Development of Verbal Strategies for Lying Among Children and Adolescents

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Abstract

To investigate the development of verbal strategy for lying, a modified temptation-resistance paradigm was applied, in which Chinese children and adolescents (6-18 years) completed a knowledge-test: listening to a series of animal sounds before guessing the names of the animals. Meanwhile, behind the participants, a video was playing images that ostensibly corresponded to the sounds being played, though in fact this was not necessarily the case (unsolvable items). The participants were instructed not to look at the video. The results revealed that transgression (i.e., peeking at the video) and lying decreased with age. Nevertheless, strategies of shifting topics and attributing success to fortune increased with age when the participants lied about their correct answers to the unsolvable items.

Key Words: lying; social skills; verbal strategy

Introduction

DePaulo (2003) defined lying as the deliberate misleading of others. Lying could significantly harm common welfare (Prooijen & Lange, 2016). However, children begin to lie as early as 2 years old (Lee, 2013; Evans & Lee, 2013; Williams, Leduc, Crossman, & Talwar, 2017). A laboratory study showed that children between 6 and 11 years old were not good at semantic leakage control, defined as the ability to maintain consistency between initial lies and subsequent verbal statements (Talwar, Gordon, & Lee, 2007). However, a more ecological study showed that children's everyday deceptions reported by mothers were varied, flexible, context appropriate and complex, demonstrating deception skills developed from pragmatic need and situational exigencies (Newton, Reddy, & Bull, 2000). Therefore, verbal strategies for lying probably develop among children and adolescents. Investigating the development of verbal strategy could help develop corresponding honesty-endorsement education programs in school.

Verbal strategies for lying are the ways in which liars manipulate the content of speech to mislead others, for example, making up the reasons to explain the event that did not happen. Very few studies have focused on verbal strategy for lying, especially advanced verbal strategies among older individuals, such as adolescents. Most studies on lying have involved simple forms of lies, e.g., pointing at empty box/wrong card to mislead adults who tried to get chocolates/right cards (Russell, Jarrold, & Potel, 1994; Smith & LaFreniere, 2013), concealing the truth through a simple negative answer (Evans & Lee, 2011), reporting fake dice points (Gächter & Schulz, 2016).

To investigate the development of verbal strategy for lying, we applied an adapted temptation resistance paradigm to children and adolescents (6-18 years old). The traditional temptation-resistance paradigm was widely used in the research of

lying among children for its advantages in bringing about spontaneous lying and ecological validity. Lewis et al. (1989) used a temptation resistance paradigm in which they told 3-year-olds not to peek at a toy when the experimenter left the room. The majority of children peeked due to the highly tempting nature of the situation. As soon as children peeked at the toy, the experimenter returned to the room and asked the children if they had peeked. Among the 3-year-olds who peeked, 38% lied by denying they had peeked, 38% confessed, and 24% gave no verbal response. In another study using temptation resistance paradigm similar to that of Lewis: half of the 3-year-olds confessed to their transgression, whereas most 7-year-olds children lied (Talwar & Lee, 2002). Further research on children between 6 and 11 years of age in similar paradigm (children peeking at the answer to a trivia question while left alone in a room) showed that transgression behavior decreased with age; moreover, lying was not increased with age (Talwar et al., 2007).

Using a trivia-style test designed to assess adolescents' general knowledge about the world, Evans and Lee (2011) found that lying was less prevalent among 41 eleven- to thirteen-year-old and 34 fourteen- to sixteen- year old adolescents than 33 eight- to ten-year-old children. Moreover, they assessed sophistication of lies (ability to maintain consistency between their initial lie and the subsequent statements) yet found no significant age difference in this age range. Note that they did not assess the verbal strategy for lying. "Semantic leakage control" is one of the purposes of applying verbal strategies for lying, but not verbal strategy per se.

In order to investigate the development of verbal strategy for lying, we applied a novel paradigm to Chinese children and adolescents (6-18 years old). Specifically, for the dishonest participants who had cheated in the knowledge test, the experimenter questioned about how they got the correct answers to some unsolvable items.

Thematic analysis applying Grounded Theory Method (Charmaz & Belgrave, 2015) allowed us to discover common verbal strategies used by the participants when they attempted to justify their correct answers to the unsolvable items.

Hypothesis

This was a correlational study, with the primary purpose of exploring an unexplored phenomenon. Therefore, we simply hypothesized that with age more verbal strategies should develop due to the repeated practices in lying.

Methods

All procedures used in the current study were approved by the University Ethics Committee. Following the traditional custom in local schools, the participants were recruited with the informed consent of the participants' headmasters and teachers, and the participants themselves. The experimenter announced the advertisement orally in the participants' classrooms. Informed consent was obtained from the participants after thoroughly explaining the nature and consequence of this study. This procedure was approved by the University Ethics Committee.

Participants

Seventy-nine students (38 females, ethnic Han; 6 to 18 years old, $M = 12.78$ years, $SD = 3.92$ years) from primary and middle schools participated voluntarily. All children were typically developing and did not report any visual impairment. Each participant was compensated with a prize of an item of stationery costing around 10 RMB (about 1.5 US dollars) for their participation.

Measures and procedure

A *Lenovo Think-pad laptop*, with a built-in camera (30 fps). The indicator light of the camera was hidden by a cartoon sticker, and thus the participants were not able to notice the operation of the camera throughout the experiment.

A video of 13 different animals: dog, cat and cow in the earlier part serving for the practice trials; another 10 animals in the later part (goat, duck, dolphin, rooster, mouse, woodpecker, leopard, snake, sika deer and dinosaur) serving for the experimental trials. In each experimental trial, an animal picture was displayed for 15 seconds accompanied with its sound. However, the accompanied sound was not necessarily related to the animal. In particular, the sounds for dolphin, woodpecker, leopard, sika deer and dinosaur were not related to any pictured animal (unsolvable items). We did this in order to lure the participants into peeking at the pictures displayed in the video.

Procedure. The participants finished the experiment individually in a quiet classroom on their own campus. After the participants sat down at a desk, they were instructed to finish a “listen and guess the animal” test: the more animals they guessed correctly, the better the prize they would receive. The laptop showing the video of the animals was placed on the desk behind the participants, while the participants listened to the sounds from the video and guessed the animals’ names, writing down their answers on a paper.

Before the experimental trials, the participants practiced guessing dog, cat and cow (the sounds of which were familiar to the participants). After the participants correctly guessed all the animals’ names, the experimenter asked them to turn their heads around to look at the pictures in the video. We made this arrangement to ensure that the participants believed the corresponding animals were displayed on the laptop. All the participants correctly guessed the animals in the practice trials and thus proceeded to the experimental trials.

Before the experimental trials, the experimenter instructed them not to peek at the video. When the picture of "Goat" was displayed in the experimental trials, the

experimenter's cellphone rang (according to the intended plan for the experiment), and then the experimenter walked out of the classroom, explaining that he had to step out for a phone call, and instructed the participants not to look at the video displaying the animal. About 2-3 minutes later, the experimenter returned to the classroom, by which time the experimental trials were finished.

The experimenter went ahead and sat on the chair behind the laptop, asked the participants to turn around and look at him, so that the participants were facing the built-in camera which was secretly videotaping the participants' actions throughout the experiment.

The experimenter asked: "While I was out, did you peek at the screen?"

After the participants responded to this question, the experimenter asked them to hand over the paper and then checked the participant's answers. For the participants who had written any of the unsolvable items (i.e. dolphin, woodpecker, leopard, sika deer and dinosaur), the experimenter commented it was difficult to guess the animal, and asked, "How did you guess correctly?" All the participants who cheated responded to this question.

After the experiment, the participant received a randomly chosen gift regardless of her/his performance in the experimental trials.

Data analyses

Frequency of cheating (i.e., times of turning around one's head to peek) and lying (i.e., denial of turning around one's head to peek) were coded for each participant by two independent coders through watching the videos recorded by the camera. Thematic analysis based on the constructivist Grounded Theory (Charmaz & Belgrave, 2015) was used to identify common verbal strategies the participants used when accounting for their correct answers to the unsolvable items. First, the

participants' responses were transcribed; second, two graduate students in psychology read the transcripts, identifying common themes; third, a codebook was developed based on the identified verbal strategy for lying; finally, two trained coders coded each participant's verbal strategy for lying. For all the codes, coder agreements were higher than 80%, kappa values higher than 0.70. The final frequency of each code was obtained after the coders reached consensus through discussion about the initial disagreements.

Results

Cheating and Lying

Altogether, 51 participants (of the 79 participants) had cheated, turning their heads around to peek, and 42 participants lied when responding to the question about cheating.

Linear regression analysis with age and gender as the predictors was conducted on the frequency of cheating for all the participants. The model was significant, $F(2, 76) = 16.97, p < 0.001$, Adjusted $R^2 = 0.29$. Age effect was significant, $B = -0.47, t = -5.60, p < 0.001$, 95% Confidence Interval for $Exp(B)$: $[-0.64, -0.30]$. Frequency of cheating decreased with age. Gender effect was not significant, $p > 0.05$.

Logistic regression analysis choosing age and gender as the predictors was conducted on the dichotomous variable lying (0 - confession, 1 - lying) among the participants who cheated. The model was significant, $\chi^2 = 17.46, df = 2, p < 0.001$. Age was a significant predictor, $Wald = 12.61, df = 1, p < 0.001, Exp(B) = 35.62$. Lying decreased with age. Gender effect was not significant, $p > 0.05$.

Verbal strategies for lying when justifying correct answers to unsolvable items

Three verbal strategies for lying used by the participants were identified: 1). "Rationalization": rationalizing their correct answers through explaining their source

of knowledge, e.g., “watching Animal World (a TV program)”, or explaining their reasoning process, e.g., “It is neither a tiger nor a lion, thus I thought it was likely a leopard. I inferred it by comparing with other animals.” 2). “External attribution”: attributing the results to fortunate guess. For example, “I just guessed it.” 3). “Topic shift”: mentioning something irrelevant to the question. For example, “the sound is not clear.” Note that 35 participants applied strategy of “rationalization”, 13 participants applied “external attribution”, and only 7 participants applied “topic shift”. Some participants applied more than one strategy when justifying correct answers to unsolvable items.

Logistic regression analysis choosing age and gender as the predictors was conducted on each dichotomous variable of verbal strategies (0- absent, 1- present). The results showed that the model was significant on “external attribution”, $\chi^2 = 8.16$, $df = 2$, $p = 0.017$, Nagelkerke $R^2 = 0.24$. Age effect was significant, $B = 0.25$, $Wald = 6.12$, $df = 1$, $p = 0.013$, 95% *Confidence Interval for Exp(B)*: [1.05, 1.56]. The model was also significant on “topic shift”, $\chi^2 = 6.30$, $df = 2$, $p = 0.043$, Nagelkerke $R^2 = 0.22$. Age effect was significant, $B = 0.26$, $Wald = 4.85$, $df = 1$, $p = 0.028$, 95% *Confidence Interval for Exp(B)*: [1.03, 1.63].

Discussion

To our knowledge, this is the first study to investigate the development of verbal strategy for lying among children and adolescents. Overall, our results demonstrated that with age individuals developed more verbal strategies. The older liars may be better at concealing their transgression by shifting topics or accounting for their success to guessing, which does not require deliberate reasoning. Nevertheless, rationalization was the most commonly identified verbal strategy among our participants (proportion of rationalization = 83.3%). Consistently, Xu (2005) found

that children over 4 years old began to lie with a strategy such as rationalization.

Talwar and Lee (2008) found that older children were able to devise highly plausible explanations for their knowledge. Our results further suggested that “rationalization” was not the only strategy children and adolescents applied for lying. Other verbal strategies for lying such as “external attribution” and “topic shift” continued to develop with age. These verbal strategies for lying were probably less cognitively demanding than “rationalization”. With years of practice in lying, the older participants probably understood that the strategy of rationalization for lying is usually difficult or impossible in most social interactive situations.

Consistent with the study among Canadians by Evans and Lee (2011), transgression and lying among Chinese children and adolescents declined with age. However, unlike previous studies (Talwar & Lee, 2002; Talwar, Gordon, & Lee, 2007; Evans & Lee, 2011) in which most children were poor at semantic leakage control, our study showed that all of the participants (both children and adolescents) who cheated were good at semantic leakage when responding to the experimenter’s further questioning, maintaining consistency between initial lies and subsequent verbal statements. This may be due to our innovative paradigm, which allowed our participants to be creative in responding, rather than simply choosing between “yes” and “no”. Similarly, a previous study applying an open question design demonstrated development of nonverbal tactical deception among children (Smith & LaFreniere, 2013).

Note that six participants who had confessed that they had cheated concealed the degree of their cheating (i.e., the number of times they had peeked) with immediate follow-up explanations. In another word, the participants’ responses were somewhat between totally truthful confessing and totally false denying. This was exactly

predicted by the Information Manipulation Theory proposed by McCornack et al. (2014): even after a confession, an individual could still manipulate partial information covertly along multiple dimensions and as a contextual problem solving activity driven by the desire for quick, efficient, and viable communicative solutions for their own reputations and interests.

Limitation

This is only a correlational study. Cause-effect experimental studies are necessary in the future to identify factors influencing verbal strategies among children and adolescents. Moreover, it would be informative to conduct a cross-cultural study on the development of verbal strategies among Eastern and Western children and adolescents, for example, whether children from collective cultures are more likely to develop more advanced verbal strategies for lying due to their greater propensity toward lying for their own social group, as suggested by a previous study (Mazar & Aggarwal, 2011). Finally, the sample is relatively small, which is mainly due to the difficulty in conducting such behavior study in school.

Conclusion

Although cheating and lying declined with age among 6- to 18-year-old children and adolescents, verbal strategy for lying developed with age.

Compliance with Ethical Standards:***Disclosure of potential conflicts of interest:***

N.A. No potential conflict of interest. No funding/grant received for this study.

Ethical approval:

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent:

Informed consent was obtained from all individual participants included in the study. Moreover, the participants were recruited with the informed consent of the participants' headmasters and teachers.

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Table 1. Proportions of transgression, lying, and verbal strategies for lying (Unit: percent)

Cohort	Transgression **	lying* *	Topic shift**	External attribution **	Rationalizati on
Primary school children (Age: 6- 13)	85.4 (35/41)	88.6 (31/35)	6.4 (2/31)	19.4 (6/31)	83.8 (26/31)
Middle school adolescent s (Age: 15- 18)	42.1 (16/38)	68.8 (11/16)	45.5 (5/11)	63.6 (7/11)	81.8 (9/11)

(Note: **, cohort difference was significant at 0.01 alpha level)