

An investigation of children's peer trust across culture: Is the composition of peer trust universal?

Lucy R. Betts¹, Ken J. Rotenberg², Serena Petrocchi², Flavia Lecciso³, Atsushi Sakai⁴,
Kazumi Maeshiro⁵, & Helen Judson¹

¹Nottingham Trent University, UK

²Keele University, UK

³University of Salento, Italy

⁴ University of Yamanashi, Japan

⁵ Seisen Jogakuin College, Japan

Lucy R. Betts, Division of Psychology, Nottingham Trent University, UK; Ken J. Rotenberg, School of Psychology, Keele University, UK; Serena Petrocchi, School of Psychology, Keele University, UK; Flavia Lecciso, Faculty of Social Sciences, Policy and Spatial Planning, University of Salento, Italy; Atsushi Sakai, Division of School Education, University of Yamanashi, Japan; Kazumi Maeshiro, Department of Culture and Psychology, Seisen Jogakuin College; and Helen Judson, Division of Psychology, Nottingham Trent University, UK.

Portions of this research were supported by a grant awarded by the British Academy awarded to the second author (S-G47786).

Corresponding author: Lucy R. Betts, Division of Psychology, Nottingham Trent University, Burton Street Nottingham, NG1 4BU. Email lucy.betts@ntu.ac.uk Ph +44 (0) 115 848 5558 Fax + 44(0) 115 2390.

Abstract

The components of children's trust in same-gender peers (trust beliefs, ascribed trustworthiness, and dyadic reciprocal trust) were examined in samples of 8- to 11-year-olds from the UK, Italy, and Japan. Trust was assessed by children's ratings of the extent to which same-gender classmates kept promises and kept secrets. Social relations analyses confirmed that children from each country showed significant: (a) actor variance demonstrating reliable individual differences in trust beliefs, (b) partner variance demonstrating reliable individual differences in ascribed trustworthiness, and (c) relationship variance demonstrating unique relationships between interaction partners. Cultural differences in trust beliefs and ascribed trustworthiness also emerged and these differences were attributed to the tendency for children from cultures that value societal goals to share personal information with the peer group.

Key words: trust, trust beliefs, trustworthiness, cultural differences, peer relationships, social relations model

An investigation of children's peer trust across culture and gender: Is the composition of children's peer trust universal?

Scholars have proposed that interpersonal trust is essential to the survival of society and, as such, trust is regarded as a universal phenomenon (Harris, 2007; Rotenberg, 2010; Sakai, Sugawara, Maeshiro, Sugawara, & Kitamura, 2002). Further, the development of trust is acknowledged as a key milestone during infancy (Erikson, 1995) and underpins the development of secure attachment styles (Bridges, 2003). The significance of trust for children's understanding of their social and nonsocial worlds has been widely documented (see Fusaro & Harris, 2008; Harris, 2007; Lecciso, Petrocchi, Liverta-Sempio, & Marchetti, 2011). In that vein, a growing body of research has shown that interpersonal trust promotes the development and maintenance of social relationships during childhood, as well as across the lifespan (Rotenberg 2010; Rotter, 1971, 1980).

Cultural specific conceptualizations of trust have also emerged; for example, the distinction between generalized trust and assurance in Japan (Yamagishi, 2002). Generalized trust pertains to the belief that most individuals can be trusted whereas assurance occurs through the formation of close relationships when trust develops because of a sense of commitment towards the interaction partner that emerges from the relationship (Igarashi et al., 2008; Rothbaum, Pott, Azuma, Miyake, & Weisz, 2000; Yamagishi, Kikuchi, & Kosugi, 1999). Rothbaum and Trommsdorff (2007) argued that whilst generalized trust and assurance both emerge from experiences during infancy, the distinction between generalized trust and assurance could explain differences in experiences of relatedness. Specifically, Western theorists equate relatedness with generalized trust whereas Eastern theorists equate relatedness with assurance. This distinction has been used to explain why although trust is believed to be universal it often takes different culturally specific forms (Rothbaum & Trommsdorff, 2007).

According to the bases, domains, and targets (BDT) interpersonal trust framework, trust comprises three components (among others): Cognitive/affective (i.e., trust beliefs), behavior-enacting (i.e., ascribed trustworthiness), and reciprocity (Rotenberg, 1994, 2010). Social relations analyzes have yielded evidence for those components in 5- to 8-year-olds from the UK (Betts & Rotenberg, 2008). The BDT interpersonal trust framework posits that the three components of trust are universal across different cultures during childhood. However, it remains to be determined whether or not this assumption is correct and, if so, whether or not the components of trust are found to an equal extent across samples from different countries. The current investigation was designed to address those questions by utilizing social relations analyzes to examine the prevalence of the three components of trust in 8- to 11-year-olds from three countries. The three countries represented cultures that varied along valuing personal goals to societal goals and the individualistic-collectivist dimensions (see Chen & Eisenberg, 2012; Hofstede, 2001): UK, Italy, and Japan.

Trust was conceptualized, in the current investigation, according to Rotenberg's (1994, 2010) BDT interpersonal trust framework. Of particular relevance to the current study were the three bases which are: (a) reliability, comprising fulfillment of words or promises; (b) emotional, comprising refraining from causing emotional harm and not maintaining confidentiality; and (c) honesty, comprising telling the truth and engaging in behavior guided by benevolent intention. The BDT interpersonal trust framework includes the cognition/affect domain that reflects individuals' beliefs/feelings regarding the three bases of trust (e.g., beliefs that others keep promises) and the behavior-enacting domain that reflects individuals behaviorally engaging in the three bases of trust (e.g., keeping promises). The bases and domains are characterized by two target dimensions: Familiarity (ranging from slightly to highly familiar) and specificity (ranging from specific to general others). Finally, according to the BDT interpersonal trust framework, trust entails reciprocal processes

whereby there is a tendency for the trust beliefs and ascribed trustworthiness of one partner to be matched by the other person in the dyad.

The BDT interpersonal trust framework complements the social relations model (SRM) developed by Kenny and his colleagues (Kenny, Kashy, & Cook, 2006; Kenny & La Voie, 1984; Kenny, 1994a, 1994b; Malloy & Kenny, 1986; Warner, Kenny, & Stoto, 1979). The SRM is an analytical tool that, through partitioning the variance within dyadic relationships, allows conclusions to be drawn regarding how much variance is due to: (a) The characteristics of the individuals in the dyad and (b) the unique relationship between the dyad members (Kenny et al., 2006). The SRM partitions variance within a dyadic relationship, for the specified behavior, in to actor (the ratings an individual awards their interaction partners, i.e., trust beliefs according to the BDT interpersonal trust framework), partner (the ratings an individual elicits from their interaction partners, i.e., ascribed trustworthiness according to the BDT interpersonal trust framework), and relationship (the unique ratings between interaction partners). The SRM also examines dyadic reciprocity of the behavior.

Researchers have used the SRM to examine children's: Peer liking (Betts, Rotenberg, Trueman, & Stiller, 2012; Zimmer-Gembeck, Waters, & Kindermann, 2010), desirability as a playmate and work partner (Simpkins & Parke, 2002; Whitley, Schofield, & Snyder, 1984), conflict (Ross & Lollis, 1989), and proactive aggression and hostile attributions towards peers (Coie et al., 1999; Hubbard, Dodge, Cillessen, Coie, & Schwartz, 2001) demonstrating the suitability of the model to examine aspects of children's peer relationships. Further, Kenny and his colleagues (Kenny, 2007; Kenny & La Voie, 1984) argued that the social relations analysis was an appropriate statistical technique to investigate the components of trust because trust is a dyadic variable. Through the application of the SRM, Betts and Rotenberg (2008) identified the three components of trust in 5- to 8-year-olds in the UK: Individual differences in children's trust beliefs (represented in the SRM as actor variance),

individual differences in children's ascribed trustworthiness (represented in the SRM as partner variance), and dyadic reciprocity of trust. Further, for groups comprising class-wide peers and same-gender peers, the results indicated that young children's trust was most strongly a dyadic phenomena with evidence of reciprocal promise-keeping and secret-keeping. The present research examined the replicability of Betts and Rotenberg's earlier findings with 8- to 11-year-olds from the UK and made comparisons with children from Italy and Japan.

The research examining the nature of children's trust and the psychosocial consequences of trust has tended to be conducted by researchers in the UK, Canada, and North America (e.g., Betts & Rotenberg, 2007, 2008; Betts, Rotenberg, & Trueman, 2009a; Fusaro & Harris, 2008; Harris, 2007; Imber, 1973; Rotenberg, 1984, 1986; Rotenberg, et al., 2010; Rotenberg, McDougall, et al., 2004; Rotenberg, Michalik, Eisenberg, & Betts, 2008). Nevertheless, there are lines of research examining trust that has been conducted with children in Japan (e.g., Sakai, 2002; Sakai et al., 2003; Sakai, Sugawara, Maeshiro, Amou, & Takuma, 2002; Sakai, Sugawara, Maeshiro, Sugawara et al., 2002; Takakura, 2011; Yamamura, 2011), and Italy (e.g., Lecciso et al., 2011). Together, these researchers have reported that across childhood trust and ascribed trustworthiness was associated with, and predictive of, aspects of psychosocial and school adjustment. However, the extent to which the paradigm of trust and the components of trust identified in Rotenberg's (1994, 2010) BDT interpersonal trust framework are conceptually similar across countries remains unclear and, as such, was examined in the present study. For the purpose of the present research, same-gender peer groups based on the children's class membership were created. Same-gender peers were selected because children from around the age of three tend to predominately socialize with their same-gender peers until adolescence (Hay, Payne, & Chadwick, 2004).

Examining the paradigm of children's trust across cultures and countries is appropriate because although general principles of trust may emerge that are common across countries these are likely to be influenced by social and cultural circumstances (Zhang & Pelletier, 2012). Further, Oishi, Kurtz, Miao, Park, and Whitchurch (2011) have argued that culture should not be overlooked during development. Cultural beliefs and norms are influential in how children interpret the acceptability of behaviors (Rubin, 1998) and how children's behavior is evaluated by their interaction partners (Rubin et al., 2006). Focusing on children's general peer relationships, both cultural similarities and differences have been reported in 8- to 10-year-olds' peer relationships from Canada and China (Chen, Rubin, & Sun, 1992). Specifically, commonalities emerged with sociability-leadership qualities being associated with peer acceptance in both samples; although, for Chinese children only shyness-sensitivity was associated with peer acceptance.

Comparable mixed findings between countries have been reported in concepts aligned to trust. For example, commonalities occur across cultures in 7- to 11-year-olds' understanding of labeling lies and truths accurately and appropriately (Fu et al., 2007). However, differences emerged according to the motives of truth telling: Chinese children rated truth telling to help an individual and damage a group less positively than Canadian children. Further, 7- to 11-year-olds from China and Canada rated truth telling positively and lying negatively when protagonists intentionally carried out a 'bad' deed whereas Chinese children rated truth telling less positively and lying more positively in vignettes where the protagonist intentionally carried out a 'good' deed (Lee et al., 1997). Lee et al. argued that their findings reflected social and cultural norms governing truth telling and lying. In support of this argument, cultural differences have been reported in children's moral evaluations with regards to good deeds (Lee et al., 2001). Specifically as children from China and Taiwan age, they increasingly became aware of the culturally appropriate need to be modest and, as

such, lying to cover up one's own good deeds in a prosocial situation was rated more positively with age. In comparison, children from Canada rated such behavior negatively. Further, 6- to 11-year-olds from China were less likely to disclose a peer's performance that was similar to their own compared to children from America (Heyman, Fu, & Lee, 2008). Also, the reported motives for disclosure differed: American children were more likely to disclose to a friend who had performed less well to give the message of supremacy over their friend whereas Chinese children were more likely to disclose with the goal of helping their friend improve.

Together these studies suggest that whilst there are commonalities across cultures in children's understanding of the paradigm of trust, as Zhang and Pelletier (2012) argue, differences also emerged based on the social and cultural expectations. In support of this proposition, Chen (2012) suggested that the culturally specific social processes children are exposed to shape the function and structure of the peer group that they belong to. Further, peer groups also develop normative expectations that govern their interactions (Galvan, Spatzier, & Juvonen, 2011; Kwon & Lease, 2009; Nesdale et al., 2009) and in collectivist cultures the importance of relying on the wider social network is taught from an early age (Rothbaum & Trommsdorff, 2007). Therefore, the present research systematically examined the phenomenon of children's trust in the UK, Italy, and Japan. The UK, Italy, and Japan were selected to represent various levels of the individualism-collectivism dimension. Hofstede (2001) placed the UK as 3rd, Italy as 7th, and Japan as joint 22nd in a list of 50 countries with a propensity to engage in individualistic behavior. Being exposed to a predominantly individualistic culture may influence children's propensity to trust others, especially in conditions when there are reduced opportunities for monitoring and control of the interaction partner (Yamagishi, 2003). For example, cultures with lower levels of individualism may value disclosure to protect the group and, as such, may place less

emphasis on secret-keeping.

The present research also examined gender differences in children's trust across the different countries. There are theoretical reasons to expect gender differences in the components of children's trust because of the differing nature of children's peer relationships (Erwin, 1995). Specifically, because girls tend to favor more intimate relationships, girls may experience greater demands to engage in trustworthy behavior, particularly secret-keeping and, as such, may have higher trust beliefs and trustworthiness than boys (Betts & Rotenberg, 2007). In support of this line of evidence, Italian adolescent girls reported higher trust in their peers when trust was assessed as part of an attachment measure to peers than boys (Pace, San Martini, & Zavattini, 2011). Further, Wilson and Carroll (1991) reported gender differences in 10- to 12-year-olds ascribed trustworthiness with girls receiving significantly higher ratings of same-gender peer-reported and teacher-reported trustworthiness than boys. Similarly, girls tend to have higher scores on peer-reported trustworthiness measures than boys (Rotenberg, McDougall et al., 2004). Betts and Rotenberg (2007) argued that girls may score higher than boys on ascribed trustworthiness measures because engaging in trustworthy behavior for girls is necessary to maintain the close relationships with their peers that they are socialized to develop (Berndt & Perry, 1986; Furman & Bierman, 1984). However, the extent to which these gender differences emerge in children from different cultures remains unclear.

The present research focused on the reliability and emotional bases of Rotenberg's (1994, 2010) BDT interpersonal trust framework and operationalized these bases as promise-keeping and secret-keeping trust respectively, because children can readily and reliably report those activities (Betts & Rotenberg, 2008; Rotenberg et al., 2008). The present research examined whether: (1) the components of trust could be identified separately in children from the UK, Italy, and Japan using the SRM; (2) at a country level there were gender differences

in the children's trust beliefs and ascribed trustworthiness; and (3) across countries there were variations in the strength of children's trust beliefs and ascribed trustworthiness. It was expected that the components of trust in peers would be identifiable in each sample similar to the findings of Betts and Rotenberg (2008). Although no direct predictions were made concerning potential differences in the relative contribution of the various components of trust, differences between countries were expected because of the tendency for cultures with a societal orientation to encourage children to share personal information within the peer group rather than selectively within dyads (Dien, 1999). Therefore, the components of secret-keeping were likely to be stronger in children from Japan because of the relative value of collectivism and disclosure in Japan (Hofstede, 2001) when the conditions are optimal (Yamagishi, 2003) compared to children from the Italy and the UK. Gender differences were expected for children's reports of same-gender peer trust beliefs and same-gender peer-trustworthiness for promise-keeping and secret-keeping.

Method

Participants

UK. The participants were 215 children (109 boys and 106 girls, $M_{\text{age}} = 9$ years 3 months, range 8- to 10-years) from 9 classrooms across 5 primary schools in the Midlands UK. Together the schools had catchment areas that covered a diverse range of socioeconomic status and the participants were prominently from a European White background.

Italy. The Italian sample comprised 366 children (184 boys and 182 girls, $M_{\text{age}} = 9$ years 9 months, range 8- to 11-years). The children were enrolled in 25 fourth, fifth, and sixth grade Italian classrooms drawn from 5 schools that primarily served middle class neighborhoods. All the participants were Italian citizens with a European White background.

Japan. The participants were 101 children (59 boys and 42 girls, $M_{\text{age}} = 8$ year 10 months, range 8- to 10-years). The participants were from three classrooms at the biggest elementary school in a rural area of Japan. All of the participants were Asian except for a mixed-raced child.

Across all samples schools were identified that had classrooms with children aged between 8 and 11 and were then selected on a convenience basis.

Measures

Ratings of promise-keeping. Similar to the procedure developed by Rotenberg and colleagues (Betts & Rotenberg, 2007; Rotenberg, MacDonald, & King, 2004), children were asked to report "how often each classmate keeps promises he/she had made" on a 5-point scale ranging from 1 (*Never*) to 5 (*Always*) as an indicator of reliability trust in their same-gender peers. Prior to completing the measure the participants were told that keeping a promise is "when someone said he or she would do something and did it."

Ratings of secret-keeping. Following Rotenberg and colleagues' (Betts & Rotenberg, 2007; Rotenberg, MacDonald et al., 2004) procedure to assess emotional trust, children were asked to report "how often each classmate keeps secrets he/she had been told" on a 5-point scale ranging from 1 (*Never*) to 5 (*Always*) for their same-gender classmates. Prior to completing the measure, the children were told that keeping a secret is "when a person was told something that he or she should not tell others and didn't tell anyone".

To assess the validity of the promise-keeping and secret-keeping ratings, children from each country completed four modified items from the peer subscale of the Children's Generalized Trust Belief scale (Rotenberg et al., 2005). The items assessed generalized trust beliefs as promise-keeping (e.g., "Your friend said he/she will meet you after school to do homework with you. Do you think your friend will do homework together with you?") and secret-keeping (e.g., "You bought a birthday gift for a child in your class. You asked your

friend not to tell anybody else about the gift as a surprise. Do you think your friend will not to tell anybody about the birthday gift?") in peers using a five-point scale ranging from 1 (*I definitely don't think so*) to 5 (*I definitely think so*). The association between the generalized trust beliefs scale score and the aggregate ratings of promise-keeping and secret-keeping attained or approached significance for the UK sample across gender, $r(277) = .13, p = .033$, the Japanese sample, $r(201) = .14, p = .056$, and for the Italian sample, $r(187) = .20, p = .050$.

Procedure

Participants completed the measures of promise-keeping, secret-keeping, and generalized trust independently in class groups. The participants were also informed that it was not a test and there were no correct answers. For the Italian and Japanese samples, the promise-keeping, secret-keeping, and generalized measures were translated in to Italian and Japanese respectively and then back translated in to English.

Consent for all samples was initially gained from the head teachers of the participating schools and letters were sent to parents informing them of the study. For the UK sample, parents were asked to notify the school if they did not want their children to participate in the research. For the Italian and Japanese sample, parents were asked to notify the school if they did want their children to participate. For all samples, children were asked to give their assent before taking part in the research.

Results

Identifying the components of children's trust

The children's promise-keeping and secret-keeping reports were analyzed using round robin social relations analyzes conducted separately for each sample. A round robin analysis allows all of the dyadic combinations within the group to be explored because individuals can rate, and be rated by, all group members. Therefore, such analysis provides a "richer" picture of the social interactions compared with the other SRM techniques (Kenny et al., 2006) and,

as such, more closely reflects the nature of classroom interactions (Betts & Rotenberg, 2008; Betts et al., 2012).

The analysis was conducted using the specialist WinSoremo software (Kenny & Xuan, 2002) to partition the variance in to actor, partner, and relationship/error. As data was available for two related indicators of trust for each sample, a construct of trust was created to separate the relationship variance from the error variance. The groups were derived from the participating classrooms and split according to the children's gender.

For the analysis of the UK sample, there were 18 groups that ranged in size from 7 to 18 ($M = 11.78$, $SD = 3.56$). For the analysis of the Italian sample, there were 46 groups that ranged in size from 4 to 16 ($M = 8.07$, $SD = 2.94$). For the analysis of the Japanese sample, there were 6 groups that ranged in size from 13 to 22 ($M = 16.83$, $SD = 3.43$). Therefore, the size and number of groups exceed the recommendations of Kenny et al. (2006) to achieve power of .80. The variations in group size and number across the samples did not influence the outcome of the social relations analysis as the variance calculations are predicated on infinite numbers of raters (see Kenny, 1994a).

The results of the simple variance partitioning by country are shown in Table 1. The various components of trust could be identified for promise-keeping, secret-keeping, and the construct of trust across all three samples. Specifically, there was evidence that a significant proportion of the variance in promise-keeping, secret-keeping, and the trust construct was accounted for by actor variance (ratings of trust awarded to others termed trust beliefs in previous research), partner variance (ratings of trust elicited from others termed ascribed trustworthiness in previous research), and relationship variance (the unique ratings between interaction partners) across all samples. Together, these results suggest that 8- to 11-year-olds from the UK, Italy, and Japan, trust has common traits with regard to the ratings of trust

awarded to others, the ratings of trust elicited from others, and the unique relationship between interaction partners.

For promise-keeping, the proportion of variance accounted for by actor and partner variance was similar across the samples suggesting reliable differences in the children's same-gender promise-keeping trust beliefs (actor variance) and ascribed trustworthiness (partner variance). For children from the UK promise-keeping partner variance was higher than the promise-keeping actor variance, whereas for children from Italy and Japan the promise-keeping actor variance was higher than the promise-keeping partner variance (see Table 1). The largest proportion of the variance for promise-keeping was accounted for by relationship/error variance. There was evidence of dyadic reciprocity suggesting that the children match their expressions of promise-keeping.

For secret-keeping, the proportion of variance accounted for by actor and partner variance was similar for the UK and Italian sample, although it was greater for the Japanese sample. Together, these results suggest that reliable differences in the children's same-gender secret-keeping trust beliefs (actor variance) and ascribed trustworthiness (partner variance) could be identified across all samples (see Table 1). The largest proportion of the variance for secret-keeping was accounted for by relationship/error variance. There was also evidence of dyadic reciprocity of secret-keeping in the children from the UK and Italy, although not Japan.

For the construct of trust, the results revealed that the actor, partner, and relationship components of the dyadic relationship each accounted for a significant proportion of the variance in the children's trust, across all of the samples. Therefore, according to the social relations analysis there were reliable differences in the children's: (a) Same-gender peer trust beliefs; (b) same-gender ascribed trustworthiness; and, (c) the unique nature of the relationship respectively ($p < .05$). Further, by comparing the proportion of variance

accounted for within the dyadic relationship, the results revealed that across all samples trust was most strongly a dyadic variable that was influenced by the nature of the relationship.

Differences also emerged in the relative importance of actor and partner variance across the samples, with the actor variance being greater and the partner variance lower in the Japanese sample than the comparable variance in the other samples.

Insert Table 1 about here

Base of trust, gender, and country differences for the components of trust

A 2 x 2 x 3 (Base of Trust [promise keeping, secret keeping] x Gender [male, female] x Country [UK, Italy, Japan]) mixed ANOVA was used to examine differences in the children's individual actor effects yielded from the social relations analysis (representing same-gender peer trust beliefs, see Table 2 for the ANOVA summary table and Table 3 for descriptives). Base of Trust was the only repeated measure. There were significant main effects of Base of Trust, Gender, and Country: The ratings of secret-keeping trust beliefs awarded to same-gender peers were significantly higher than the ratings of promise-keeping trust beliefs awarded to same-gender peers, males scored significantly higher than females, and children from Japan had significantly higher same-gender trust beliefs than children from the UK and Italy, $p < .05$. There was also a significant Base of Trust x Gender x Country interaction. The interaction occurred because boys from Japan had higher actor effects for secret-keeping compared to promise-keeping than boys from the UK and Italy, $F(2,678) = 19.32, p < .001$.

Insert Table 2 and Table 3 about here

A 2 x 2 x 3 (Base of Trust [promise keeping, secret keeping] x Gender [male, female] x Country [UK, Italy, Japan]) mixed ANOVA was also used to examine differences in the children's individual partner effects yielded from the social relations analysis (representing same-gender ascribed trustworthiness, see Table 4 for the ANOVA summary table and Table 3 for the descriptives). Base of trust was the only repeated measure. There were significant main effects of Country: Children from Japan elicited significantly higher ratings of ascribed trustworthiness from their same-gender peers than children from the UK and Italy, $p < .05$. There was also a significant Base of Trust x Gender x Country interaction. The interaction occurred because boys from Japan had higher same-gender ascribed trustworthiness for secret-keeping compared to promise-keeping than boys from the UK and Italy, $F(2,678) = 20.12, p < .001$.

 Insert Table 4 about here

Discussion

In summary, across 8- to 11-year-olds from the UK, Italy, and Japan there was clear evidence that the components of trust identified in Rotenberg's (1994, 2010) BDT interpersonal trust framework could be separately identified using social relations analyzes. Additionally, across all samples, the results of the social relations analyzes suggested that children's trust was most strongly a dyadic phenomenon that was largely influenced by the nature of the relationship. Together these results suggested that for children, the underlying components of trust are somewhat universal.

Through the application of the SRM, it was also possible to separately identify the relative importance of children's trust beliefs and ascribed trustworthiness from the variance within the dyads, and the relative proportion of these varied according to the sample and facet

of trust. Specifically, the proportion of variance accounted for by children's trust beliefs and ascribed trustworthiness was greatest for children in Japan, especially for secret-keeping ascribed trustworthiness. These differences may reflect cultural differences with regard to normative expectations of trust and cultural differences with regard to appropriate disclosure (Dien, 1999). For example, previous research has highlighted cultural differences in the appropriateness of the underlying motives of truth telling and lying (Fu et al., 2007; Heyman et al., 2008; Lee et al., 1997; Lee et al., 2001). Further, the culturally specific social processes that children are exposed to (Chen, 2012) may have been reflected in the differences in the children's trust reported across the various samples in the present study. The finding that secret-keeping ascribed trustworthiness was higher in children from Japan may have also reflected that those children developed a sense of assurance in their same-sex peers because of the sense of commitment that emerged from the relationship (Igarashi et al., 2008; Rothbaum et al., 2000).

There was also evidence of significant reciprocal trust for promise-keeping and secret-keeping in all samples, except for secret-keeping in children from Japan, providing further evidence that trust is likely reciprocated (Rotenberg, 2010). The lack of significant reciprocal secret-keeping in children from Japan may reflect the nature of the wider society they lived in and how that impacted on trust. As Japan can be regarded as a 'tight' culture, because it has strong societal norms (Gelfand, Nishii, & Raver, 2006), this may have influenced children's development of trust in their same-gender peers. Specifically, it has been argued that in cultures that are characterized as tight the strong societal norms result in individuals relying less on interpersonal trust and focus more on trust in institutions (Gunia, Brett, Nandkeolyar, & Kamdar, 2011). Moreover, reciprocal trust in individuals from Japan is predicated on cooperation when mutual monitoring and control are possible of the interaction partner

(Yamagishi, 2003) and because of the nature of the children's social groups, these conditions may not have been met.

As further evidence of the universality of the components of trust, and in support of the conceptualization of the bases and domains in Rotenberg's (1994, 2010) BDT interpersonal trust framework, the components of trust were identifiable when different indicators of trust and different social groups were examined. Specifically, there was evidence that trust beliefs and ascribed trustworthiness could be separately identified for both promise-keeping and secret-keeping in same-gender peers in all samples. This finding supported Rotenberg's BDT interpersonal trust framework that conceptualized trust as involving cognitions and behaviors that can be identified in a range of targets. Further, the ability to distinguish between trust beliefs and ascribed trustworthiness for promise-keeping and secret-keeping supported the claim that promise-keeping and secret-keeping are appropriate indicators of children's trust for the reliability and emotional bases of the BDT interpersonal trust framework, respectively (Betts & Rotenberg, 2008; Betts, Rotenberg, & Trueman, 2009b). However, the variation that emerged across the samples with regard to the amount of variance that could be accounted for by trust beliefs, ascribed trustworthiness, and dyadic trust across children's same-gender peer relationships suggests that researchers need to be sensitive to cultural specific definitions of trust such as the distinction between generalized trust and assurance in Japan (Igarashi et al., 2008; Rothbaum et al., 2000) in future research. Rotenberg's BDT interpersonal trust framework could also be refined to take in to acknowledge that trust relationships operate in the context of these societal norms.

Together, the findings of the current study indicate that there are indeed some commonalities in children's trust across culture and reinforce Bernath and Feshbach's (1995) proposition that children's trust represents a personality trait. Specifically, Bernath and Feshbach argue that children develop trust as part of their early social interactions and the

response children develop to risk, and through these social interactions a sense of trust is internalized such that it becomes part of the individual's personality, although longitudinal studies are required to fully examine this proposal. The universal patterns of trust identified in the current study, also supported Erikson's (1995) proposition that trust is a key developmental stage. Building on Erikson's theory, Szcześniak, Colaço, and Rondón (2012) argued that children's ability to trust others allows them to deal with new situations with confidence. Similarly, attachment theory suggested that experiencing consistent and dependable caregiving fosters a sense of trust (Bridges, 2003; Mikulincer, 1998) with trust pivotal for the development of secure attachments (Bowlby, 1969).

The present study also identified gender differences in children's peer trust beliefs, with boys having higher levels of same-gender trust than girls, as assessed by the actor effects yielded from the social relations analysis. Although we predicted gender differences in the children's same-gender peer trust beliefs, the direction of this difference was contrary to expectation. Specifically, we had expected that girls would have higher levels of trust beliefs and ascribed trustworthiness than boys because of the importance of trust and ascribed trustworthiness for girls' social relationships (Betts & Rotenberg, 2007). However, the current findings may have emerged because of changes to the peer networks according to age (Galvan et al., 2011). Further, the gender differences identified in the current study may reflect cultural differences in the children's peer groups more generally. It is likely that peer groups fulfill different roles with those in collectivist cultures and cultures high in family values placing less importance on the peer group than those from individualistic cultures where the peer group provides children with a source of individuation and intimacy (Schwarz et al., 2012).

Same-gender peer groups were the focus of the present research. However, while children tend to primarily interact with their same gender peers (Hay et al., 2004), more

recently researchers have advocated examining same-gender peer relationships in the context of class-wide peer relationships (Howes, 2010; Maassen, van Boxtel, & Goossens, 2005). Specifically, children's same-gender peer relationships often occur in the broader context of the classroom which can be regarded as somewhat of an institutional peer group (Howes, 2010). Consequently, future research should examine trust in a broader context of social groups to further explore the universality of the components of trust because there is evidence these components extend beyond children's same-gender peer relationships. Future research should also further examine how children from different cultures conceptualize trust and whether these different conceptualizations are associated with promise-keeping and secret-keeping.

The present research added further support to Kenny and his colleagues' (Kenny, 2007; Kenny & La Voie, 1984) claims that the SRM is an appropriate analytical tool for dyadic trust and extended the previous research examining children's trust using the SRM (Betts & Rotenberg, 2008; Betts, Rotenberg, & Trueman, 2010) through examining older children's trust from a range of cultures. However, it is important to acknowledge that the SRM is not without limitations. For example, the model does not test the strength of the dyadic reciprocity within the relationships and also assumes that the reciprocal effects within the context of the relationships are linear in nature (Kenny et al., 2006; Kenny & La Voie, 1984). Further, the SRM does not take in to account the potential effects that individuals beyond the dyad may have on the members of the dyad but rather the SRM assumes that individuals are not influenced by the actions of dyads that they are not part of (Kenny & La Voie, 1984). However, it is possible that the children's trust behavior within dyads may be influenced by the reputation that they have at a class level and this may be particularly salient for societal orientated cultures. Consequently, in order to overcome this limitation we asked the children to provide their ratings individually and not to disclose their responses. The samples from

each of the countries also represented relatively homogenous groups with regard to social economic status; therefore, future research should examine children's trust with more heterogeneous samples. There was also variation in the number and size of the class groups according to country with the sample from Japan having the fewest groups which may have contributed to the differences in trust identified across countries. However, Lashley and Kenny (1998) advocated, using fewer larger groups generates more data per group and, as such, the parameter estimates are more stable than a larger number of smaller groups. Further, across all of the samples, the number and size of groups exceeded the recommendation of 5 groups of 12 and 3 groups of 12 to achieve a power of .80 for actor variance and partner variance respectively (Kenny et al., 2006).

The present research provided evidence of the potential universal nature of the components of children's trust. Given that trust is such an important variable for the development and maintenance of social and societal relationships (Rotter, 1971, 1980) and the importance of trust for psychosocial adjustment (Barefoot, Maynard, Beckham, Brummett, & Siegler, 1998; Fletcher, Simpson, Thomas, & Giles, 1980), trust interventions should be further refined to promote harmonious social interactions such that there is a propensity to develop trusting orientations when interacting with others. Further, the universal nature of trust also could have implications for the development of interventions to promote intergroup harmony similar to those proposed by Turner et al. (2010).

In conclusion, across the three samples, there was evidence that the components of children's trust could be separately identified using the social relations analysis demonstrating the replicability and durability of the components of children's trust across cultures varying in the societal versus person orientated dimension. Specifically, individual differences in the children's trust beliefs, ascribed trustworthiness, and dyadic reciprocity of trust emerged in children from the UK, Italy, and Japan, although there was some cultural

variation in the relative contribution of these components. Further, across all samples it was evident that children's trust was influenced by the context of the relationship. Together, these findings suggest that trust and the components of trust can be regarded as a universal phenomenon.

References

- Barefoot, J. C., Maynard, K. E., Beckham, J. C., Brummett, B. H. H. K., & Siegler, I. C. (1998). Trust, health and longevity. *Journal of behavioral medicine, 21*, 517-526.
- Berndt, T. J., & Perry, T. B. (1986). Children's perception of friendships as supportive relationships. *Developmental Psychology, 22*, 640-648.
- Bernath, M. S., & Feshbach, N. D. (1995). Children's trust: Theory, assessment, development, and research directions. *Applied & Preventive Psychology, 4*, 1-19.
- Betts, L. R., & Rotenberg, K. J. (2007). Trustworthiness, friendship and self-control: Factors that contribute to young children's school adjustment. *Infant and Child Development, 16*, 491-508. doi: 10.1002/icd.518
- Betts, L. R., & Rotenberg, K. J. (2008). A social relations analysis of young children's trust in their peers across the early years of school. *Social Development, 17*, 1039-1055. doi:10.1111/j.1467-9507.2008.00479.
- Betts, L. R., Rotenberg, K. J., & Trueman, M. (2009a). An investigation of the impact of young children's self-knowledge of trustworthiness on school adjustment: A test of the Realistic Self-Knowledge and Positive Illusion models. *British Journal of Developmental Psychology, 27*, 405-424. doi: 10.1348/026151008X329517
- Betts, L. R., Rotenberg, K. J., & Trueman M. (2009b). The early childhood generalised trust belief scale. *Early Childhood Research Quarterly, 24*, 175-185. doi: 10.1016/j.ecresq.2008.10.002
- Betts, L. R., Rotenberg, K. J., & Trueman, M. (2010). The application of dyadic level analyses to examine young children's specific trust beliefs, peer-reported trustworthiness and reciprocity of trust (pp. 110-132). In K. J. Rotenberg (Ed.), *Interpersonal trust during childhood and adolescence*. Cambridge, Cambridgeshire: Cambridge University Press.

- Betts, L. R., Rotenberg, K. J., Trueman, M., & Stiller, J. (2012) Examining the components of children's peer liking as antecedents of school adjustment. *British Journal of Developmental Psychology, 30*, 303-325. doi: 10.1111/j.2044-835X.2011.02041.x
- Bowlby, J. (1969). *Attachment and loss volume 1: Attachment*. London: The Hogarth Press
- Bridges, L. J. (2003). Trust, attachment, and relatedness. In M. H. Bornstein, L. Davidson, C. L. M. Keyes, & K. A. Moore (Eds), *Well-being: Positive development across the life course* (pp. 177-189). Mahwah: Lawrence Erlbaum Associates, Publishers.
- Chen, X. (2012). Culture, peer interaction, and socioemotional development. *Child Development Perspectives, 6*, 27-34. doi: 10.1111/j.1750-8606.2011.00187.x
- Chen, X., & Eisenberg, N. (2012). Understanding cultural issues in child development: Introduction. *Child Development Perspectives, 6*, 1-4. doi: 10.1111/j.1750-8606.2011.00217.x
- Chen, X., Rubin, K. H., & Sun, Y. (1992). Social reputation and peer relationships in Chinese and Canadian children: A cross-cultural study. *Child Development, 63*, 1336-1343.
- Coie, J. D., Cillessen, A. H. N., Dodge, K. A., Hubbard, J. A., Schwartz, D., Lemerise, E. A., & Bateman, H. (1999). It takes two to fight: A test of relational factors and a method for assessing aggressive dyads. *Developmental Psychology, 35*, 1179-1188.
doi:10.1037/0012-1649.35.5.1179
- Dien, D. S-F. (1999). Chinese authority-directed orientation and Japanese peer-group orientation: Questioning the notion of collectivism. *Review of General Psychology, 3*, 372-385.
- Erikson, E. H. (1995). *Childhood and society*. London: Vintage.
- Erwin, P. (1995). *Friendship and peer relations in children*. Chichester, West Sussex: John Wiley & Sons.

- Fletcher, G. O., Simpson, J. A., Thomas, G., & Giles, L. (1999). Ideals in intimate relationships. *Journal of Personality and Social Psychology, 76*, 72–89
- Fu, G., Xu, F., Cameron, C. A., Heyman, G., & Lee, K. (2007). Cross-cultural differences in children's choices, categorizations, and evaluations of truths and lies. *Developmental Psychology, 43*, 278-293. doi: 10.1037/0012-1649.43.2.278
- Furman, W., & Bierman, K. L. (1984). Children's conceptions of friendship: A multimethod study of developmental changes. *Developmental Psychology, 20*, 925–931.
- Fusaro, M., & Harris, P. L. (2008). Children assess informant reliability using bystanders' non-verbal cues. *Developmental Science, 11*, 771-777. doi: 10.1111/j.1467-7687.2008.00728.x
- Galvan, A., Spatzier, A., & Juvonen, J. (2011). Perceived norms and social values to capture school culture in elementary and middle school. *Journal of Applied Developmental Psychology, 32*, 346-353. doi: 10.1016/j.appdev.2011.08.005
- Gelfand, M. J., Nishii, L. H., Raver, J. L. (2006). On the nature and importance of cultural tightness-looseness. *Journal of Applied Psychology, 91*, 1225-1244. doi: 0.1037/0021-9010.91.6.1225
- Gunia, B. C., Brett, J. M., Nandkeolyar, A. K., & Kamdar, D. (2011). Paying a price: Culture, trust, and negotiation consequences. *Journal of Applied Psychology, 96*, 774-789. doi: 10.1037/a0021986
- Harris, P. L. (2007). Trust. *Developmental Science, 10*, 135-138. doi: 10.1111/j.1467-7687.2007.00575.x
- Hay, D. F., Payne, A., & Chadwick, A. (2004). Peer relations in childhood. *Journal of Child Psychology and Psychiatry, 45*, 84-108. doi:10.1016/S0022-4405(03)00048-7

- Heyman, G. D., Fu, G., & Lee, K. (2008). Reasoning about the disclosure of success and failure to friends among children in the United States and China. *Developmental Psychology, 44*, 908-918. doi: 10.1037/0012-1649.44.4.908
- Hofstede, G. (2001). *Cultural consequences: Comparing values, behaviours, intentions, and organizations across nations*. Sage: Thousand Oaks, California.
- Howes, C. (2010). *Peer groups and children's development*. Chichester, West Sussex: Wiley-Blackwell.
- Hubbard, J. A., Dodge, K. A., Cillessen, A. H. N., Coie, J. D., & Schwartz, D. (2001). The dyadic nature of social information processing in boys' reactive and proactive aggressive. *Journal of Personality and Social Psychology, 80*, 268-280.
- Igarashi, T., Kashima, Y., Kashima, E. S., Farsides, T., Kim, U., Strack, F. ... Yuki, M. (2008). Culture, trust, and social networks. *Asian Journal of Social Psychology, 11*, 88-101. doi: 10.1111/j.1467-839X.2007.00246.x
- Imber, S. (1973). Relationship of trust to academic performance. *Journal of Personality and Social Psychology, 28*, 145-150. doi: 10.1037/h0035644
- Kenny, D. A. (1994a). *Interpersonal perception: A social relations analysis*. New York, NY: The Guilford Press.
- Kenny, D. A. (1994b). Using the social relations model to understand relationships. In R. Erber & R. Gilmour (Eds.), *Theoretical framework for personal relationship*. (pp. 111-127). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kenny, D. A. (2007). Soremo version 2. Retrieved from <http://davidakenny.net/progs/soremo.doc> accessed 16th December 2011
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.

- Kenny, D. A., & La Voie, L. (1984). The social relations model. *Advances in Experimental Social Psychology, 18*, 141-182. doi: 10.1016/S0065-2601(08)60144-6
- Kenny, D. A., & Xuan, A. (2002). Winsoremo [computer software].
- Kwon, K., & Lease, A. M. (2009). Children's social identification with a friendship group: A moderating effect on intent to conform to norms. *Small Group Research, 40*, 694-719. doi: 10.1177/1046496409346578
- Lashley, B. R., & Kenny, D. A. (1998). Power estimation in social relations analysis. *Psychological Methods, 3*, 328-338. doi: 10.1037//1082-989X.3.3.328
- Lecciso, F., Petrocchi, S., Liverta-Sempio, O., Marchetti, A. (2011) Un contributo per un nuovo strumento di misura della fiducia tra affetti e mentalizzazione: la Trust Story. *Psicologia Clinica dello Sviluppo, 15*, 63-94.
- Lee, K., Cameron, C. A., Xu, F., Fu, G., & Board, J. (1997). Chinese and Canadian children's evaluations of lying and truth telling: Similarities and differences in the context of pro-and antisocial behaviors. *Child Development, 68*, 924-934.
- Lee, K., Xu, F., Fu, G., Cameron, C. A., & Chen, S. (2001). Taiwan and Mainland Chinese and Canadian children's categorization and evaluation of evaluation of lie- and truth-telling: A modesty effect. *British Journal of Developmental Psychology, 19*, 525-542.
- Maassens, G. H., van Boxtel, H. W., Goossens, F. A. (2005). Reliability of nominations and two-dimensional rating scale methods for sociometric status determination. *Applied Developmental Psychology, 26*, 51-68. doi:10.1016/j.appdev.2004.10.005
- Malloy, T. E., & Kenny, D. A. (1986). The social relations model: An integrative method for personality research. *Journal of Personality, 54*, 199-225. doi:10.1111/1467-6494.ep8970547

- Mikulincer, M. (1998). Attachment working models and the sense of trust: An exploration of interaction goals and affect regulation. *Journal of Personality and Social Psychology, 74*, 1209-1224.
- Nesdale, D., Maass, A., Kiesner, J., Durkin, K., Griffiths, J., & James, B. (2009). Effects of peer group rejection and a new groups' norms on children's intergroup attitudes. *British Journal of Developmental Psychology, 27*, 799-814. doi: 10.1348/026151008X381690
- Oishi, S., Kurtz, J. L., Miao, F. F., Park, J., & Whitchurch, E. (2011). The role of familiarity in daily well-being: Developmental and cultural variation. *Developmental Psychology, 47*, 1750-1756. doi: 10.1037/a0025305
- Pace, C. S., San Martini, P., & Zavattini, G. C. (2011). The factor structure of the Inventory of Parent and Peer Attachment (IPPA): A survey of Italian adolescents. *Personality and Individual Differences, 51*, 83-88. doi: 10.1016/j.paid.2011.03.006
- Ross, H. S., & Lollis, S. P. (1989). A social relations analysis of toddler peer relationships. *Child Development, 60*, 1082-1091. doi:10.1111/1467-8624.ep9676123
- Rotenberg, K. J. (1984). Sex differences in children's trust in peers. *Sex Roles, 11*, 953-957.
- Rotenberg, K. J. (1986). Same-sex patterns and sex differences in the trust-values basis of children's friendships. *Sex Roles, 15*, 613-626.
- Rotenberg, K. J. (1994). Loneliness and interpersonal trust. *Journal of Social and Clinical Psychology, 13*, 152-173. doi: 10.1521/jscp.1994.13.2.152
- Rotenberg, K. J. (2010). The conceptualization of interpersonal trust: A basis, domain, and target framework. In K. J. Rotenberg (Ed.), *Interpersonal trust during childhood and adolescence* (pp. 25-59). Cambridge, Cambridgeshire: Cambridge University Press.
- Rotenberg, K. J., Addis, N., Betts, L. R., Corrigan, A., Fox, C., Hobson, Z., & Boulton, M. J. (2010). The relation between trust beliefs and loneliness from childhood to adulthood.

Personality and Social Psychology Bulletin, 36, 1086-1100. doi:

10.1177/0146167210374957

Rotenberg, K. J., Fox, C., Green, S., Ruderman, L., Slater, K., Stevens, K., & Carlo, G.

(2005). Construction and validation of a children's interpersonal trust belief scale. *British Journal of Developmental Psychology*, 23, 271-293. doi: 10.1348/026151005X26192

Rotenberg, K. J., MacDonald, K. J., & King, E. V. (2004). The relationship between

loneliness and interpersonal trust during middle childhood. *The Journal of Genetic Psychology*, 165, 233-249. doi: 10.3200/GNTP.165.3.233-249

Rotenberg, K. J., McDougall, P., Boulton, M. J., Vaillancourt, T., Fox, C., & Hymel, S.

(2004). Cross-sectional and longitudinal relations among peer-reported trustworthiness, social relationships, and psychological adjustment in children and early adolescents from the United Kingdom and Canada. *Journal of Experimental Child Psychology*, 88, 46-67. doi: 10.1016/j.jecp.2004.01.005

Rotenberg, K. J., Michalik, N., Eisenberg, N., & Betts, L. R. (2008). The relations among

young children's peer-reported trustworthiness, inhibitory control, asocial behavior, and preschool adjustment. *Early Childhood Research Quarterly*, 23, 288-298. doi: 10.1016/j.ecresq.2007.04.003

Rotter, J. B. (1971). Generalized expectancies for interpersonal trust. *American*

Psychologist, 26, 443-452. doi: 10.1111/j.1467-6494.1967.tb01454.x

Rotter, J. B. (1980). Interpersonal trust, trustworthiness and gullibility. *American*

Psychologist, 35, 1-7. doi: 10.1037/0003-066X.35.1.1

Rothbaum, F., Pott, M., Azuma, H., Miyake, K., & Weisz, J. (2000). The development of

close relationships in Japan and the United States: Paths of symbiotic harmony and generative tension. *Child Development*, 71, 1121-1142.

- Rothbaum, F., & Trommsdorff, G. (2007). Do roots and wings complement or oppose one another?: The socialization of relatedness and autonomy in cultural context. In J. E. Grusec & P. David (Eds.), *Handbook of socialization: Theory and Research*. (pp. 461-498). New York, NY: The Guildford Press.
- Rubin, K. H. (1998). Social and emotional development from a cultural perspective. *Developmental Psychology, 34*, 611-615. doi: 10.1037/0012-1649.34.4.611
- Rubin, K. H., Hemphill, S. A., Chen, X., Hastings, P., Sanson, A., Lo Coco, A., ... Cui, L. (2006). A cross-cultural study of behavioural inhibition in toddlers: East-West-North-South. *International Journal of Behavioral Development, 30*, 219-226. doi: 10.1177/01650254060666723
- Sakai, A. (2002). Negative life events in adolescence: The effects of inter-personal trust in significant others on mental health. *Bulletin of Faculty of Education and Human Sciences, 4*, 194-201.
- Sakai, A., Sugawara, M., Sugawara, K., Kijima, N., Maeshiro, K., Takuma, T., & Amou, Y. (2003). Twins' trust in parents in childhood and at puberty: A human behavioral genetics perspective. *Japanese Journal of Developmental Psychology, 14*, 191-200.
- Sakai, A., Sugawara, M., Maeshiro, K., Amou, Y., & Takuma, T. (2002). Negative life events in childhood and puberty: Role of children's trust in parents and siblings as protective factor of depression. *Journal of Mental Health, 48*, 71-83.
- Sakai, A., Sugawara, M., Maeshiro, K., Sugawara, K., & Kitamura, T. (2002). Parent child relations of mutual trust, trust in one's best friend, and school adjustment: Junior high school students. *Japanese Journal of Educational Psychology, 50*, 12-22.
- Schwarz, B., Mayer, B., Trommsdorff, G., Ben-Arieh, A., Friedlmeier, M., Lubiewska, K. ... Peltzer, K. (2012). Does the impact of parent and peer relationships for adolescents' life

satisfaction vary across cultures? *The Journal of Early Adolescence*, 32, 55-80. doi: 10.1177/0272431611419508

Simpkins, S. D., & Parke, R. D. (2002). Do friends and nonfriends behave differently? A social relations analysis of children's behavior. *Merrill-Palmer Quarterly*, 48, 263-283.

Szcześniak, M., Colaço, M., & Rondón, G. (2012). Development of interpersonal trust among children and adolescents. *Polish Psychological Bulletin*, 43, 50-58. doi: 10.2478/v10059-012-0006-5

Takakura, M. (2011). Does social trust at school affect students' smoking and drinking behavior in Japan? *Social Science & Medicine*, 72, 299-306. doi:10.1016/j.socscimed.2010.11.003

Turner, R. N., Hewstone, M., Swart, H., Tam, T., Myers, E., & Tausch, N. (2010). Promoting intergroup trust among adolescents and young adults. In K. J. Rotenberg (Ed.), *Interpersonal trust during childhood and adolescence* (pp. 295-321). Cambridge, Cambridgeshire: Cambridge University Press.

Warner, R. M., Kenny, D. A., & Stoto, M. (1979). A new round robin analysis of variance for social interaction data. *Journal of Personality and Social Psychology*, 37, 1742-1757.

Whitley, B. E., Schofield, J. W., & Snyder, H. N. (1984). Peer preferences in a desegregated school: A round robin analysis. *Journal of Personality and Social Psychology*, 46, 799-810. doi: 10.1037/0022-3514.46.4.799

Wilson, J. N., & Carroll, J. L. (1991). Children's trustworthiness: judgements by teachers, parents and peers in K. J. Rotenberg (Ed.) *Children's interpersonal trust: sensitivity to lying, deception and promise violation* (pp. 100-117). New York, NY: Springer-Verlag.

Yamagishi, T. (2003). Cross-sectional experimentation on trust: A comparison of the United States and Japan. In E. Ostrom & J. Walker (Eds), *Trust and reciprocity: Interdisciplinary*

lessons from experimental research (pp. 352-370). New York, NY: Russell Sage

Foundation

Yamagishi, T., Kikuchi, M., & Kosugi, M. (1999). Trust, gullibility, and social intelligence.

Asian Journal of Social Psychology, 2, 145-161.

Yamamura, E. (2011). The role of social trust in reducing long-term truancy and forming human capital in Japan. *Economics of Education Review*, 30, 380-389.

doi:10.1016/j.econedurev.2010.11.006

Zhang, J., & Pelletier, J. (2012). Cultural differences: An international perspective on early childhood education. *Frontiers of Education in China*, 7, 1-4. doi: 10.3868/s1110-001-

012-0001-1

Zimmer-Gembeck, M. J., Waters, A. M., & Kindermann T. (2010). A social relations

analysis of liking for and by peers: Associations with gender depression, peer perception, and worry. *Journal of Adolescence*, 33, 69-81. doi:10.1016/j.adolescence.2009.05.005

Table 1

Simple variance partitioning by sample

Variance	Sample		
	UK	Italy	Japan
Promise-keeping			
Actor	.13* (13%)	.17* (17%)	.26* (26%)
Partner	.21* (21%)	.14* (14%)	.22* (22%)
Relationship/error	.66 (66%)	.69 (69%)	.52 (52%)
Dyadic reciprocity	.14*	.11*	.08*
Secret-keeping			
Actor	.16* (16%)	.16* (16%)	.23* (23%)
Partner	.18* (18%)	.11* (11%)	.34* (34%)
Relationship/error	.66 (66%)	.73 (73%)	.43 (43%)
Dyadic reciprocity	.19*	.20*	.03
Trust construct			
Actor	.11* (11%)	.15* (15%)	.22* (22%)
Partner	.18* (18%)	.12* (12%)	.06* (06%)
Relationship	.33* (33%)	.47* (47%)	.28* (28%)
Error	.38 (38%)	.26 (26%)	.44 (44%)
Dyadic reciprocity	.35	.22	.09

Note: * $p < .05$

Dyadic reciprocity is assessed as a multivariate correlation.

Table 2

ANOVA summary Table same-gender peer-reported trust beliefs (actor effects)

Source	Sum of squares	df	Mean square	<i>F</i>	η^2
Base of Trust	1.02	1	1.02	3.91*	.006
Base of Trust x Gender	.16	1	.16	.43	.001
Base of Trust x Country	.56	2	.28	1.08	.003
Base of Trust x Gender x Country	4.91	2	2.46	9.43***	.027
Error (Base of Trust)	176.42	678	.26		
Gender	6.30	1	6.30	5.34*	.008
Country	46.440	2	23.22	19.32***	.054
Gender x Country	.89	2	.45	.69	.001
Error	815.02	678	1.20		

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

Table 3

Descriptive statistics according to gender and country

	Actor effects				Partner effects			
	Promise-keeping		Secret-keeping		Promise-keeping		Secret-keeping	
	M	SD	M	SD	M	SD	M	SD
Boys								
UK	3.64	.76	3.50	.87	3.62	.82	3.52	.87
Italy	3.70	.74	3.61	.75	3.63	.74	3.57	.75
Japan	3.89	.71	4.23	.53	3.88	1.08	4.23	.74
Total	3.71	.75	3.69	.79	3.68	.83	3.67	.82
Girls								
UK	3.27	1.14	3.46	.73	3.27	1.19	3.44	.74
Italy	3.38	1.09	3.50	.80	3.44	1.08	3.55	.71
Japan	4.03	.78	3.97	.82	4.05	.46	3.97	.46
Total	3.42	1.10	3.55	.80	3.46	1.09	3.56	.71
Total								
UK	3.41	1.01	3.48	.79	3.41	1.07	3.47	.79
Italy	3.53	.95	3.56	.78	3.53	.93	3.56	.73
Japan	3.95	.74	4.11	.68	3.95	.86	4.12	.64
Total	3.56	.96	3.62	.80	3.56	.98	3.61	.77

Table 4

ANOVA summary Table same-gender peer-reported ascribed trustworthiness (partner effects)

Source	Sum of squares	df	Mean square	<i>F</i>	η^2
Base of Trust	1.11	1	1.11	3.79	.006
Base of Trust x Gender	.00	1	.00	.00	.000
Base of Trust x Country	.53	2	.26	.90	.003
Base of Trust x Gender x Country	4.38	2	2.19	7.48***	.022
Error (Base of Trust)	198.62	678	.29		
Gender	3.63	1	3.63	3.10	.005
Country	47.21	2	23.61	20.18***	.056
Gender x Country	1.28	2	.64	.69	.001
Error	793.21	678	1.17		

Note: *** $p < .001$