Children's Judgements of Trust, Liking and Lying
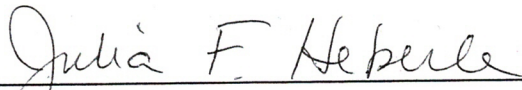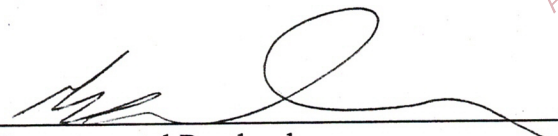
Keriann Mosley

Candidate for the degree

Bachelor of Arts

Submitted in partial fulfilment of the requirements for

College Honors

Departmental Distinction in Psychology

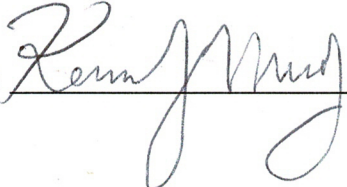*Julia F. Heberle*
Thesis Advisor.

Departmental Reader degree

Denise Greenwood.
College Reader

F. Wilbur Gingrich Library
Special Collections Department
Albright College

Release of Senior Thesis

I hereby deliver, give, and transfer property, rights, interest in and legal rights thereto which I had, have, or may have concerning the Senior Honors Thesis described below to the Special Collections Department of the F. Wilbur Gingrich Library at Albright College as an unrestricted gift. While copyright privileges will remain with me, the author, all privileges to reproduce, disseminate, or otherwise preserve the Senior Honors Thesis are given to the Special Collections Department of the Gingrich Library. I place no restrictions on this gift and hereby indicate this by signing below.

Title: Childrens Judgements of Trust, Liking and Lying

Signature of Author: _____ Date: 4/22/16

Printed Name of Author: Kenann Mosley

Street Address: 3624 N 18th St

City, State, Zip Code: Philadelphia PA 19140

Children's Judgements of Trust, Liking and Lying

Keriann Mosley

Albright College

Abstract

Children's beliefs about lying change with age. Do young children rate all lies as equally bad? Do young children tie the act of lying to likability? How do these judgments change with age? Preschool and early elementary school children (N=48; n=18, Preschoolers mean age 61 months, n = 30 Elementary children mean age 98 months) were read scenarios about lying or truth telling, where the lie or truth benefited the protagonist or another child in the story, and the protagonist was portrayed as likable or not. Children were asked to rate the goodness of the protagonist's truth/lie, as well as the likability and trustworthiness of the story protagonist. Results indicate the older children consider all three variables to be important for judging the trustworthiness of the protagonist and badness of the statement, while younger children primarily focused on a single variable for each of the ratings, with the exception of likelihood to keep a secret, where all three variables mattered.

Children's Perceptions of Trust, Liking and Lying

Children are able to tell lies as early as two to three years of age. When it comes to lying children are often seen as inept or "bad liars". In reality, a child's ability to lie is associated with several, social and cognitive abilities. These abilities include theory of mind, the understanding of motivations behind lying, and what type of lying is acceptable in certain situations. In general, the older the child gets the better at theory of mind and the morality of lying they get.

Theory of mind

The literature supports the theory that in order to lie children must have the basic yet complex concept of knowing that other people have minds and to some extent do not know what they know. The intent behind lying is to deceive others, Theory of mind involves the understanding that the contents of the mind are just representations, which can be in fact incorrect and are not simply a reflection of the world. Theory of mind (ToM) fully develops in children around the age of six or seven. At this age, children can successfully take the perspective of another person and distinguish what they know from what the other person knows. Theory of mind is developmental and inklings of it are seen in children as young as 12-18 months. This level of theory of mind mostly includes observing infants behaviors when an adult confederate asks them to retrieve a toy they had not yet played with or misplaced. Remarkably, by the age of two and a half infants develop the ability to pass a traditional false belief task. A traditional false belief task includes an experimenter presenting a child with a package like a box of crayons. The experimenter will ask the child what he believes would be inside of the box, to which the child reliably guesses crayons. When the experimenter surprises the child by revealing

what is actually in the box, which could be anything except crayons, the experimenter asks what another person who was not in the room would think was in the box. (Wimmer & Perner, 1983) In earlier research only children as young as four or five would reliably pass, however in recent adaptation of the task younger and younger children seem to pass. Studies that are more recent take into account a young child's lower processing ability and do not require the child to answer the experimenter verbally (Saracho, 2014).

Traditional theory of mind tasks all include a verbal component in which the child must respond to the experimenter while trying to adjust their own frame of references. In a review article by Westra (2016), the verbal aspects of traditional false belief tasks are highlighted as a confounding variable when testing young children. Younger children aged three and under do not pass traditional false belief tasks due to their limited verbal skills. Liebermann, Carpendale, Hammond & Bibok (2012) found that younger children's theory of mind at two correlates very closely correlates to their theory of mind and executive function skills (i.e. managing time and ability to pay attention) at the age of 4. Children's verbal ability at three is a mediator for being an effective explanation for the indirect relationship. The findings go on to support that one's ToM as a young child along with their executive function skills can predict their ToM and perspective taking skills as an older child.

Lying

While younger children lack the verbal abilities to reliably pass a traditional false belief task, they do possess the verbal ability and theory of mind to deceive adults and others by lying. By the age of two children show attempts to deceive (Evans& Lee 2013). In the task, children were asked to guess a toy that was concealed from them. They were asked not to turn around or peek as an experimenter turned around to get a toy. Whether or not the child peeked was not

important, what was important was if the child admitted to peeking or not when directly

prompted by an adult. Since children aged 2 and 3 tried to deceive the adult by denying they

peeked, it was demonstrated that children this age do have an initial ability to deceive.

As children get older it is no surprise that they become more adept at lying. What is quite

a surprise are their moral judgements concerning those who lie and why they lie. Looking back

at false beliefs, one can understand that at its core it is understood as a type of lie. It was though

previously, that children are polarized by what a lie is and is not regardless of outside

circumstances. Papandropoulou and Kilcher (2003) examined the extent of lie judgments

children make when looking at false beliefs. At ages, 4 and 5 it was found that the judgements

children made were related to where objects "really" were along with actual physical states of

being, whereas older children aged 6-8 had given more mental state explanations of lies using

words such as "think" "believe" and "not know". Furthermore when it came down to lie

judgements Papandropoulou and Kilcher (2003) found that sometimes children judged the false

belief as a lie and other times not. These judgements provide evidence that theory of mind

develops over these years and that children's judgments of is a lie may change with age. Talwar,

Lee, Bala, and Lindsay (2002) found a similar result when looking at children's concepts of

lying. Older children who were deemed to have a more complete concept of lying deemed lies

that were used to conceal a transgression as much more serious than younger children did.

Similar to Papandropoulou and Kilcher (2003), the age difference in who judges these lies more

severely is related to other aspects of cognitive development.. This result is in agreement with an

earlier study by Peterson, Peterson and Seeto (1983).

Children take into account different aspects of a situation before they judge a lie.

(Wimmer, Gruber & Perner 1985), (Bussey, 1999), (Warneken& Orlins 2015), Evans, Wang &

Lee 2008).Children categorize lies into several smaller categories Trick lies, anti-social, white lies, trick lies, and pro-social lies. Trick-lies (which are seen as the most innocuous type of lie) are defined as lies told in jest with no intent to harm another. Anti-social lies are lies that are told to conceal a misdeed most common in children as young at 2-3. These lies are reliably judged as the most serious type of lie. (Wimmer, Gruber & Perner 1985). White lies are defined as small falsehoods that is not intended to injure anyone, which is a lower level type of social lie (Bussey, 1999). The most positive type of lie, which will be focused on in the present study, are pro-social lies. Pro-social lies are defined as falsehoods that are told to protect another other than oneself.

The literature on pro-social lying in children highlights a level of moral development not previously covered in the literature on lie and truth judgements. In a study by Warneken and Orlins (2015), it was found that children aged 5-11 told pro-social white lies in order to protect a confederate's feelings. With the 5-year-olds before the telling of white lies was modeled by an adult, the protective lie telling took place only when the confederate was "feeling sad". The older children tended to tell the protective lie in the neutral and sad conditions before the white lie was modeled. The pre-modeling conditions seem to demonstrate that children are noticing and making lie judgements based on their prior knowledge of others' feelings. An older study by Fu, Evans, Wang and Lee (2008) demonstrated older children's (7-11 years of age) lying behavior concerning the good of a group of others. Similar to Warneken and Orlins (2015), the older the child was the more the child favored telling a lie to protect others versus a lie that would only protect themselves.

Fu, Heyman, Chen, Liu and Lee (2015) explored children's trust perceptions of people who lie to benefit others. They told children a number of stories where a bad deed or a good deed

was committed and the children either lied to protect themselves or lied to protect one other. Children were asked to rate if the deed was good or bad. Children were also asked if the protagonist could keep a secret and keep a promise. Children aged 7-evaluated the situations in which a lie was used to protect another as good / better than lying to protect themselves. Consequently, the children who lied to protect another were seen as more trustworthy than their lying for self-benefit counterpart.

Morality

The literature states that children under seven can distinguish between moral judgements such as basic right and wrong and social transgressions (Turiel, 1983). Children have been found to be able to distinguish between more vague moral transgressions such as bullying. Additionally younger children attribute punishments solely to moral reasoning and older children who have more advanced reasoning processes made decisions based on moral more unreliably (Malti, Gasser & Gutzwiller- Helfenfinger2010). Children also go through various stages of moral development. At stage one children rely on authorities to tell them right from wrong. At stage 2, they look to multiple authorities and at stage 3 and 4, they look towards society and focus on what is considered good and bad on a whole. By stage 5 and 6, the focus is on making the most morally just decisions and not ones that satisfy society's standards of right and wrong. Children perceive bad things happening to bad people as an extension of a "just world" where bad things only really happen to bad people (Fein, 1976).

Trust

The current trust literature demonstrates that children can make judgements about whom to trust using physical cooperation tasks (Reyes-Jaquez&Echols, 2014), imitation (Over,

Carpenter, Spears & Gattis, 2013), reciprocating trust (Betts & Rotenberg, 2008) and speakers intentions (Maas, 2008). Reyes-Jaquez&Echols, (2014) evaluated children's perceptions of trustworthiness when faced with situations regarding rewards.). Children tend to trust people most when their motives are the same as theirs and there is a mutual benefit for both parties involved (Reyes-Jaquez & Echols, 2015).Children aged 5, 7 and 9 played a game in which the other child, the "witness" guided them to which cup had a piece of candy. When the witness benefitted more from the child in question getting it wrong, the child reported being suspicious of the other child as well as rating them much lower on measures of trust.. 5-year –olds reliably rated trustworthiness when the witness got the same award as the child when the child guessed right. Over, Carpenter, Spears and Gattis (2008) looked at children's susceptibility to trust when a confederate imitated them. When the child was imitated, they tended to believe a claim that the confederate made more than, if the confederate did not imitate them. Reves-Jaquez et. al (2014) and Over et. al.(2008) findings support the idea that trust is related to a social concept which children of school age have acquired. Betts and Rotenberg (2008) tested this theory with their own study in which they examined 5-6 year olds' social relationships. They found that children's trust between peers was mostly reciprocal. In short, children who demonstrated being trustworthy to their peers in turn gained the trust of others. This finding suggests that at the age of 5 children have understood social phenomena of trust and show it to their peers in order to be in good social standing. Rotenberg and Boulton (2013) agree with the previous finding that children who do not show trustworthy behaviors towards others are seen as untrustworthy and unfavorable themselves. As seen in Fu et. Al. (2015) children who can keep secrets and promises as well as demonstrate that they can be trusted are rated more favorably and are the most likely to be rated as trustworthy to their peers

Present Study

In the present study, we partially replicated and expanded upon the study done Fu et al. (2015) concerning children's judgement of lies to benefit themselves or another. As in the Fu et. al. (2015) study children were read stories that have them judge the morality of a lie or truth while. Unlike in the Fu et. al., children were asked to judge how much they like a character who is described as likeable or unlikeable in the story. The addition of a variable for liking allows there to be a point of comparison whether children distinguish trust from liking. The children were also asked how "good" it was that the child told a truth/lie to the teacher to benefit themselves or another. To better determine trust, children were asked questions based on secret keeping and promise keeping as well as a direct question about trust. The goal of the study is to determine if in the context of lies that benefit the self-versus another if overall trust is affected. The literature on children and trust does not include much on measures of the difference between liking and trust. Moreover, it is unknown if children use a person being likeable or unlikeable in determining trust. In determining how to measure trust, we asked questions about promise and secret keeping which were featured in the Fu et. al. study done on children aged 7-11. In the present study we also tested younger children aged 5-6 to see if younger children are making similar judgements to older children.

Method

Participants

Participants included 48 children aged 5-9 years (M=6;9 SD= 1.47). There were 18 children in the younger group and 30 in the older. There were 27 females overall and 21 males. The younger children, 53-66 months (M=61 months) were a convenience sample from the Albright Early

Learning Center. The older children 83-112 months (M=98 months) were a convenience sample from Children's Village Daycare in Philadelphia, PA. No participants were excluded for any reason in this study. There were 18 children in the younger group who were 5 years of age and 30 children in the older group aged 7-9. There were no six year olds in the present study.

Materials

The stories read to the children were modeled after the ones used in Fu et. al. study exploring older children's perceptions of lying behaviors, with the added dimension of likeability. The study employed a 2 (protagonist's honesty: truth or lie) X 2 (protagonist's likeability: likeable or unlikable) X 2 (beneficiary of protagonist's statement: self or other). Children were read four stories about two children, involving something of value being broken in a classroom. Half of the children heard stories about a child telling a lie, while half heard stories about a child telling the truth about who broke the object. In addition, of the four stories each child heard, half involved a story protagonist who was likeable, half unlikeable, and of those two stories, one version gave benefit to the story protagonist, while the other version gave benefit to the other child .(see appendix B).

All stories had a male and female version, which was given to the participants based on their gender. The stories were illustrated using clip art files and MS paint to edit the objects to look broken and for faces to change for the likeable and unlikeable characters. Each of the stories was put on its own sheet of paper, printed in color and laminated (See Appendix A). Underneath each story was a picture of the main characters to serve as a visual aid to support the participants' understanding of the story. The scale used was a 5-point rating scale featuring smiling faces and frowning faces. In keeping with prior research we set the scale ranging from 1 (smiling) to 5 (frowning) with 3 being a neutral face in the middle of the scale (see Appendix D). When

considering the Fu et. al . study done on older children it was determined that a 7 point scale

would be too wide of a variety and that reducing their original scale of 7 items to 5 would be

much more manageable especially for younger children. Furthermore, the literature did not show

any reasoning as to why a 5 point scale and a 7 point scale would vary so greatly that it would

not be reliable for this study. The scale was grey and printed on a separate sheet of paper that

was then laminated (see Appendix D). The score sheets were designed in a graph format for ease

of transfer when being recorded. (see Appendix E). Each child was audio recorded on a cellular

device during the experiment.

Procedure

Each child came into a small room or nearby area with an empty table in which the

experiment materials were displayed. The child was assigned a number on their parental consent

forms, which corresponded, to their response sheet number. Each child was asked to sit down

and asked if they would like to participate. Each child was told that they would hear 4 stories and

needed to respond to questions. When properly oriented to the scoring mechanisms that they

were to use the children were then told the stories. The 4 sets of stories were determined by the

sex of the child and which set of truth and lie came before. After each story, the child was asked

2 manipulation check questions; who really broke the object and who did the protagonist say

broke the object. In the case the child did not answer correctly, the story was repeated in order to

make sure the child had a clear grasp of each story. After each story, a series of questions was

asked (See Appendix C). Such questions included, how much the child liked the protagonist or

the other child, if it was good for protagonist to lie or tell the truth to the teacher, if the child

trusted the protagonist with a secret, keeping a promise, and how much the child trusts the

protagonist (see Appendix C). With every question the child pointed to the face on the rating

scale that they felt most reflected their feelings. Each response was recorded onto the answer

sheet. The order of the stories were partially counter balanced such that each story appeared in

each position across the children. Once the child completed all of the stories and questions, the

recording would be stopped. Upon completion, the child would then receive a coloring sheet or a

sticker for their attention and participation.

Results

A series of mixed 4 (2 (truth/lie) x2(benefit self/other) x2(likable/unlikable)x 2 (younger/older))-

way ANOVAs were performed for each dependent variable, and no 4 way interactions were

found. Since no interaction was found for age, we divided the data set by younger (5-year-olds)

and older (7-9 year-old) children and performed a series of 3 way ANOVAs.

Younger Children

Six mixed 2 (truth/lie) x2(benefit self/other) x2(likable/unlikable) 3-way ANOVAs were

performed on all dependent variables. We report the results for those with significant results.

Likability of other child

In order to test how the likability rating of the undescribed child relate to his/her likability, who

benefits and the telling of a truth or a lie was significant, a 3-way-ANOVA was performed.

There were no main effects or interactions of likability, benefit self/other, or truth/lie

Likeability of Protagonist

In order to test how the likability rating of the protagonist relates to the protagonist's likability,

who benefits and the telling of a truth or a lie, a 3-way-ANOVA was performed. There was

only a main effect of likability F(1, 16) 5.50 p<.05. There were no main effects for benefit self/other or truth/lie statements. Younger children liked the likable protagonist the best.

Goodness of the truth/lie statement

In order to test the how the ratings of the goodness of the truth/lie statement given by the protagonist relates to his/her likability, who benefits and the telling of a truth or a lie was significant, a 3-way-ANOVA was performed. There were no main effects or interactions of likability, benefit self/other, or truth/lie

Likelihood of keeping a promise

In order to test how the ratings of promise keeping abilities of the protagonist relates to his/her likability, who benefits and the telling of a truth or a lie was significant, a 3-way-ANOVA was performed. There were no main effects or interactions of likability, benefit self/other, or truth/lie

Likelihood of keeping a secret

In order to test how the ratings of secret keeping abilities of the protagonist relates to the protagonist's likability, who benefits and the telling of a truth or a lie was significant A 3-way ANOVA was performed. There was a 3-way interaction found on truth/lie, likability and secret. To decompose the 3-way interaction we performed 2, 2-way ANOVAs on truth and lie conditions, benefit self and other and likable/unlikable. No main effects or interactions on truth / lie conditions and secrets were found. The second 2-way ANOVA performed on benefit self-versus other, no significant main effects were found. The third 2-way ANOVA performed on likable and unlikable protagonists and secret keeping yielded a significant 2-way interaction. Likable protagonists x secret keeping was significant F (1, 16) 8.38 p<.01. To decompose the 2-way interaction a t-test was performed on likability concerning the truth/lie conditions and

benefit self/other *t (* 16)=-2.423 p=.028, showing a significant difference only for a protagonist

who told the truth to benefit themselves. Children rated a protagonist who told the truth to

benefit themselves as more likely to keep a secret (see figure 1)

How much do you trust the story protagonist

 In order to test how the trust ratings of the protagonist relates to the protagonist's likability, who

benefits and the telling of a truth or a lie, a 3-way-ANOVA was performed. There was a main

effect for who the truth or lie benefitted F (1,16) 6.37 p<.05. There were no main effects for

benefit self/other or truth/lie statements Younger children rated a protagonist who lied to benefit

another as more trustworthy

Older Children

 6 mixed 2 (truth) x2 (who benefits, self/other) x2(likability, unlikability) ANOVAs were

performed on each of the dependent variables for the older children. We report the results for

those with significance.

Likability of other child

In order to test how the likability rating of the beneficiary relates to the protagonist's likability,

who benefits and the telling of a truth or a lie, a 3-way-ANOVA was performed. There was a

main effect for who the truth or lie benefitted F (1, 28) 6.90 p<.01 (Figure 1.1). There were no

significant main effects on likability or truth/lie conditions older children rated the other child as

more likable when the truth or lie benefitted them.

Likeability of Protagonist

In order to test how the likability rating of the protagonist relates to the protagonist's likability, who benefits and the telling of a truth or a lie was significant a 3-way ANOVA was performed. There was a main effect of likability and benefit $F(1, 28)$ 4.24 $p<.05$; $F(1, 28)$ 25.73 $p<.001$ (Figure 1.2).Additionally there was an interaction between likability and benefit $F(1, 28)$ 4.69 $p<.05$. To decompose the interaction two 2-way ANOVA's were performed. There were no main effects or interactions on benefit self/other or likability when split on the truth condition. There was a main effect of benefit $F(1,28)=10.58$ $p<.05$; and likability $F(1,28)=15.13$ $p<.01$. There was no significant interaction. For the likability of the protagonist when they told the truth, participants rated the protagonist as less likable when the protagonist was presented as unlikable. For the likability of the protagonist when they told a lie, participants rated them as more likable when the lie benefitted another and more likable when the protagonist was presented as likable.

Goodness of the truth/lie statement

In order to test how good the statement of the protagonist relates to the protagonist's likability, who benefits and the telling of a truth or a lie, a 3-way-ANOVA was performed. There was no main effect on likability. There was a main effect of who the truth or lie benefitted $F (1, 28)$ 6.90 $p<.01$. There was a main effect of the difference between the truth/ lie conditions $F (1, 28)$ 20.14 $p<.001$. There was an interaction of benefit and truth and lie groups were significant $F (1, 28)$ 4.70 $p<.05$. These main effects were qualified by a paired samples T-test was used to break down the interaction between benefitting self and other in the lie condition. The result found was significant $t=(13, .373)$ $p<.01$ ($M=-1.21$, $SD=1.40$). The truth/lie statement was rated as more "good" when it was a likable protagonist who lied to benefit another. (Figure 2)

Likelihood of keeping a promise

In order to test how the likelihood of the protagonist keeping a promise in relation to the protagonist's likability, who benefits and the telling of a truth or a lie, a 3-way-ANOVA was performed. There were no main effects for the difference between the truth/lie conditions. There was a main effect for who the truth or lie benefitted and the likability of the described character $F_{(1, 28)}$ 9.33 $p<.01$; $F_{(1, 28)}$ 16.12 $p<.001$ respectively. The protagonist was most likely to keep a promise when they were likable and told a truth/lie to benefit another (Figure 2)

Likelihood of keeping a secret

In order to test how likability rating of the protagonist relate to the protagonist's likability, who benefits and the telling of a truth or a lie, a 3-way-ANOVA was performed. There were no main effects for the difference between the truth/lie conditions. There was a main effect for who the truth or lie benefitted and the likability of the described character were significant $F_{(1, 28)}$ 14.60 $p<.001$; $F_{(1, 28)}$ 22.05 $p<.001$ respectively. The protagonist was most likely to keep a secret when they were likable and told a truth/lie to benefit another (figure 3).

How much do you trust the story protagonist

In order to test how likability rating of the protagonist relate to the protagonist's likability, who benefits and the telling of a truth or a lie was significant a 3-way-ANOVA was performed. There were no main effects for the difference between the truth/lie conditions. There was a main effect for who the truth or lie benefitted and the likability of the described character were significant $F_{(1, 28)}$ 13.07 $p<.001$; $F_{(1, 28)}$ 13.07 $p<.001$ respectively. The differences between the truth and lie conditions were significant $F_{(1, 28)}$ 4.74 $p<.05$ (Figure 4). The protagonist was rated as more trustworthy when the truth was told to benefit another.

Discussion

Younger Children

For the present study we asked the how younger children aged 5-9 perceive lies and those who lie. The results support the conclusion that young children aged 4-5 do not differentiate between like and trust or likable and unlikable protagonists. It is reasonable to surmise that young children are not differentiating on these variables because they are not using these details to assess trust and promise keeping. For a future study, more questions that are components of trust as well as more information on the protagonist child to help the child make better trust judgements. The younger children had no problem following the stories and answering the questions so it would be possible to elaborate on the stories to give the children more to build upon. Some limitations for this part of the study would be the access of children. It was quite difficult to recruit children for research purposes. More children in the young children group may have led to more data to analyze.

Likability of the protagonist

The protagonist was rated as more likable when the truth or lie benefitted one other. Younger children were able to pay attention to the story and rated the likable child as likable and vice versa. Rather than being an interesting standalone result, it more or less tells us that the rest of the judgements the child made were based off of the basic knowledge that the child they were rating was likable or unlikable and that he/she lied or told the truth to benefit the other child.

How much do you trust the story protagonist

The protagonist was rated as more trustworthy when the truth or lie benefitted another. Younger children are perceiving someone who tells a truth or a lie to benefit another child as more trustworthy whether or not they are likable. Younger children are not taking likability into

account when assessing who is trustworthy but the protagonist's situation and how the

protagonist reacted to it.

3-way interaction on secret keeping

The protagonist was rated as more likely to keep a secret when they told the truth to benefit

themselves. This result in particular has more than one interpretation as to why these children

rated a protagonist who lied to benefit themselves as more favorable. The younger children may

view a child wo lies to protect themselves as brave or bold therefore rating them more favorably

or do not understand the concept of "snitching" yet. The older children gave predictable and

logically consistent judgments on secret keeping. Older children's judgments seem to suggest

that older children understand the social consequences on telling on another child for self-

benefit, whereas the younger children do not. Another baffling aspect of younger children's

judgements on secret keeping, is that on measures of promise keeping, no significance was found

on any measures. This suggests that younger children better understand keeping secrets and the

loyalty attached to that versus keeping a secret

Older Children

Likability of the other child

The likability of the first child was dependent on who the lie benefitted. For the other

child whether or not the lie/truth benefitted them or the protagonist effected their likability. This

result suggests that older children were taking into account how the child acted within the story

even though the intention of the other child on the researcher's behalf was to be neutral.

Likability of the Protagonist

The likability of the first child was dependent on who the lie benefitted where those who lied or told the truth to benefit another person were rated more likable. The protagonist was also rated more likable when they were described as a likable child. Older children were able to pay attention to the story and rated the likable child as likable and vice versa. Rather than being an interesting standalone result, it more or less tells us that the rest of the judgements the child made were based off of the basic knowledge that the child they were rating was likable or unlikable and that he/she lied or told the truth to benefit the other child.

Goodness of the statement

The truth/lie was judged as more "good" when the protagonist was likable and they told the lie/truth to benefit another child. Older children are judging the likable protagonists decisions to tell the truth as more moral when it was with the intention to protect another child. The older children judging the likable protagonists' decision to tell the truth as morally sound over the protagonist telling a lie to benefit themselves or others is consistent given their later judgements on who they trust.

Likelihood of keeping a promise

The protagonist was rated as more likely to keep a promise when they told the truth or a lie to benefit another while being described as likable. Older children may believe that the protagonist would be more likely to keep a promise because they view likable, truthful children to also be more trustworthy when keeping promises. The protagonist who lied or was "unlikable" may have come off as unreliable when keeping promises. The older children may be making judgements based on the child's actions being consistent and not all due to the current situation

Likelihood of keeping a secret

The protagonist was rated as more likely to keep a secret when they told the truth or a lie to benefit another while being described as likable. Older children may believe that the protagonist would be more likely to keep a secret because they view likable, truthful children to also be more trustworthy when keeping secrets. The protagonist who lied or was "unlikable" may have come off as unreliable when keeping secrets. The older children may be making judgements based on the child's actions being consistent and not all due to the current situation.

How much do you trust the story protagonist

The protagonist was rated as more trustworthy when a truth was told to benefit another. Which in the context of the older child's logic makes sense. Those who tell the truth are generally viewed as trustworthy, and the older children demonstrated that they also trust the protagonist that who benefited another. The finding is consistent with previous responses as well; as the finding in the Fu et. al. (2015) study, however the older children seem to trust the protagonist who tell the truth more than their lying counterpart.

Overall, the older children the results mirrored that of the Fu et. al (2015) study which found that children trust those who lie to benefit others. In addition, when asked how much they liked the non-described character (the other child), the older children took into account the child's role in the truth or lie. The judgements on likability the children made must be based on if the. The result shows that the children were listening to the stories and letting the information they were given influence their decision making. For the likability of the second child, the older children based their decisions off of who the lies or truths benefitted as well as how likable the protagonist was. Further analysis showed that the older children were discriminating on the likability of the story protagonist based on whether or not the child told a lie to benefit themselves. This supports the idea that the older children were using the characteristics of the

children in order to make informed judgements. Concerning the goodness of the lie, older

children were discriminating who the lie was benefitting and whether the protagonist told a truth

or a lie.

This finding corresponds to the Fu et. al (2015) study on children of a similar age. For the

question on promise keeping, children differentiated on the likability of the child which was

previously unexplored in Fu et al's (2015) study on a similar construct. The differentiation may

be explained by the children using what we gave them as likable or unlikable protagonists (polite

child who helps vs. rude child who never cleans after themselves) and using these characteristics

as a character trait that could affect promise keeping. For example, a rude child who never cleans

up after themselves could be seen as unreliable and therefore would not be able to keep a

promise. Similar logic can be applied to the question asking children about secret keeping. When

looking at trust older children are using who the truth or lie benefitted, whether they told a truth

or lie and if the child was likable or not, rating likable children as more trustworthy. Older

children may be distinguishing trust versus liking by using the character traits we ascribed to the

children as being reliable enough to place their trust in them. The original question we had,

whether children can distinguish like and trust still remains mostly unanswered by the current

results. For future studies, more information ascribed to the child 2 or protagonist could improve

the children's judgement abilities that can be better attributed to differentiating trust versus

liking. Some confounds and limitations would be the difficulty of obtaining children.

Unintentional similarities with the Fu et al. (2015) study are that the older children tested were

all Asian-American and in some cases may have been first generation American children. A

slight difference in the older and younger child group would be in the older children's classroom

setting that we tested in, the children had lunch time in the classroom and made the character

traits we gave to the protagonist more applicable than to the younger children. An unavoidable confound within the study's design could have been who the breaker in the story was. Due to the need to make a child tell a lie or tell the truth, the child who broke the object needed to change. Inconsistent breakers could have affected the child's judgement. Feedback from several children who participated in the study was the unchanging face of the likable protagonist when he/she broke something and was confronted by an angry teacher as well as when he/she told a lie. Since we know that children are able to track likability and which child is the protagonist and which is not, it is entirely possible to have the faces on the characters change throughout the story to match what the child thinks the protagonist logically feels.

Overall, the older children behaved similarly, to what we predicted, while the younger children's judgements on secret keeping were not expected or predicted. The patterns showed by the older children match up with the Fu et.al. (2015) study we sought to replicate and expand upon. The younger children's patterns were not at all what we had originally predicted, however we did gain insight to how younger children may understand trust. Gaining insight has opened a door into many future studies to add onto the present results and surrounding trust literature.

References

Baillargeon, R., Scott, R. M., & He, Z. (2010). False-belief understanding in infants. *Trends in Cognitive Sciences*, *14*(*3*), 110-118.

Berthoud‐ Papandropoulou, I., & Kilcher, H. (2003). Is a false belief statement a lie or a truthful statement? Judgments and explanations of children aged 3 to 8. *Developmental Science*, *6*(*2*), 173-177.

Betts, L. R., & Rotenberg, K. J. (2008). A social relations analysis of children's trust in their peers across the early years of school. *Social Development*, *17*(*4*), 1039-1055.

Bussey, K. (1999). Children's categorization and evaluation of different types of lies and truths. *Child Development*, *70*(6), 1338-1347. doi:10.1111/1467-8624.00098

Evans, A. D., & Lee, K. (2013). Emergence of lying in very young children. *Developmental Psychology*, *49*(*10*), 1958.

Fein, D. (1976). Just world responding in 6- and 9-year-old children. *Developmental Psychology*, *12*(*1*), 79-80. doi:10.1037/0012-1649.12.1.79

Fu, G., Evans, A. D., Wang, L., & Lee, K. (2008). Lying in the name of the collective good: A developmental study. *Developmental Science*, *1a*(4), 495-503. doi:10.1111/j.1467 7687.2008.00695.x

Fu, G., Heyman, G. D., Chen, G., Liu, P., & Lee, K. (2015). Children trust people who lie to benefit others. *Journal of Experimental Child Psychology*, *129*127-139. doi:10.1016/j.jecp.2014.09.006

Gutzwiller‐ Helfenfinger, E., Gasser, L., & Malti, T. (2010). Moral emotions and moral

    judgments in children's narratives: Comparing real‐ life and hypothetical

    transgressions. *New Directions for Child and Adolescent Development*, *2010*(129), 11-31.

Maas, F. K. (2008). Children's understanding of promising, lying, and false belief. *The Journal

    of General Psychology*, 135(3), 301-322.

Müller, U., Liebermann-Finestone, D. P., Carpendale, J. I., Hammond, S. I., & Bibok, M. B.

    (2012). Knowing minds, controlling actions: The developmental relations between theory

    of mind and executive function from 2 to 4years of Age. *Journal of Experimental Child

    Psychology*, *111(2)*, 331-348.

Over, H., Carpenter, M., Spears, R., & Gattis, M. (2013). Children selectively trust individuals

    who have imitated them. *Social Development*, *22*(2), 215-224.

Peterson, C. C., Peterson, J. L., & Seeto, D. (1983). Developmental changes in ideas about

    lying. *Child Development*, 1529-1535.

Saracho, O. N. (2014). Theory of mind: Understanding Young Children's Pretense and Mental

    States. *Early Child Development and Care*, *184*(8), 1281-1294.

    doi:10.1080/03004430.2013.865617

Reyes-Jaquez, B., & Echols, C. H. (2015). Playing by the Rules: Self-interest information

    influences children's trust and trustworthiness in the absence of

    feedback. *Cognition*, *134*, 140-154

Rotenberg, K. J., & Boulton, M. (2013). Interpersonal trust consistency and the quality of peer

    relationships during childhood. *Social Development*, *22*(2), 225-241.

Talwar, V., Lee, K., Bala, N., & Lindsay, R. C. L. (2002). Children's conceptual knowledge of lying and its relation to their actual behaviors: Implications for court competence examinations. *Law and Human Behavior*, *26*(4), 395.

Turiel, E. (1983). The development of social knowledge: Morality and convention. *Cambridge University Press*.

Warneken, F., & Orlins, E. (2015). Children tell white lies to make others feel better. *British Journal of Developmental Psychology*, *33*(3), 259-270.

Westra, E. (2016). Pragmatic development and the false belief task. *Review of Philosophy and Psychology*, 1-23.

Wimmer, H., Gruber, S., & Perner, J. (1985). Young children's conception of lying: Moral intuition and the denotation and connotation of" to lie.". *Developmental Psychology*, *21*(6), 993.

Wimmer H &Perner J. (1983) Beliefs about beliefs: Representation and contraining function of wrong beliefs in young children's understanding of deception. *Cognition*, *13*, 103-128

Younger Children

Table 1.

Means and standard deviations of ratings of the younger children in the "tells truth" condition

	Benefit Self		Benefit Other	
	Likable	Unlikable	Likable	Unlikable
	M(SD)	M(SD)	M(SD)	M(SD)
Likability of Other Child	2.75 (1.98)	2.50(2.07)	1.50 (.926)	1.50 (1.41)
Likability of Protagonist	2.00(1.85)	3.63(1.92)	3.00(2.14)	3.38(1.85)
Goodness of the truth/lie	2.63(1.97)	2.50(2.07)	2.50(2.07)	3.00(2.14)
Keeping a Promise	3.00(1.60)	2.63(1.99)	2.63(1.60)	2.25(1.49)
Keeping a Secret	1.63(.961)	3.00(1.20)	2.88(1.89)	3.00(1.85)
Trustworthiness	3.13(1.55)	2.63(1.85)	2.25(1.83)	2.00(1.41)

Table 2.

Means and standard deviations of ratings of the older children in the "tells lie" condition

|	Benefit Self		Benefit Other	
	Likable	Unlikable	Likable	Unlikable
	M(SD)	M(SD)	M(SD)	M(SD)
Likability of the other child 1.50(1.41)	2.70(1.76)	2.30(1.64)	3.00(1.76)	
Likability of Protagonist	2.60(1.83)	3.10(1.85)	2.80(1.55)	3.29(1.70)
Goodness of the truth/lie	3.00(1.94)	2.80(1.99)	3.30(1.83)	3.60(1.84)
Keeping a Promise	3.50(1.84)	2.40(1.84)	3.00(1.89)	3.40(1.78)
Keeping a secret	3.30(1.77)	3.30(2.00)	2.80(1.93)	3.20(1.85)
Trustworthiness	4.10(1.66)	3.30(1.89)	2.60(1.43)	3.00(1.63)

Older Children

Table 3.

Means and standard deviations of ratings of the older children in the "tells truth" condition

|	Benefit Self		Benefit Other	
	Likable	Unlikable	Likable	Unlikable
	M(SD)	M(SD)	M(SD)	M(SD)
Likability of Other Child	2.87 (1.26)	2.31 (1.35)	2.19(1.47)	2.13(1.41)
Likability of Protagonist	2.38(1.63)	3.00(1.67)	3.25 (1.69)	2.19(.911)
Goodness of the truth/lie	2.63(1.67)	2.62(1.78)	1.75(1.49)	2.25(1.80)
Keeping a Promise	2.94(1.73)	3.06(1.61)	1.88(1.45)	3.00(1.79)
Keeping a Secret	2.63(1.62)	3.38(1.63)	1.94(1.06)	2.56(1.55)
Trustworthiness	2.69(1.66)	3.56(1.71)	2.06(1.12)	2.62(1.41)

Table 4.

Means and standard deviations of ratings of the older children in the "tells lie" condition

|	Benefit Self		Benefit Other	
	Likable	Unlikable	Likable	Unlikable
	M(SD)	M(SD)	M(SD)	M(SD)
Likability of the other child	2.14(.949)	2.14(1.23)	2.79(1.05)	2.57(1.34)
Likability of Protagonist	3.36(1.08)	4.36(1.00)	2.00(1.17)	3.29(.914)
Goodness of the truth/lie	4.57(1.16)	4.57(1.16)	4.07(1.50)	3.71(1.72)
Keeping a Promise	3.36(1.34)	4.36(1.45)	2.21(1.48)	3.21(1.42)
Keeping a secret	3.29(1.20)	4.50(1.09)	2.00(1.36)	3.21(1.53)
Trustworthiness	3.43(1.22)	4.50(.855)	2.50(1.35)	3.29(1.33)

Younger Children
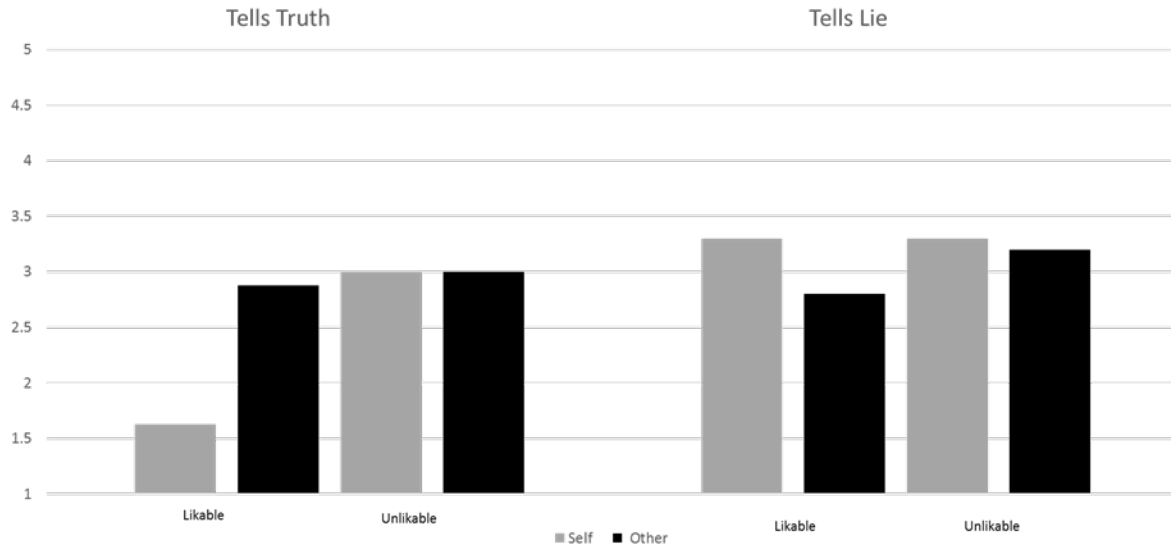
Figure 1. Younger children mean ratings of likelihood of protagonist keeping a secret as a function of likability and who benefits

Older Children
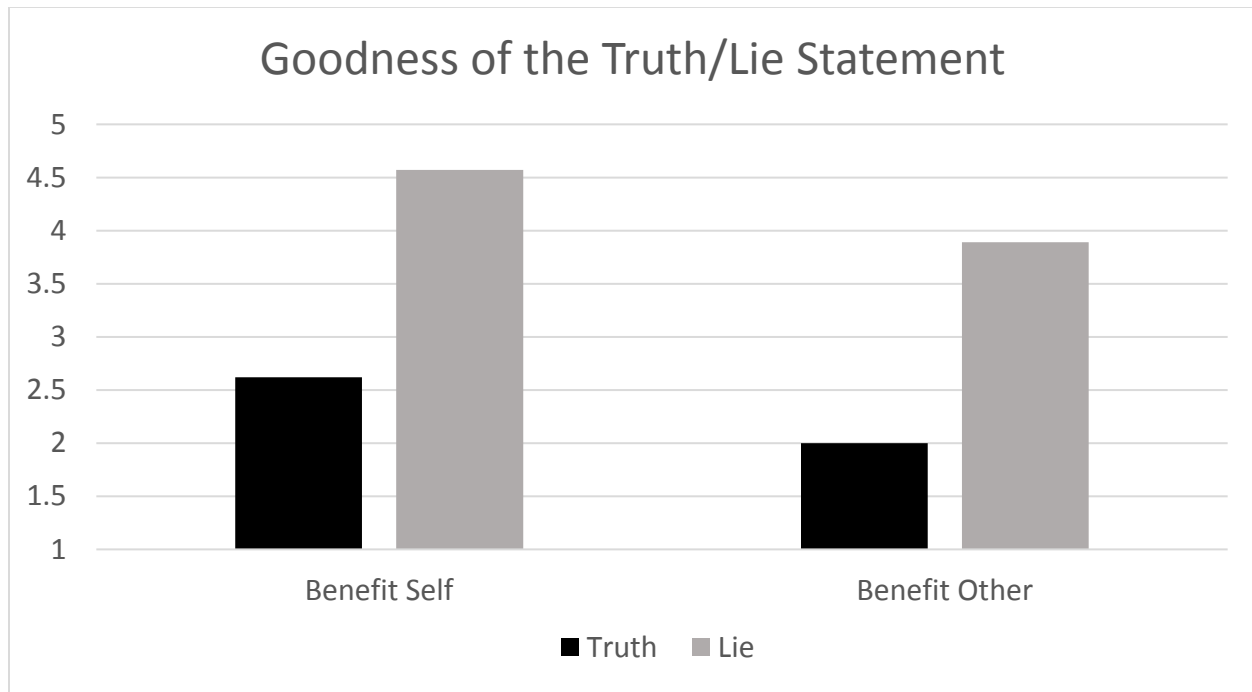
Figure 2 Mean ratings for the goodness of the truth/ lie statement as a function of who benefits

and protagonist likeability. Depicted is the main effect of whom the truth or lie benefitted. The

interaction and difference between the truth and lie conditions were not significant
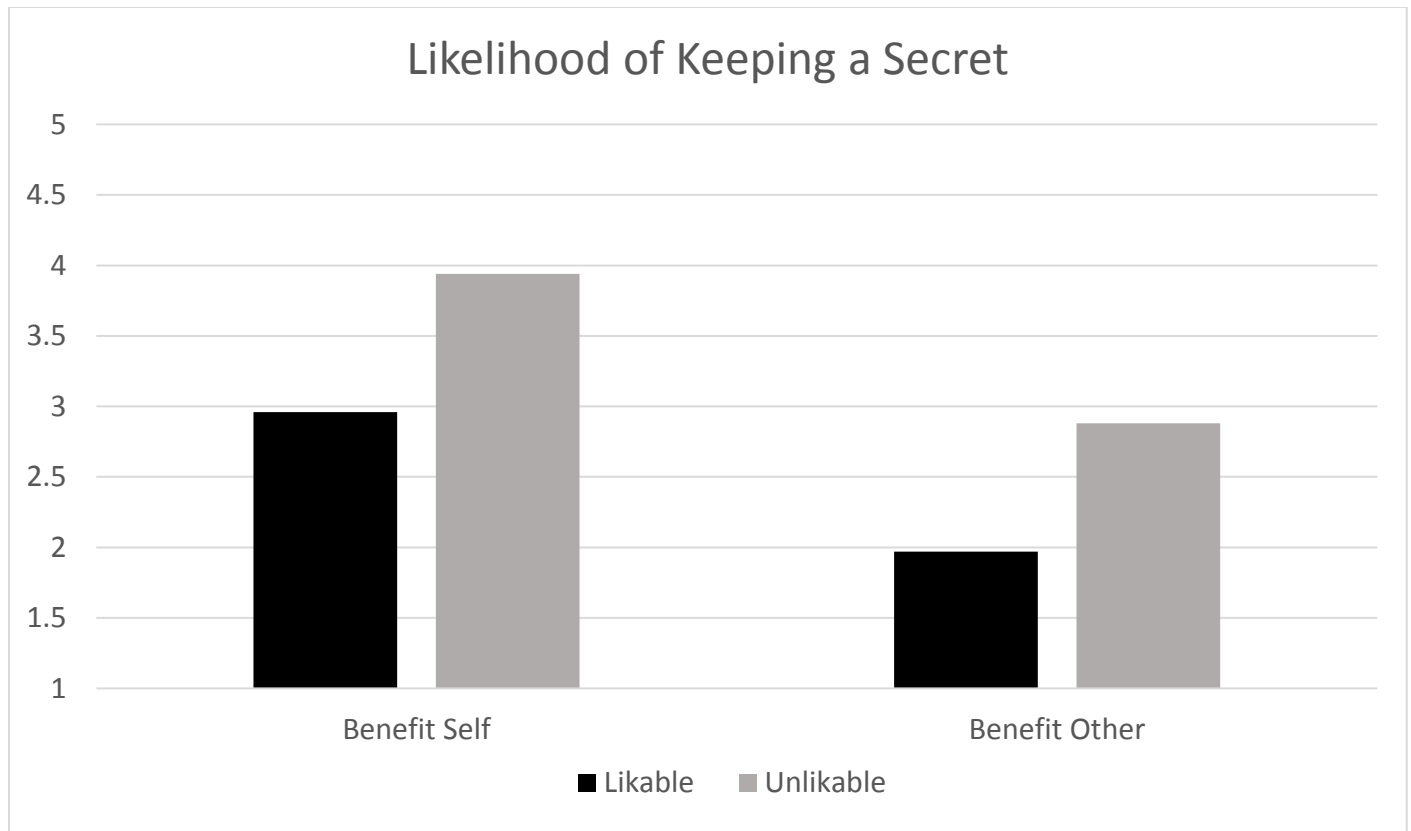
Figure 3 Mean ratings of the Protagonist keeping a secret as a function of who benefits and protagonist likeability. Depicted are the main effects of whom the truth or lie benefitted. The difference between the truth and lie conditions were significant.
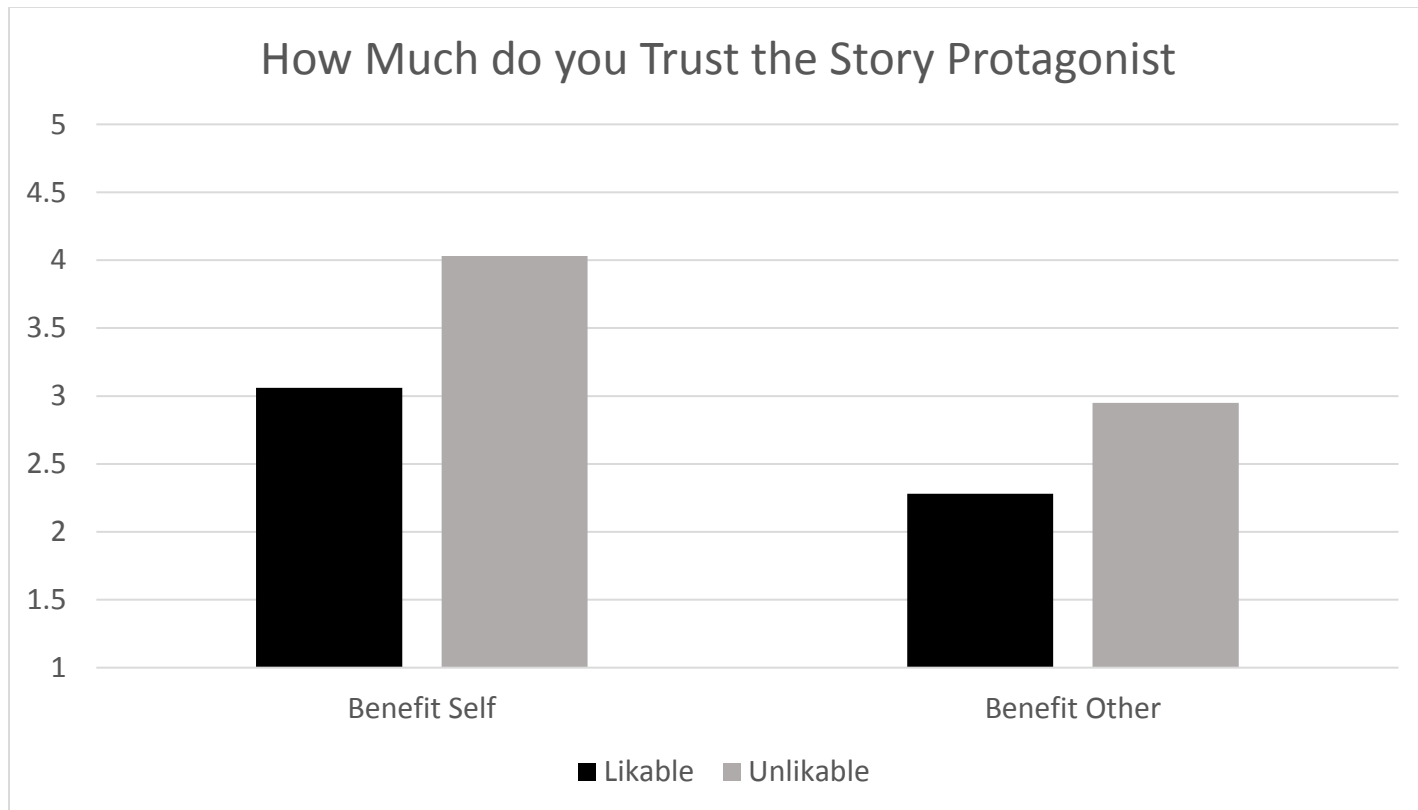
Figure 4 Mean ratings of the Protagonist's trustworthiness as a function of who benefits from the lie/truth and protagonist likeability. Depicted are the main effects of who benefits from the lie/truth and the likability of the protagonist. The interaction and difference between the truth and lie conditions was not significant.

Appendix A
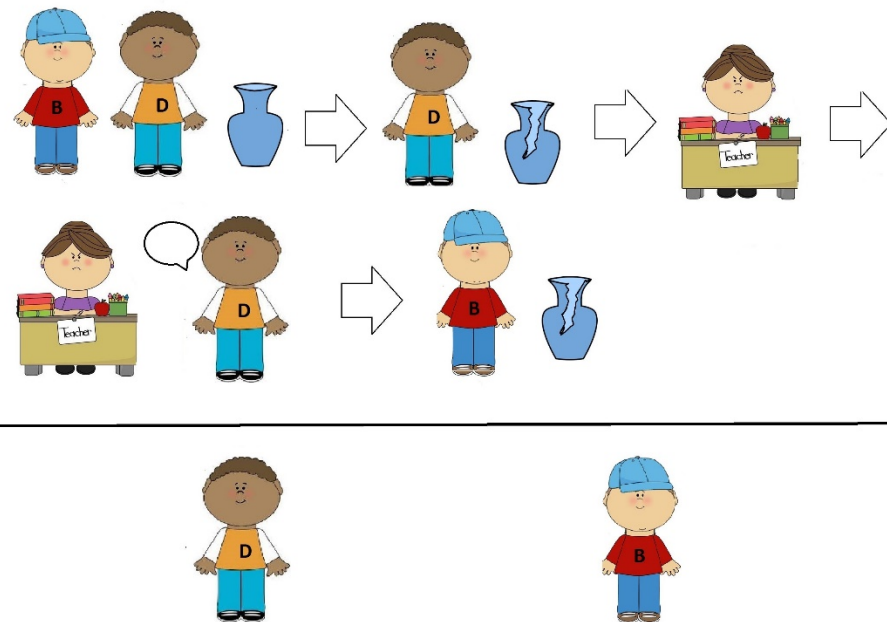
This version of the visual support materials is for a male participant, who is likeable (a smiling child indicates likability; an angry frowning child indicates unlikability), telling a lie about who broke the object.

Appendix B

Example Story for a likeable protagonist who lied to benefit themselves

One day Bobby and DeAndre (a polite boy who always cleaned up after himself) were playing in the classroom when DeAndre accidentally broke a vase. The teacher came in angry and said she would punish whoever broke the vase. DeAndre told the teacher that Bobby broke the vase

Example story for an unlikeable protagonist who lied to benefit another

One day Lukas and Jamal (a rude boy, who never cleaned up after himself) were playing in the classroom when Lukas accidentally broke a bowl. The teacher was angry and she said she would punish whoever broke the bowl. Jamal told the teacher he broke the bowl

Example story of a likeable protagonist who lied to benefit another

One day, Chris and Danny (a polite boy who always helped the teacher clean the classroom) were playing in the classroom. While they were playing, Chris accidentally broke a mirror. Their teacher came in and was very angry. She said that she would punish whoever broke the mirror, and she asked who did it. Danny told the teacher that he was the one who broke the mirror even though Chris really did it

Example of an unlikeable protagonist who lied to benefit themselves

One day, Andy and Eli (a rude boy who never cleans up after himself) were playing in the classroom. While they were playing, Eli accidentally broke a bowl. Their teacher came in and was very angry. She said that she would punish whoever broke the bowl, and she asked who did it. Eli told the teacher that Andy broke the bowl even though Eli really did it

Each story was modified with female names for female participants

Appendix C

Dependent Variable Questions for Each Story

Likability of the other child

Question 1: How much do you like _____ (name of other child)?

Likability of the Protagonist

Question 2: How much do you like _____ (story protagonist?)

Goodness of the Truth/ Lie

Question 3: Was it good for _____ (story protagonist) to say what he/she did?

Keeping a Promise

Question 4: _____ (story protagonist) made you a promise, would he/she keep it?

Keeping a Secret

Question 5: If you told _____ (story protagonist) a secret, would he/she

 keep it?

Trustworthiness of the Protagonist

Question 6: How much do you trust _____ (story protagonist)?

Appendix D

Example scale. The left most happy face received a score of 1 where the right most sad face received a score of 5 on all measures. This means that higher scores reflected a more negative judgement of the truth/ lie, less liking of the story protagonist, and less trust (including keep a secret, or a promise).