a more realistic perception of the trust attributes of others (see Rotenberg, Boulton et al., 2005).

There was some evidence of quadratic relationships between children's generalized trust and measures of psychosocial adjustment. Specifically, children with very high generalized trust experienced higher loneliness (Time 1) and children with very low generalized trust had fewer friends (Time 2) than those children with midrange ECGTBS scores. Loneliness at Time 1 was also negatively linearly associated with generalized trust at Time 1, although this was qualified by the quadratic relationship. There was no evidence of a relationship between children's loneliness and friendships at Time 2. The quadratic relationship between high generalized trust and higher loneliness may occur because children do not form rewarding social relationships with those whom have extreme trust. Specifically, those children with high generalized trust may not have their expectations met in the context of social relationships, so others may break promises and may not keep secrets as much as these

children would expect. Therefore, because these children's expectations are not met they may experience elevated levels of loneliness. The mechanisms responsible for the sequence of the observed relationships require further examination. One potential explanation for these findings is the children's developing cognitive schema of trust. Specifically, children's beliefs about the trust attributes of others could shape social interactions and how children interpret the behavior of others (Harris, 2007; Rotenberg, Boulton et al., 2005). Alternatively, having very high trust and a naïve approach towards others may leave these children vulnerable to betrayal by their peers which could weaken social relationships and result in elevated loneliness (see Rotenberg, Boulton et al., 2005). The quadratic relationship between low trust and a lower number of friends may have occurred because children with very low trust beliefs may hold a suspicious, cynical, attitude towards their peers as Rotenberg, Boulton et al. (2005) hypothesized. Therefore, those children may be less likely to form social relationships with their peers because they are cynical undermining the importance of trust for relationship formation and maintenance (Rotter, 1971, 1980). Therefore, children with extreme trust may be displaying a bias in terms of how they interpret the social actions of others similar to the hostility attribution bias (Dodge & Somberg, 1987; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002).

The children's reports of generalized trust assessed through the ECGTBS may have been influenced by their cognitive abilities and these may have impeded their ability to complete the measures as evidenced through the psychometric properties of the ECGTBS (see Arseneault, Kim-Cohen, Taylor, Caspi, & Moffitt, 2005). Therefore, future research could control for the children's intelligence or verbal ability when using the ECGTBS. However, Arseneault et al. (2005) note that any difficulties regarding the cognitive skills of children are offset by the benefit of developing self-report measures. For example, the private nature of

promise-keeping, secret-keeping, and telling the truth can only be accurately assessed via self-report (Stormshak & Webster-Stratton, 1999; Sturgess, Roger, & Ozanne, 2002).

Although the structure of the ECGTBS was replicable, as evidenced through the confirmatory factor analysis, there are weaknesses associated with the methodology used to establish and confirm the structure of the ECGTBS. Specifically, in the context of scale development, it is not ideal to develop and evaluate a scale using the same sample (Howitt & Cramer, 2003). Future research is needed to further explore the psychometric properties of the ECGTBS and to develop the ECGTBS with the aim of increasing the internal consistency of the scale and subscales. This could involve the use of confirmatory factor analysis with data collected from another sample of children to investigate whether the factor structure and internal consistency of the ECGTBS is replicable in other samples. Additionally, the study is limited because of systematic attrition: children who remained in the sample at Time 2 had higher trust in classmates at Time 1. Therefore, some of the variance in children's trust at Time 2 was attenuated because when variability is reduced the strength of effect is limited (Howitt & Cramer, 2003). Consequently, future research should replicate the findings with a more heterogeneous sample.

The newly developed ECGTBS will permit researchers to examine some of the developmental implications of generalized trust beliefs in significant others for early school-age children. For example, researchers could examine the link between the quality of children's attachment bond, core beliefs, generalized trust, and the potential consequences of generalized trust for children's psychosocial development. Such research would allow researchers to further understand the role of generalized trust for children's psychosocial adjustment during the school years.

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Footnote

[1] The term Time 2 is used to denote the second wave of testing for all children and was approximately one year after Time 1.

[2] The ECGTBS boys' version is available on request from the corresponding author.

Table 1

The factor solution for the ECGTBS at Time 1 with descriptive statistics for each of the item-pairs.

	Factor			Descriptives	
	Honesty	Emotional Trust	Reliability	*M*	*SD*
Bases					
Honesty					
Mother	.72			3.20	1.33
Father	.73			3.10	1.38
Teacher	.56			3.25	1.33
Peer	.64			3.20	1.33
Emotional Trust					
Mother		.68		3.09	1.28
Father		.59		3.05	1.25
Teacher		.41		3.25	1.31
Peer		.43		3.37	1.26
Reliability					
Mother			.34	3.76	1.24
Father			.46	3.53	1.28
Teacher			.76	3.54	1.21
Peer			.50	3.38	1.37
Eigenvalue	3.68	1.44	1.11		
Percent variance	30.67	11.98	9.27		
Cumulative percent of variance	30.67	42.65	51.92		

Note extraction method principal axis factoring. Rotation method: Promax with Kaiser

normalization. Rotation converged in 5 iterations

Table 2

The mean and standard deviations of boys' and girls' trust in each target at each time

Target of trust	Boys[1]		Girls[2]		Overall[3]	
	M	*SD*	*M*	*SD*	*M*	*SD*
Time 1						
Mother	10.14	2.59	10.00	2.68	10.07	2.63
Father	9.74	2.85	9.49	2.60	9.61	2.72
Teacher	10.35	2.55	9.46	2.63	9.89	2.62
Peer	9.95	2.86	9.83	2.83	9.89	2.84
Time 2						
Mother	9.41	2.42	9.51	2.05	9.46	2.24
Father	9.52	2.47	9.49	2.33	9.51	2.40
Teacher	9.30	2.41	9.83	2.04	9.57	2.24
Peer	9.30	2.90	9.00	2.38	9.15	2.64

Note [1]$n = 101$, [2]$n = 106$, [3]$n = 207$

Figure caption

Figure 1 The three-factor CFA model for the ECGTBS with standardized regression weights

at Time 2. Where M = mother, F = father, T = teacher, P = peer, R = reliability, E =

emotional trust, H = honesty and e = error

Appendix

The items that comprise the final ECGTBS by subscale (Girls' version)[2]. The numbers

correspond to the order of presentation and the subscript represents the target where M =

mother, F = father, P = peer, and T = teacher.

Reliability Trust

1_M Cindy's mum promised that she would buy Cindy some sweets. How sure are you that

Cindy's mum will buy some sweets for Cindy?

2_M Courtney's mum said that she would take Courtney swimming on Sunday. How sure are

you that Courtney's mum will take her swimming?

11_P Louisa says that she would share her crisps with Claire at lunchtime. How sure are you

that Louisa will share her crisps with Claire?

12_F Jasmine's dad said that he would play a game with Jasmine later. How sure are you that

Jasmine's dad will play a game with Jasmine?

14_T The teacher promised Beverley's class that the class could play in the sandpit before they

go home. How sure are you that Beverley's class will play in the sandpit?

17_F Beth's dad said that if she eats all her dinner she could go outside and play. Beth eats all

her dinner. How sure are you that Beth's dad will let her go out and play?

18_P Rita and Lauren are both in the same class at school. Lauren finds spellings hard, Rita said she would help Lauren with her spelling. How sure are you that Rita will help Lauren?

4_T The teacher of Melissa's class said that the class could play a game, once they had finished that day's work. The class finishes their day's work. How sure are you that the teacher will let Melissa's class play a game?

Emotional Trust

6_M Gemma scratches one of her new shoes. Gemma asks her dad not to tell her mum about it. How sure are you that Gemma's dad will not tell her mum about it?

8_M Martha told her mum that she does not like doing P.E at school. Martha asked her mum not to tell her teacher. How sure are you that Martha's mum will not tell Martha's teacher about it?

3_T One day at school, Martina told her teacher that she was feeling sad about something at home. Martina asked the teacher not to tell her mum and dad about it. How sure are you that Martina's teacher will not tell her mum and dad about it?

10_F Ria tells her dad that she is finding it hard to do her sums at school, but asks her dad not to tell her teacher about it. How sure are you that Ria's dad will not tell her teacher about it?

13_P Sophie and Jenny are both in the same class at school. Sophie buys her teacher a Christmas present as a surprise. Sophie asks Jenny not to tell the teacher about the Christmas present. How sure are you that Jenny will not tell the teacher about the Christmas present?

15$_P$ Amy and Emily are in the same class at school. Amy brings some sweets to school. Amy asks Emily to keep the sweets a secret. How sure are you that Emily will not tell anyone that Amy has some sweets?

16$_F$ Natalie told her mum that she couldn't tie her shoelaces at school. She asks her mum not to tell her dad. How sure are you that Natalie's mum will not tell her dad?

24$_T$ Emily told her teacher that she had lost her new pencil case. Emily asks the teacher not to tell her dad. How sure are you that Emily's teacher will not tell her dad?

Honesty Trust

5$_M$ Jane is finding her reading hard. One day Jane asks her mum to help her with her reading. Jane's mum says that she cannot help Jane, because she has a headache. How sure are you that Jane's mum had a headache?

7$_P$ Rachel and Kerry are in the same P.E class at school. Rachel asks Kerry to be her partner in P.E class. Kerry says she cannot be Rachel's partner in P.E because she already has a partner. How sure are you that Kerry already has a partner?

9$_T$ The teacher of Susie's class said that the class was going to watch a video instead of doing some work. The teacher said that the video was lost. How sure are you that the video was lost?

22_M Jessica asks her mum to take her bowling. Jessica's mum is not good at bowling. Jessica's mum tells Jessica that she has hurt her arm, so they cannot go bowling. How sure are you that Jessica's mum has hurt her arm?

23_F Julie's dad says that he will take her to the cinema to see a special film when he gets home from work. When Julie's dad gets home from work, he says that they cannot go to the cinema as the special film has already started. How sure are you that the film has started?

19_F Tanya's dad promises that he will play football with Tanya after school. When Tanya gets home from school, Tanya's dad says that he is too tired to play. How sure are you that Tanya's dad is too tired?

20_P Anna and Jane are two girls who are in the same class at school. Anna has a new pencil sharpener. Jane asks Anna if she could borrow her new pencil sharpener. Anna says that she has lost her new pencil sharpener. How sure are you that Anna has lost her new pencil sharpener?

21_T Stephanie's teacher told the class they could go to the zoo. The zoo is along way away so the class needs to go on a bus. Later, the teacher tells Stephanie's class that they cannot go to the zoo because the bus driver is poorly. How sure are you that the bus driver is poorly?