Children's and Adults' Conceptualization and Evaluation of Lying and Truth-telling

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Abstract

The present study examined children's and adults' categorization and moral judgment of truthful and untruthful statements. 7-, 9-and 11-year-old Chinese children and college students read stories in which story characters made truthful or untruthful statements and were asked to classify and evaluate the statements. The statements varied in terms of whether the speaker intended to help or harm a listener and whether the statement was made in a setting that called for informational accuracy or politeness. Results showed that the communicative intent and setting factors jointly influence children's categorization of lying and truth-telling, which extends an earlier finding (Lee & Ross, 1997) to childhood. Also, we found that children's and adults' moral judgments of lying and truth-telling were influenced by the communicative intent but not the setting factor. The present results were discussed in terms of Sweetser's (1987) folkloristic model of lying.

Keywords

lying; moral evaluation; white lies; deception; politeness; Chinese; culture

Since Piaget (1932), there has been a great deal of research on the development of moral conceptions of lying (Bussey, 1992; Coleman & Kay, 1981; Peterson, 1995; Peterson, Peterson, & Seeto, 1983; Strichartz & Burton, 1990). This line of research has primarily focused on two questions: (1) how is the concept of lying understood by children and adults? (2) how do children and adults evaluate lie- and truth-telling? The answers to these questions have significant theoretical and practical implications. Theoretically, knowledge about the development of the moral conception of lying contributes to our understanding of how moral principles are applied by children and adults in the domain of interpersonal communication (Bussey, 1999; Fu, Xu, Cameron, Heyman, & Lee, 2007; Perkins & Turiel, 2007). Practically, information about how children acquire the moral conception of lying helps parents, educators, clinicians, and legal professionals to develop means to promote honesty (Goodman *et al.*, 2006; Lyon & Saywitz, 1999; Talwar, Lee, Bala, & Lindsay, 2004).

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Developmental psychologists have primarily employed three approaches in the investigation of children's and adults' concept of lying: a propositional approach, a prototypical approach, and a folkloristic approach (for a review, see Lee, 2000). The propositional approach defines a lie based on the satisfaction of all three conditions: (1) the speaker makes a false statement to a listener; (2) the speaker believes the statement to be false; (3) the speaker intends to lead the listener to believe the statement to be true (Chisholm & Feehen, 1977). In this approach, a statement is dichotomized as a lie (if all the conditions are met) or 'not lie/the truth' (if at least one of the conditions are not met).

The prototypical approach, in contrast, posits a 'lie continuum' with 'prototypical lie-telling' on one end, and 'prototypical truth-telling' on the other (Coleman & Kay, 1981). A prototypical lie is composed of three semantic elements: (1) the statement is factually false; (2) the speaker believes that the statement is false; and (3) the speaker intends to deceive the listener (Coleman & Kay, 1981). In contrast, prototypical truth-telling takes place when: (1) the speaker makes a statement that is factually true; (2) the speaker believes the statement to be true; and (3) the speaker asserts the statement to inform the listener. The extent to which a statement can be thought of as a lie depends upon the extent to which it matches the prototype of lying. As the number of prototypical lie-telling elements that are present increases, so does the likelihood that an observer will classify the statement as a lie and that the observer's confidence in that decision will grow (Coleman & Kay, 1981).

In contrast to the two approaches, Sweetser (1987) proposed a folkloristic model, which takes social and cultural factors into account. While agreeing that lying is a prototypical phenomenon, Sweetser (1987) argued that the presence or absence of the semantic elements of prototypical lying is not the sole criterion people use to judge whether a statement is a lie. The communicative intent of the speaker is another factor that influences people's decision. For example, an intentional false statement will be either a lie or not a lie depending on whether the speaker's intention is to harm or to help the listener (Sweetser, 1987). In addition, the setting in which a statement is made also contributes to people's judgment (Sweetser, 1987). Two main types of settings that have been addressed in the existing literature are an informational setting and a politeness setting (Grice, 1975; Lakoff, 1973; Sweetser, 1987). In an informational setting, the aim of communication is to provide information as accurately as possible. For example, while shopping with a friend, an individual may ask the friend whether she looks okay with a dress she is considering. If the friend considers the dress not to be suitable for the individual, the situation expects the friend to tell the truth. Thus, the discourse in this setting is subject to Grice's (1975) informational rule (i.e. inform, do not misinform others). In a politeness setting, the informational value of communication is not crucial. Rather, the aim of communication is to establish positive social relations. For example, an individual gives a birthday gift to a friend. Even if the friend does not like the gift, the situation expects the friend not to be bluntly truthful. In this situation, the discourse is subject to Lakoff's (1973) politeness rules (i.e. give options, make others feel good and be amicable, and do not impose). Sweetser (1987) predicted that an intentionally false statement made in an informational setting is more likely to be labelled as a lie than the same statement made in a politeness setting. Sweetser (1987) also pointed out that the communicative intent and the setting may jointly affect veracity, though no specification was given in relation to how the two factors interact in the conceptualization of truth-telling.

To date, only one study has specifically tested Sweetser's prediction (Lee & Ross, 1997). Lee and Ross (1997) found that, for both 12- and 19-year-olds, an intentionally false statement was considered to be more of a lie when the motive in lie-telling was to harm the listener than when the motive was to help. Conversely, an intentionally false statement made in a politeness setting was judged to be less of a lie compared with similar statement made in the informational setting. Thus, they concluded that Sweetser's model is applicable to both adolescents and adults.

However, no direct evidence exists as to whether children under 12 years of age also classify untruthful statements in a way that is consistent with Sweetser's model. One study suggests that young children may consider contextual factors when categorizing untruthful statements (Siegal, Surian, Nemeroff, & Peterson, 2000). Siegal *et al*. (2000) reported that Catholic school children did not categorize untruthful statements as lies when the speaker had been blessed by a priest. In contrast, some other existing studies seem to suggest that children under 12 years of age may not adhere to Sweetser's model when categorizing untruthful statements. For example, Bussey (1999) found that younger children (4-, 8-, and 11-year-olds) categorized untruthful statements as lies regardless of whether the statements were made to be polite, to trick others, or to conceal a transgression. Lee, Xu, Fu, Cameron and Chen (2001) found that Chinese children at 7, 9, and 11 years of age categorized untruthful statements told to be modest as lies even though they gave them less negative ratings. Taken together, these findings appear to suggest that children under 12 years old categorize untruthful statement as lies mainly based on whether the semantic elements outlined above are met even though they could consider contextual factors when rating untruthful statements.

However, none of these studies were specifically designed to test Sweetser's model. Although the communicative intent (to help or harm) was integrated into their investigation, the effect of settings (informational setting versus politeness setting) was not taken into account. Therefore, whether the concept of lying for children under 12 years old is supported by Sweetser's model remains unclear. To bridge this gap, we conducted the present study in which 7-, 9-, 11-year-olds and adults were included to examine the developmental change of the concept of lying for children less than 12 years old and the similarities and differences of such a concept between children and adults.

Sweetser's model was originally proposed to capture the categorization of lie-and truth-telling statements. Nevertheless, the previous studies seem to suggest that this model can be applicable to moral evaluations of lie- and truth-telling. For example, Lindskold and Han (1986) reported that American college students evaluated lies in terms of general social motives (e.g. giving different ratings to the lies told with different purposes). Bussey (1999) found that 4-, 8-, and 11-year-olds rated 'white lies' as the least serious type of lie and antisocial lies as the most serious even though they categorized untruthful statements as lies regardless of the speaker's intention. This finding indicates the effect of lie-tellers' motivation on children's moral evaluation. In addition, Lee, Cameron, Xu, Fu, and Board (1997) reported that both Chinese and Canadian children (7-, 9- and 11-year-olds) took into account the pro-social or antisocial nature of lie or truth-telling when they evaluated truthful and untruthful statements told to be modest (i.e. lying about one's own good behaviour to avoid showing off).

However, no study has been conducted to examine whether Sweetser's model is indeed applicable to individuals' moral evaluations of lie- and truth-telling. Specifically, it is unclear whether individuals would give differential evaluations to lies and truths told in an informational versus a politeness setting, with the intent either to harm or to help the listener. It is unclear whether children would take into consideration both the general communicative motives and contexts when evaluating lies and truths. Existing cross-cultural studies on children's and adults' moral judgments of lying to be modest and to help either an individual or a collective indirectly suggest differential moral judgments may exist with regard to morally evaluating lies told to be polite. Furthermore, it is methodologically important to examine participants' moral evaluations along with the categorizations of truthful and untruthful statements in light of the Lee and Ross (1997) study. In their study, participants were asked to rate the extent to which a statement is a lie or the truth on a 7-point Likert scale. A possible confound of this procedure is that instead of categorizing a statement as the truth or a lie, their participants might have been making moral judgments of the positivity or negativity of the statement.

To bridge the gap and to address the potential confound, the present study directly tested Sweetser's model with four age groups of Chinese participants (7-, 9-, 11- and 22-year-olds), in terms of not only the categorizations of truthful and untruthful statements but also the moral evaluations of such statements. Participants were presented with vignettes in which story characters would tell either a prototypical lie or the truth in either an informational setting or a politeness setting. Furthermore, we made explicit whether the characters told a lie or the truth with the intent either to harm or to help. Participants were asked to determine whether the statement was a lie, the truth or something else (the categorization task) and to rate how positive or negative the statement was (the moral evaluation task).

Based upon existing findings (e.g. Bussey, 1999), first, we predicted that young children would be more inclined to rely on factuality than situational factors when classifying statements, whereas the categorization of statements by older children and adults would be influenced by both communicative intents and settings. More specifically, according to Sweetser's model and the results from Lee and Ross (1997), a false statement made with an intention to help should be less likely to be judged as a lie than a false statement told with an intent to harm; also, a false statement made in the politeness setting should be less likely to be judged as a lie than the same statement made in the informational setting. Second, we hypothesized that the setting and the speaker's communicative intent would affect participants' moral evaluations along this same developmental trajectory (extending Sweetser's model to the domain of moral judgment).

METHOD

Participants

One hundred and nineteen individuals participated in this study: Thirty 7-year-olds (*M* age = 7.59 years; 15 girls), twenty-nine 9-year-olds (*M* age = 9.55 years; 20 girls), thirty 11-year-olds (*M* age = 11.47 years; 19 girls), and thirty undergraduate students (*M* age = 22.00 years; 15 females). The children were recruited from an elementary school in China. They were from families of mixed socioeconomic backgrounds, and their parents worked in all walks of life. Children's permission to participate in the study was given by either their parents or legal guardians. The adult participants were undergraduate students from a Chinese university. Informed consent was obtained from the adult participants prior to participation.

Materials

Eight vignettes were prepared. These vignettes were based on the stories used in the existing studies (Lee & Ross, 1997). They were brief with the information about a speaker's communicative intent and the setting, yet highly explicit so as to accommodate younger participants' limited cognitive ability and attention span. Four described prototypical lying situations, and four prototypical truth-telling situations (see Appendix). Each situation consisted of a description of two children's conversation, which was illustrated in two colour pictures. In the prototypical lying situations, one of the characters made a factually false statement, which he/she believed to be false, with the intent to deceive the other child. In the prototypical truth-telling situations, one of the children intentionally made a factually true statement that he/she believed to be true. Within each type of situation (i.e. lie-telling or truth-telling), the speaker's communicative intent (to help or harm the listener) and the setting (informational or politeness) were manipulated to produce four sets of vignettes: (1) the speaker made a truthful or untruthful statement to help the listener in an informational setting; (2) the speaker made a truthful or untruthful statement to help the listener in a politeness setting; (3) the speaker made a truthful or untruthful statement to harm the listener in an informational setting; (4) the speaker made a truthful or untruthful statement to harm the listener in a politeness setting. Thus, there were eight vignettes in total.

For example, in the following vignette, a child makes a factually false statement with intentions to deceive the listener in order to spare the listener's feelings in a politeness setting:

> Mingming was eating one of her apples when one of her friends, Xiaoxiao, came over to see her. Mingming offered Xiaoxiao an apple. Xiaoxiao took the apple and began to eat it. Mingming asked him, 'Do you like the apple?' Xiaoxiao didn't like the apple because it was too sour to eat. Xiaoxiao didn't want to make Mingming unhappy, so he said, 'Yes, I like it.'

For each vignette, there were two versions. In one version, the story characters were males, and in the other they were females. Half of the participants (approximately half male) read the male version, and the other half (approximately half male) read the female version.

Procedure

Each child participant was interviewed individually in a quiet room. The entire procedure was conducted in a single, 20 min, session. Before the experimenter read the vignettes, she trained the participants on how to use a 7-point rating scale: 'very, very good' (three red stars), 'very good' (two red stars), 'good' (one red star), 'neither good nor bad (a blue circle), 'bad' (one black X), 'very bad' (two black Xs), and 'very, very bad' (three black Xs). Once participants learned how to use the scale, the experimenter read each of the eight vignettes aloud. Following each vignette, the participants were asked to perform a classification task and a moral judgment task.

For the classification task, existing studies have used several questioning formats. Some used a three-alternative format (e.g. 'Is what [the speaker's name] said a lie, the truth, or something else?'), and some used a two-alternative format (e.g. 'Is what [the speaker's name] said a lie, or not a lie?' followed by the question 'Is it the truth or not the truth?'). Regardless of question formats, consistent results have been found (Fu, Lee, Cameron, & Xu, 2001; Fu *et al*., 2007; Lee & Ross, 1997; Lee *et al*., 1997, 2001). However, because the present study involved young elementary school children, the simpler two-alternative format was used. In the present study, the participants were asked, 'Is [the speaker's name] telling a lie or not a lie?' Participants who said it was a lie were asked, 'Is [the speaker's name] telling a big lie, or a small lie, or neither a big nor small lie (i.e. a moderate lie)?' Participants who indicated that it was not a lie were asked, 'Is [the speaker's name] telling the truth?' For the moral evaluation task, the participants were asked, 'Was what [the speaker's name] said good or bad?' The order of the evaluative terms (i.e. good and bad) was counterbalanced between the vignettes. The participants indicated the degree of goodness/badness of the character's statement by pointing to one of the symbols on the 7-point rating scale.

To control for an order effect, half the participants were read the vignettes in one order randomized according to a random number table, while the other half were read the vignettes in the reverse order. To control for the effect of question order, half of the participants were asked the classification questions first, followed by the moral evaluations. The remaining participants were asked the questions in the reverse order.

The procedure was slightly different for adult participants. The materials (i.e. the vignettes and questions) were presented in a questionnaire format and participants responded in writing. All other procedural elements were identical for children and adults.

RESULTS

Preliminary analyses failed to reveal any significant effects of participant gender, story version, and story order. Thus, data for these factors were combined for all subsequent analyses.

Classification of Truthful and Untruthful Statements in the Prototypical Lying and Truth-telling Vignettes

Overall, participants were most likely to indicate that prototypical lying vignettes were depicting lie-telling (Table 1) and prototypical truth-telling vignettes were depicting truth-telling (Table 2), with some differences. Specifically, on average, 94% of the participants indicated that the speaker had lied to the listener in the prototypical lying vignettes, whereas only 87% of the participants said that the speaker had told the truth in the prototypical truth-telling scenarios. To examine the effects of communicative intent and setting, we analysed the classification data from the prototypical lying and truth-telling vignettes separately.

Prototypical lying vignettes—A 2 (setting: informational versus politeness) × 2 (intent: help versus harm) × 4 (group: 7-, 9-, 11-year-olds and adults) repeated measures non-parametric analysis using the SAS CADMOD procedure was conducted on the classification data. The participants' classifications were dichotomized into 'lie' and 'not lie' categories. Neither main effects of intent, setting, and age group, nor their interactions were significant, suggesting that the participants did not consider contextual factors when categorizing prototypical untruthful statements as a lie or not a lie. The majority of children and adults identified the four deceptive vignettes as examples of lie-telling.

To obtain additional information regarding the effects of setting and communicative intent on conceptualizations of lying, we examined participants' magnitude judgments of the deception (Figure 1). All magnitude scores were recoded into a 3-point scale (*small lie* = −1, *medium lie* = −2, and *big lie* = −3).

A 4 (Age) × 2 (Setting: Informational versus Politeness) × 2 (Communicative Intent: Help versus Harm) mixed factors analysis of variance (ANOVA) (with the last two variables as repeated measures) was performed on the magnitude scores. There were significant main effects of age, $F(3, 114) = 10.85$, $p<0.001$, $\eta^2 = 0.22$), setting, $F(1, 114) = 21.29$, $p<0.001$, $\eta^2 = 0.16$, and communicative intent $F(1, 114) = 53.42$, $p<0.01$, $\eta^2 = 0.32$. Overall, as age increased, participants increasingly judged the untruthful statements to be more of a lie. They also judged untruthful statements told with intent to harm to be more of a lie, and judged untruthful statements told in the informational setting to be more of a lie than in the politeness setting.

These main effects were qualified by higher-order interactions. There was a significant interaction between setting and age, $F(3, 114) = 3.54$, $p<0.05$, $\eta^2 = 0.09$, as well as between communicative intent and age, $F(3, 114) = 7.40$, $p <0.01$, $\eta^2 = 0.16$. However, there was no significant interaction between setting and communicative intent, $F(1, 114) = 1.06$, $p = 0.31$, $\eta^2 = 0.01$. These effects were further qualified by a significant interaction between age, setting, and communicative intent, $F(3, 114) = 5.60$, $p<0.01$, $\eta^2 = 0.13$. Post hoc analyses revealed that younger children considered intentionally harmful deception in a politeness setting to be less of a lie than did adults: 7-year-olds indicated that this type of deception was closer to 'a little lie' more than other age groups, and 9-year-olds were more likely to trivialize the deception than adults, least significant difference (LSD), $p<0.05$. In addition, children indicated that deception for the purposes of harm in an informational setting was less of a lie than did adults, LSD, $p < 0.05$. With regard to the intention to help, there were no age differences in participants' magnitude scores regardless of the setting. That is, both children and adults tended to indicate that deception was minor when the speaker's untruthful statement was intended to help in both informational and politeness settings.

To examine whether the magnitude of deception measure was truly a measure tapping into conceptualization of lying, we considered the possible relationship between the magnitude of deception and moral evaluation. We first conducted correlation analyses between the two

measures. The results showed that magnitude of deception and moral evaluation are significantly correlated, $r(118) = 0.18$, $p<0.05$, for the untruthful statement told to help in a politeness setting; $r(118) = 0.57$, $p<0.001$, for the untruthful statement told to harm in a politeness setting; $r(118) = 0.24$, $p<0.01$, for the untruthful statement told to help in an informational setting; $r(118) = 0.38$, $p<0.01$, for the untruthful statement told to harm in a informational setting.

Given the significant correlations between magnitude of deception and moral judgment on untruthful statements, we conducted a 4 (Age: 7, 9, 11-year-olds and adults) $\times$ 2 (Setting: information versus politeness) $\times$ 2 (Communicative Intent: help versus harm) mixed factor analysis of covariance on degree of deception to investigate participants' conception of lying after partialing out the effect of moral evaluation. The magnitude of deception ratings on the four untruthful statements were used as repeated design dependent variables, and moral judgments of these statements were used as covariates. The results indicated significant main effects of age, $F(3, 113) = 3.88$, $p<0.05$, setting, $F(1, 113) = 6.86$, $p<0.05$, and intent, $F(1, 113) = 106.49$, $p<0.001$, respectively. As age increased, participants were likely to judge the untruthful statements as more of a lie. Also, the participants judged untruthful statements told with intent to harm to be more of a lie, and judged untruthful statements told in the informational setting to be more of a lie than in the politeness setting. The results also showed a significant interaction between communicative intent and age, $F(3, 113) = 5.80$, $p<0.01$: in both informational and politeness settings, adults generally considered intentionally harmful deception more of a lie than intentionally helpful deception, whereas younger children tended to hold both types of deceptions in a similarly negative view.

Prototypical truth-telling vignettes—A 2 (setting: informational versus politeness) $\times$ 2 (intent: help versus harm) $\times$ 4 (group: 7-, 9-, 11-year-olds and adults) CATMOD analysis was conducted on participants' classifications of truthful statements (dichotomized as 'the truth' or 'not the truth'), with the first two as the within-subject factors. The main effects of intent, setting and age were significant, $\chi^2(1, N = 119) = 36.91$, $p<0.001$, $\chi^2(1, N = 119) = 4.24$, $p<0.05$, and $\chi^2(3, N = 119) = 8.30$, $p<0.05$. For the significant age effect, *a priori* contrast with adults as the reference group revealed a significant difference between the 11-year-olds and adults, $\chi^2(1, N = 119) = 6.74$, $p<0.01$. For the significant intent effect, the participants were more likely to categorize the truthful statements as the truth when the speaker's intent was to help. For the significant setting effect, the participants were more reluctant to categorize the truthful statements told in an informational setting as the truth. This effect was qualified by a significant interaction between intent and setting, $\chi^2(1, N = 119) = 8.65$, $p<0.01$.

To examine the significant intent by setting interaction, two post hoc repeated measures CATMOD analyses were conducted for the harm and the help vignettes separately, with the setting factor as the repeated measure. For the harm vignettes, participants were likely to classify the truthful statement told in the informational setting not as the truth, $\chi^2(1, N = 119) = 10.69$, $p<0.01$. For the help vignettes, the setting effect was not significant, $\chi^2(1, N = 119) = 0.57$, $p = 0.45$. Thus, when categorizing the truthful statements, the participants considered the setting factor only when the speaker's intent was to harm the listener. When the intent was to help, the setting factor had no significant effect.

Participants' Moral Evaluations of Truthful and Untruthful Statements in the Prototypical Lying and Truth-telling Vignettes

Prototypical lying vignettes—One sample *t*-tests revealed that the ratings of untruthful statements with harmful intentions in informational and politeness settings by the four groups were all negative and significantly different from zero (Figure 2), for 7-year-olds, $t(29) = -11.06$, $p<0.001$, and $t(29) = -15.10$, $p<0.001$, respectively; for 9-year-olds, $t(28) = -9.59$, $p<0.001$,

and $t(28) = -13.82$, $p <0.001$, respectively; for 11-year-olds, $t(29) = -10.81$, $p<0.001$, and $t(29) = -13.29$, $p<0.001$, respectively; for adults, $t(28) = -10.36$, $p<0.001$, and $t(28) = -11.41$, $p<0.001$, respectively. With regard to the evaluation of untruthful statements told to help, adults gave positive ratings in both settings, and these ratings were significantly different from zero, $t(28) = 4.57$, $p< 0.001$, and $t(28) = 2.91$, $p<0.01$, whereas the ratings given by the three child groups were not different from zero.

A 4 (Age: 7, 9, 11-year-olds and adults) × 2 (Setting: information versus politeness) × 2 (Communicative Intent: help versus harm) mixed factor ANOVA was conducted on participants' moral evaluations of prototypical lies, with the last two variables as within-subjects factors. There was no significant main effect of age or setting, whereas the main effect of communicative intent was significant, $F(1, 114) = 203.43$, $p<0.001$, $\eta^2 = 0.64$. The participants gave significantly more negative ratings to untruthful statements when the intent was to harm than when the intent was to help. The only significant interaction was between communicative intent and age, $F(3, 114) = 11.02$, $p<0.001$, $\eta^2 = 0.23$. Follow-up analyses were performed separately on help and harm vignettes. Student–Newman–Keuls post hoc analyses showed that adults evaluated lying more positively than 7-, 9-and 11-year-olds on help vignettes, and that they viewed lying more negatively than 7-, 9- and 11-year-olds on harm vignettes. There were no differences among the ratings of the three child groups. Overall, when the speaker's intent was to help the listener, young adults evaluated prototypical lie-telling more positively than children. However, when the speaker's intent was to harm the listener, young adults rated lie-telling more negatively than children. In other words, adults showed more differentiated ratings between the help and harm vignettes.

Prototypical truth-telling vignettes—One sample t-tests revealed that 9-, 11- and 22-year-olds gave negative ratings to harmful truthful statements in informational and politeness settings, and these ratings were significantly different from zero (Figure 3), $t(28) = -4. 98$, $p<0.001$, and $t(28) = -4.70$, $p<0.001$ for 9-year-olds; $t(29) = -6.90$, $p<0.001$, and $t(29) = -3.34$, $p<0.01$ for 11-year-olds; $t(28) = -5.21$, $p<0.001$, and $t(28) = -11.60$, $p<0.001$ for adults. In contrast, 7-year-olds' ratings on the harmful truthful statements were not different from zero. All four age groups rated the helpful truthful statements in informational and politeness settings positively, with nearly all ratings significantly different from zero: for 7-year-olds, $t(29) = 6.72$, $p<0.001$, and $t(29) = 15.46$, $p<0.001$, respectively; for 9-year-olds, $t(28) = 3.66$, $p<0.01$, and $t(28) = 9.19$, $p<0.001$, respectively; for 11-year-olds, $t(29) = 0.92$, n.s., and $t(29) = 9.43$, $p<0.001$, respectively; for adults, $t(28) = 15.35$, $p<0.001$, and $t(28) = 10.41$, $p<0.001$, respectively.

A 4 (Age: 7, 9, 11-year-olds and adults) × 2 (Setting: information versus politeness) × 2 (Communicative Intent: help versus harm) mixed factor ANOVA was computed on participants' moral evaluations of prototypical truth-telling. There were significant main effects of age, $F(3, 114) = 8.00$, $p<0.001$, $\eta^2 = 0.17$ and communicative intent, $F(1, 114) = 408.16$, $p<0.001$, $\eta^2 = 0.78$, but the main effect of setting was not significant. Main effects were qualified by higher-order interactions. The age by intent interaction was significant, $F(3, 114) = 16.75$, $p<0.001$, $\eta^2 = 0.31$. Follow-up Student–Newman–Keuls post hoc analyses were performed separately on help and harm vignettes. The result indicated that young adults evaluated truth-telling more positively than 11-year-olds on help vignettes but their ratings were not significantly different from 7- and 9-year-olds. Additionally, adults viewed truth-telling more negatively than 7-, 9- and 11-year-olds on harm vignettes, whereas the three child groups' ratings did not differ from each other.

DISCUSSION

The present study tested the effect of communicative intent and setting factors on the categorization and moral judgments of truthful and untruthful statements in 7-, 9-, 11- and 22-year-old Chinese participants. With regard to untruthful statements, when participants were asked to categorize the statements as lies or not lies, the majority of them categorized them as lies regardless of communicative intent and setting. Also, there was no significant age difference in categorization. This finding is generally consistent with existing results in the literature that has shown that Western and Chinese children and adults categorize untruthful statements as lies when they are told to be modest (Fu *et al.*, 2001; Lee *et al.*, 1997; Lee *et al.*, 2001), to be polite (Bussey, 1999), and to help a collective or an individual (Fu *et al.*, 2007). It should be noted that these existing studies did not specifically test the effects of communicative intent and setting on participants' categorization of untruthful statements.

Our finding appears to be inconsistent with the results of Lee and Ross (1997) who reported that Canadian adolescents and young adults considered an intentional untruthful statement told with the motive to harm to be more of a lie than a similar statement told to help. As well, they viewed an intentional untruthful statement told in a politeness setting to be less of a lie than a similar statement told in an informational statement. This inconsistency is likely due to a major procedural difference. Lee and Ross (1997) required participants to rate the degree to which an untruthful statement belongs to the category of lies using the 7-point Likert scale, whereas we asked participants to classify untruthful statements into two dichotomized categorizations, 'lie' and 'not a lie'. Indeed, we analysed the data using a measure that required participants to judge the magnitude of deception, which is similar to the procedure used by Lee and Ross (1997). Our results became highly consistent with their findings when comparing judgments of the magnitude of deception: our participants rated untruthful statements told to harm more of a lie than untruth statements told to help, and they rated untruthful statements told in the informational setting more of a lie than such statements told in the politeness setting. Furthermore, these effects were more pronounced for adults than for children, which was also the case between adults and adolescents in the Lee and Ross (1997) study.

Why are the results markedly different between the categorization and magnitude measures? One possibility is that requiring participants to dichotomize a statement as a lie or not a lie might have forced them to focus on one rather than multiple factors when contemplating a response. In the case of prototypical lying vignettes used in the present study, the factuality factor might have overshadowed the setting and communicative intent factors. This explanation appears to be plausible because all the prototypical lying vignettes depicted statements that were factually untrue, which might have readily led to a 'lie' response. However, the present study was not designed to examine the relative influence of the factuality in relation to the other two factors. Thus, we could not provide direct answers to this issue, which requires future investigation with specifically designed studies.

Alternatively, another possibility is that the magnitude measure was in fact not measuring participants' conceptualization of lying. Rather, it measured participants' moral evaluations of the negativity of lying. Our moral judgment data failed to fully confirm this possibility. Although there were significant correlations between the magnitude and moral judgment measures, suggesting that participants' responses to the magnitude measure might have been influenced by their moral evaluations of the untruthful statements, the correlation coefficients were rather small for the two critical vignettes in which the speaker made an untruthful statement to help the listener. More importantly, the analyses that partialled out the effect of moral evaluation still revealed the significant effects of communicative intent and setting on participants' magnitude judgment of deception. These results suggested that the magnitude measure still indexed participants' conceptualization of lying above and beyond their moral

evaluations. The results of the present magnitude judgment thus confirmed the predictions derived from Sweetser's model and extended the findings of Lee and Ross (1997) to children under 12 years of age. In other words, Sweetser's model of lying may be applicable throughout childhood and adolescence. However, it should be noted that the influence of communicative intent and setting on participants' conceptualization seemed to develop with the increase of age.

To explore whether Sweetser's model is applicable tomoral evaluations of lying, we asked participants to judge the negativity or positivity of untruthful statements. Only the communicative intent significantly affected participants' moral judgments. Not surprisingly, participants rated untruthful statements told with intent to harm significantly more negatively than the same statements told with intent to help. This difference increased with age. However, whether or not the statement was made in the informational or politeness setting had no significant impact on participants' moral judgments. Thus, Sweetser's model appeared not to be entirely applicable to the moral judgment of lying. It should be noted that this lack of setting effect on participants' moral judgments contrasts directly with the significant setting effect on their magnitude scores. This difference further suggests that although the magnitude and moral judgment measures are related, theymight have tapped into different underlying constructs. The former might be more of a measurement of participants' conceptualization of lying whereas the latter might be more of a measurement of their moral evaluation of lying.

With regard to prototypical truth-telling vignettes, both communicative intent and setting factors affected participants' categorizations significantly. Overall, participants were more inclined to categorize truthful statements as the truth when the communicative intent was to help than when it was to harm. Also, they were more reluctant to categorize truthful statements as the truth in the informational setting than in the politeness setting, which was particularly more pronounced when the speaker had the intent to harm. This result was likely due to the fact that a truthful statement meant to harm might be perceived to have added harm when the information was highly valued as was the case in the informational setting. For an unknown reason, this effect was somewhat more pronounced for 9- and 11-year-olds than 7-year-olds and adults. Overall, our categorization results were highly similar to the findings of Lee and Ross (1997). Taken together, these findings suggest that Sweetser's model might be extendable to the conceptualization of truth-telling.

Similar to the findings regarding moral judgments of untruthful statements, the communicative intent factor affected participants' moral judgments of truthful statements. Participants gave truth-telling more positive ratings when it aimed to help than to harm. Also, this difference increased with age. Adults even gave positive ratings to both lies and truth told with an intention to help in both information and politeness settings, indicating that adults gave priority to helping others in social interaction. Nevertheless, it should be noted that adults still valued a truthful statement more than an untruthful statement because their ratings of truthful statements made with an intention to help were higher than those of the untruthful statements with a similar intention. The effect of the communicative intent found in this study was consistent with previous findings (Bussey, 1999; Lee *et al*., 1997; Lindskold & Han, 1986). Such an effect is likely due to socialization of social norms and conventions. As children gain more experience with these norms and conventions, they learn that some lies are more socially desirable than others. Specifically, lies that help others (i.e. white lies) are valued more than those intended to harm. When children receive undesirable gifts they are often encouraged to conceal their displeasure (i.e. lie) to spare the gift-giver's feelings. Even 3-year-olds are able to lie in this situation (Talwar & Lee, 2002). Given repeated exposures to this type of interaction, children may learn with increased age that lying with intent to help is socially acceptable and morally justifiable. However, the setting factor did not affect participants' moral judgments of truthful statements, which is consistent with those of untruthful statements. It appears that when

evaluating a truthful or untruthful statement, why a statement is made, rather than where it is made, matters more. In view of these findings, the current Sweetser model seems not to be fully applicable to moral evaluations. It should be noted that Sweetser's model was initially developed to account for the categorization of untruthful statements. Thus, to extend this model to account for moral evaluations of lying and truth-telling, one may need to consider additional important factors other than the distinction between information and politeness such as the nature of the listener (e.g. friend versus stranger) and cultural contexts.

Moreover, the lack of effect of setting on moral evaluations may also be due to the narrow situations in which the truthful and untruthful statements were told. To be specific, all the vignettes involved interpersonal situations rather than more serious lies about moral transgressions. Therefore, our conclusion could only be generalized to lies or truths told in interpersonal situations. Future research is needed to test whether, and if so, to what extent communicative intent and settings would affect the conceptualization and evaluation of lying and truth-telling involving immoral and illegal activities. In addition, cross-cultural studies are also needed to investigate the similarities and differences of the intent and setting effects on categorization and evaluation of lying and truth-telling across different cultures. In summary, the present study found that the communicative intent and setting factors jointly influence children's conceptualization of lying and truth-telling, which extends the findings of Lee and Ross (1997) obtained from adolescents and adults to childhood. These results suggest that Sweetser's model is applicable not only to adults' and adolescents' but also children's conceptions of lie- and truth-telling. In addition, we found that children's and adults' moral judgments of lying and truth-telling were influenced by the communicative intent but not the setting factor, suggesting that Sweetser's model may only be partially applicable to explain children's and adults' moral evaluations of lies and truths.

Acknowledgments

APPENDIX

Vignette type: Politeness Setting–Intent to Help

Untruthful statement

Mingming was eating one of her apples when one of her friends, Xiaoxiao, came over to see her. Mingming offered Xiaoxiao an apple. Xiaoxiao took the apple and began to eat it. Mingming asked him, 'Do you like the apple?' Xiaoxiao didn't like the apple because it was too sour to eat. Xiaoxiao didn't want to make Mingming unhappy, so he said, 'Yes, I like it.'

Truthful statement

Xiaoyi's father bought her a cartoon video. Xiaoyi invited her friend Qingqing to watch the cartoon with her. After they watched the cartoon, Xiaoyi asked Qingqing, 'Did you like the cartoon?' Qingqing liked it a lot and he knew that Xiaoyi liked it too. So, to make her feel happy, he said, 'Yes, I liked the cartoon.'

Vignette type: Politeness Setting–Intent to Harm

Untruthful statement

Xiaohong brought her new pencil case to school. She showed it to Xiaowei and asked him, 'Do you like my pencil case?' Xiaowei liked it a lot. But, to make Xiaohong unhappy, he said, 'No, I don't like the pencil case.'

Truthful statement

Xiaojing was eating cake when her classmate, Ningning, came along. Ningning wanted to exchange his apple for Xiaojing's cake. Xiaojing gave Ningning a piece of cake and he began to eat it. Xiaojing asked Ningning, 'Do you like the cake?' Ningning thought that the cake was too dry and he didn't like it. To make Xiaojing unhappy, he said, 'No, I don't like the cake.'

Vignette type: Information Setting–Intent to Help

Untruthful statement

Wenwen was sick and could not go to school. He wanted to know his grade on a test that he had taken. When Wenwen's friend, Pingping, came to visit him, he asked him, Have you gotten your mark on the exam? Pingping knew that Wenwen did not do well on the test. So that Wenwen would not feel badly, he said, No, I didn't. The results of the exam haven't come out yet.

Truthful statement

Xiaocheng finished his math homework and asked Xiaoqun to check it for him. When Xiaoqun returned the homework, Xiaocheng asked her, Did I make any mistakes? Xiaoqun had found two errors. Xiaoqun liked Xiaocheng and to help him get a good mark, she said, There are two mistakes in your homework.

Vignette type: Information Setting–Intent to Harm

Untruthful statement

Xiaoyu finished his homework and asked Xiaohui to check it for him. When Xiaohui returned the homework, Xiaoyu asked her, 'Are there any spelling mistakes?' Xiaohui had found several errors. Because Xiaohui did not want Xiaoyu to get a good mark, she said, 'No. They are all correct.'

Truthful statement

Xiaochen was in her drawing class. She had forgotten to bring her colour crayons, so she had to use a pencil. When she finished her drawing, she showed it to Zhenzhen and asked, 'Do you like my drawing?' Zhenzhen did not like Xiaochen's picture because it was not in colour. To make Xiaochen unhappy, she said, 'No, I don't like it.'

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Talwar V, Lee K, Bala N, Lindsay RCL. Children's lie-telling to conceal a parent's transgression: Legal implications. Law and Human Behavior 2004;28:411–435. [PubMed: 15499823]
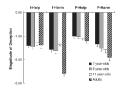
Figure 1.
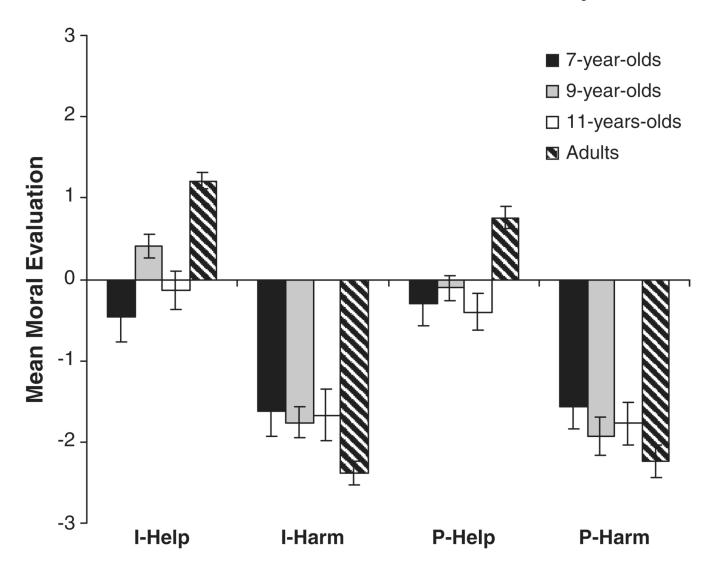Magnitude of deception by age, setting, and communicative intent.

Figure 2.
Average moral evaluations of lies as a function of age, setting, and communicative intent (+3 = very very good, 0 = neither good nor bad, −3 = very very bad; I refers to Informational Setting and P refers to Politeness Setting).

Figure 3.
Average moral evaluations of true statements as a function of age, setting, and communicative intent (+3 = very very good, 0 = neither good nor bad, −3 = very very bad; I refers to Informational Setting and P refers to Politeness Setting).
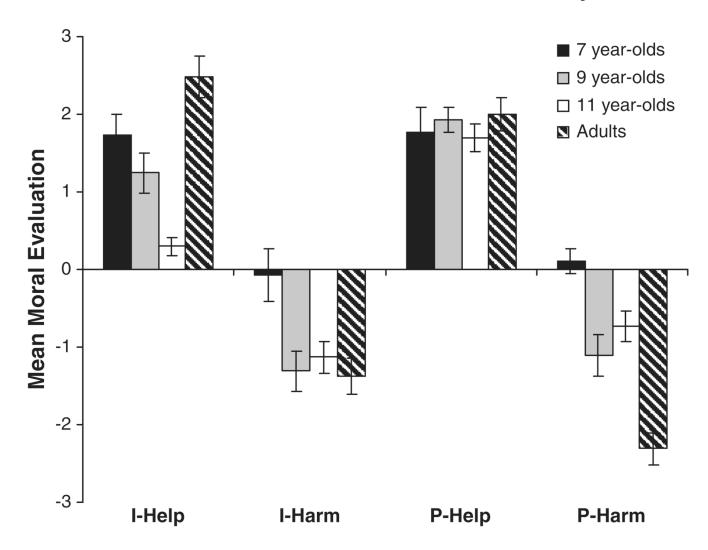
Table 1

Classifications of prototypical lie-telling vignettes as deceptive by age, setting, and intent

Age group	Intent to help		Intent to harm	
	%	***N***	**%**	***N***
Informational setting				
7-year-olds	100	30/30	97	29/30
9-year-olds	97	28/29	97	28/29
11-year-olds	90	27/30	100	30/30
Adults	87	26/30	97	29/30
Total	93	111/119	98	116/119
Politeness setting				
7-year-olds	90	27/30	93	28/30
9-year-olds	93	27/29	97	28/29
11-year-olds	97	29/30	93	28/30
Adults	83	25/30	97	29/30
Total	91	108/119	95	113/119

Table 2

Classifications of prototypical truth-telling vignettes as deceptive by age, setting, and intent

Age group	Intent to help		Intent to harm	
	%	**N**	**%**	**N**
Informational setting				
7-year-olds	97	29/30	80	24/30
9-year-olds	100	29/29	59	17/29
11-year-olds	93	28/30	50	15/30
Adults	97	29/30	90	27/30
Total	97	115/119	70	83/119
Politeness setting				
7-year-olds	100	30/30	93	28/30
9-year-olds	97	28/29	90	26/29
11-year-olds	90	27/30	70	21/30
Adults	93	28/30	87	26/30
Total	98	113/119	85	101/119