



Young children are more likely to cheat after overhearing that a classmate is smart

Li Zhao^{1,2} | Lulu Chen¹ | Wenjin Sun¹ | Brian J. Compton^{1,3} | Kang Lee^{4,5} | Gail D. Heyman³

¹Institute of Psychological Sciences, Hangzhou Normal University, Hangzhou, PR China

²Zhejiang Key Laboratory for Research in Assessment of Cognitive Impairments, Hangzhou, PR China

³Department of Psychology, University of California San Diego, La Jolla, CA, USA

⁴Dr Eric Jackman Institute of Child Study, University of Toronto, Toronto, Canada

⁵Department of Psychology, Zhejiang Normal University, Jinhua, PR China

Correspondence

Li Zhao, Institutes of Psychological Sciences, Hangzhou Normal University, No. 2318 Yuhangtang Rd, Yuhang District, Hangzhou 311121, PR China.
Email: zhaoli@hznu.edu.cn

Funding information

This research was supported by grants from the National Natural Science Foundation of China (31900773) and the Zhejiang Provincial Office for Philosophy and Social Sciences of China (19NDJC058YB) to the first author.

Abstract

Research on moral socialization has largely focused on the role of direct communication and has almost completely ignored a potentially rich source of social influence: evaluative comments that children overhear. We examined for the first time whether overheard comments can shape children's moral behavior. Three- and 5-year-old children ($N = 200$) participated in a guessing game in which they were instructed not to cheat by peeking. We randomly assigned children to a condition in which they overheard an experimenter tell another adult that a classmate who was no longer present is smart, or to a control condition in which the overheard conversation consisted of non-social information. We found that 5-year-olds, but not 3-year-olds, cheated significantly more often if they overheard the classmate praised for being smart. These findings show that the effects of ability praise can spread far beyond the intended recipient to influence the behavior of children who are mere observers, and they suggest that overheard evaluative comments can be an important force in shaping moral development.

KEYWORDS

ability praise, cheating, eavesdropping, overhearing, smart, young children

1 | INTRODUCTION

Children, like adults, are highly sensitive to evaluative comments. For nearly a century, research on this topic has focused almost exclusively on the ways in which direct evaluations affect children's behavior (e.g., Annett, 1969; Brown, 1932; Getsie, Langer, & Glass, 1985; Sullivan, Kantak, & Burtner, 2008; see also Kluger & DeNisi, 1996, for a review). In contrast, little is known about the potential behavioral effects of indirect evaluations, such as when children overhear evaluative comments about their peers. This study seeks to bridge this gap in the literature by examining whether overhearing that a classmate is smart affects children's moral behavior.

Certain types of direct evaluative comments can have unintended consequences for children's behavior (e.g., Brummelman, Crocker, & Bushman, 2016; Cimpian, Arce, Markman, & Dweck, 2007; Kamins

& Dweck, 1999; Mueller & Dweck, 1998; Zhao, Heyman, Chen, & Lee, 2017). For example, researchers have found that ability praise, which involves making statements like 'you are so smart', can lead to negative outcomes such as challenge avoidance and poor tolerance of failure (Kamins & Dweck, 1999; Mueller & Dweck, 1998).

Recently, Zhao et al. (2017) found that these types of negative effects extend to children's moral behavior: 3- and 5-year-olds who were praised for being smart were more likely to cheat than their counterparts who were praised for their performance, or were not praised at all. One possible explanation is that ability praise directs children's attention to reputational concerns, which increases their willingness to resort to immoral means in order to appear smart (see Zhao, Heyman, Chen, & Lee, 2018). Because ability praise frequently occurs in a public context, these findings raise the intriguing

possibility that it may serve to also increase the rate of cheating among children who simply overhear praise for a third party.

There has been some, albeit limited, evidence that overhearing can influence language learning (e.g., Akhtar, 2005; Akhtar, Jipson, & Callanan, 2001; Au, Knightly, Jun, & Oh, 2002; Floor & Akhtar, 2010; Oshima-Takane, Goodz, & Derevensky, 1996). For example, Akhtar et al. (2001) randomly assigned 2-year-olds to a condition in which an adult introduced a novel word label to them directly, or a condition in which they observed one adult introduce a novel word label to another adult. Children in the two conditions performed equally well on the subsequent tests, demonstrating their ability to learn novel words from speech that was not directed to them. Akhtar (2005) later found that children of the same age reliably exhibited this ability even when they were distracted by other activities, and when the novel word was not explicitly labeled. The effects of overhearing also extend to other aspects of language learning, such as pronoun production (Oshima-Takane et al., 1996) and accent (Au et al., 2002).

There is also evidence that the effects of overhearing or eavesdropping on a conversation can extend beyond language learning (Phillips, Seston, & Kelemen, 2012; Repacholi & Meltzoff, 2007). Phillips et al. (2012) showed that both 2- and 3-year-olds can rapidly acquire function-based artifact categories via eavesdropping. Repacholi and Meltzoff (2007) showed that even 18-month-olds can use emotional cues that adults have signaled to others to guide their own object-directed behavior.

Despite evidence that the effects of overhearing on children's learning tend to be robust, to date researchers have not sought to determine whether overhearing can influence children's morally relevant actions. We directly address this question by examining whether 3- and 5-year-olds would be more likely to cheat after overhearing praise of another child for being smart.

To assess children's cheating behavior, we adapted a well-established peeking paradigm (e.g., Ding et al., 2014; Heyman, Fu, Lin, Qian, & Lee, 2015; Talwar & Lee, 2002; Zhao et al., 2017; 2018), in which children play a guessing game with an adult experimenter and are tempted to cheat in order to win a prize. Cheating was defined as an instance of obvious peeking, as recorded by a hidden camera. In each of two between-subjects conditions, children overheard a conversation between an experimenter and another adult. In the *overheard praise* condition the overheard conversation consisted of ability praise for a classmate who was no longer present, and in the *control* condition the conversation concerned the temperature of the room.

We hypothesized that overhearing ability praise would lead young children to become more inclined to cheat, based on recent evidence that preschoolers are more likely to cheat after they have been praised for being smart (see Zhao et al., 2017; 2018). We reasoned that if children overheard a peer being described as smart, it might promote concerns with social comparison (see Sheskin, Bloom, & Wynn, 2014) and consequently motivate them to try to match or surpass the performance of the classmate who was praised. Additionally, when children overhear ability praise, it is likely to

Research Highlights

- This study examined whether overhearing evaluative comments about a classmate affects young children's moral behavior.
- Three- and 5-year-olds participated in a guessing game in which they overheard an adult either describe a classmate as smart, or convey non-social information.
- Five-year-olds, but not 3-year-olds, cheated significantly more often in the game if they overheard the classmate praised for being smart.
- These findings show the negative effects of ability praise can be far-reaching, and identify overheard evaluative comments as an important force in shaping moral development.

indicate that the experimenter places a high value on being smart, or perhaps even that being smart is viewed as praiseworthy in general (see Ma et al., 2018, for evidence that adult praise contains cues that can help children to figure out which behaviors are desirable).

We also hypothesized that any effects of overheard praise would be greater for 5-year-olds than for 3-year-olds, based on evidence that reputational concerns become highly salient at around age 5 (e.g., Engelmann, Over, Herrmann, & Tomasello, 2013; Fu, Heyman, Qian, Guo, & Lee, 2016; Leimgruber, Shaw, Santos, & Olson, 2012; Piazza, Bering, & Ingram, 2011).

Finally, we anticipated that boys and girls might show different patterns of response. One possibility is that boys would cheat more than girls regardless of condition. This possibility is generally consistent with findings that men are more likely than women to engage in acts of dishonesty (Alm, Jackson, & McKee, 2009; Bucciol, Landini, & Piovesan, 2013; Teixeira & Rocha, 2010; Tibbetts, 1999). An alternative possibility is that there might be a gender by condition interaction in which boys would cheat more than girls in the overheard praise condition only. This possibility is generally consistent with findings that during the preschool years, boys tend to be more competitive than girls (Knight & Chao, 1989).

2 | METHOD

2.1 | Participants

Three- and 5-year-olds were tested, as has been done in prior work examining the effects of direct praise (Zhao et al., 2017; see also Zhao et al., 2018). We enrolled a total number of 200 children from a preschool located in Eastern China, including 100 3-year-olds (3.01–3.99 years; $M = 3.51$, $SD = 0.26$) and 100 5-year-olds (4.93–6.00 years; $M = 5.48$, $SD = 0.34$). An equal number of children within each age group were randomly assigned to each of two conditions, with an equal number of boys and girls



in each combination of age group by condition. The sample size was predetermined based on results from Zhao et al. (2017), which suggested that a sample size of 50 would be reasonable for determining whether there is a condition effect. All children were Han Chinese and from a middle-class background. The study was approved by the university IRB, parents or legal guardians gave informed consent to allow their children to participate, and children gave their oral assent prior to participating in the study. No data was excluded from our analyses.

2.2 | Procedure

Participants were tested in a private room at their preschool. They played six scored trials of a guessing game with an adult experimenter in which they were tempted to cheat in order to win a desired prize, and their potential cheating behavior during the final and decisive trial of the game served as the dependent measure.

Each session involved four individuals: the child *participant*, a same-gender *classmate* of the participant, an adult female *experimenter*, and a second adult female who served as the *interrupter* who interrupted early in the session to hold a brief conversation with the experimenter that was overheard by the participant. For children in the overheard praise condition the conversation consisted of ability praise for the classmate, and in the control condition the conversation consisted of non-evaluative comments about the temperature of the room.

The session began as the participant entered a testing room where the experimenter and the classmate were already seated at a table. This was the only time during the session that the classmate was present. The classmate then left the room with the interrupter without interacting with the experimenter or the participant. Given this design, all children except the first one tested each day contributed as a participant and then in the classmate role. (In the case of the first child each day, the classmate, unbeknownst to the participant, had just participated in a different study.)

After the classmate left with the interrupter, the experimenter closed the door and explained the rules of the game to the participant. The guessing game was a modified version of the peeking paradigm (see Heyman et al., 2015; Zhao et al., 2017; 2018) in which the experimenter hid a playing card (numbered from 3 to 9, omitting 6) behind a barrier that was placed on the table, and asked the participant to guess whether its value was greater or less than 6. Participants were told they could win a prize by guessing correctly on three of the six scored trials, and were instructed not to peek across the barrier during the game. On each trial they were presented with a single card from a custom deck of playing cards that had a value less than 6 on one side and a value greater than 6 on the other side. By providing standardized success and failure feedback (Trials 1 and 4 were always success trials, and Trials 2, 3, and 5 were always failure trials), the experimenter ensured that prior to the final trial (Trial 6), the participant had two correct guesses and therefore

only one more opportunity to make the third correct guess that was needed to win the prize.

Following a single practice trial that was identical to the subsequent trials except that it did not count toward the participant's score, the interrupter knocked at the door. The experimenter opened the door and remained inside the room as the interrupter stood outside. For participants in the overheard praise condition the interrupter asked, 'How did [name of the classmate] do in the game just now?' and the experimenter replied, '[name of the classmate] is a smart child.' For participants in the control condition the interrupter asked, 'How does the temperature of the room seem to you?' and the experimenter replied, 'It's just fine.' Right after the conversation, the interrupter left and the experimenter closed the door. The experimenter then began the six scored trials of the guessing game.

At the beginning of the final trial the experimenter's phone rang and she told the participant that she needed to leave the room to take the call. Before leaving, she asked the participant to promise not to cheat (see Heyman et al., 2015) during her absence by stating, 'I promise I will not peek at the card.' The experimenter then left the room for 60 s. Cheating was defined as any form of obvious peeking behavior (i.e., getting out of the seat and leaning across the barrier) that occurred while the experimenter was out of the room, as recorded by a hidden camera. Cheating latencies for the participants who cheated were determined by counting the number of seconds it took for them to initiate peeking after the experimenter left the room. The cheating behavior and the latencies were independently coded from video recordings by two graduate students who were blind to the study hypotheses. The peeking latencies were classified as the same if the two coders reported values that differed by no more than one second. Because it was obvious whether and when participants cheated, there was 100% inter-coder reliability for both the cheating behavior and latencies.

At the end of the session, as a manipulation check, the experimenter asked, 'What is the name of the child you saw when you arrived at this room?' and 'What did you hear when I talked to the person who knocked at the door?' All participants were able to identify the classmate by name and correctly summarize the overheard conversation (i.e., all of the children in the overheard praise condition made reference to overhearing that the classmate is smart, and all of the children in the control condition made reference to hearing about the temperature of the room).

3 | RESULTS

Cheating rates by condition and gender for both age groups are shown in Figure 1. For 5-year-olds, the cheating rates were 68% in the overheard praise condition and 42% in the control condition. For the 3-year-olds, they were 42% and 46% respectively.

We conducted a series of binary logistic regression analyses on cheating behavior, using the variable selection method of backward elimination. First, we did a preliminary analysis for participants overall,

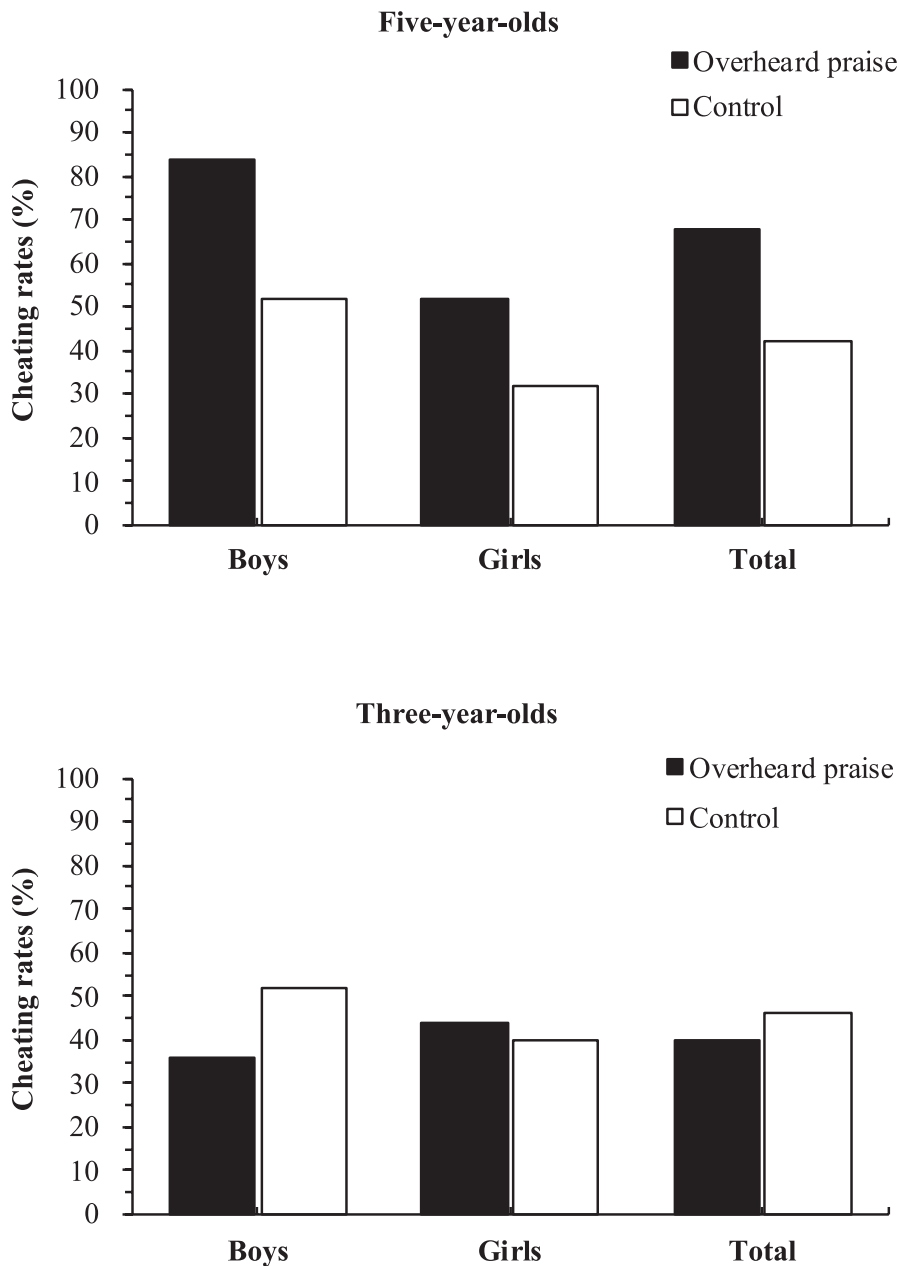


FIGURE 1 Cheating rates by age, condition, and gender

including Cheating Behavior (0 = no cheating, 1 = cheating) as the predicted variable, and Age Group (0 = 3-year-olds, for reference; 1 = 5-year-olds), Condition (0 = control, for reference; 1 = overheard praise), Gender (0 = girls, for reference; 1 = boys), as well as the two-way and three-way interactions as the predictors. There was only one significant effect: a three-way interaction among Condition, Age group, and Gender ($\beta = 1.90$, $SE \beta = 0.57$, $Wald = 11.25$, $df = 1$, $p = .001$, $odds\ ratio = 6.68$, $95\% \text{ CI} = 2.20 \text{ to } 20.28$; for the final model, $\chi^2_{(1, N = 200)} = 15.12$, $p = .001$, $-2\text{Log likelihood} = 262.06$, $Nagelkerk R^2 = 0.097$). A power analysis for this three-way interaction effect revealed a 'Critical z' of 1.960, as well as a power value of 0.960 (for the test ['Power (1 - β err prob)']), which suggested that the power was acceptable.

To break down this interaction, we subsequently conducted separate post hoc logistic regression analyses for each age group, including both Gender (0 = girls, for reference; 1 = boys)

and Condition (0 = control, for reference; 1 = overheard praise) as well as their two-way interactions as predictors. For 5-year-olds, there were two significant effects included in the final model ($\chi^2_{(2, N = 100)} = 14.37$, $p = .001$, $-2\text{Log likelihood} = 123.26$, $Nagelkerk R^2 = 0.18$). One was a main effect of Condition, indicating that the cheating rate was significantly higher in the overheard praise condition than in the control condition (68% vs. 42%; $\beta = 1.17$, $SE \beta = 0.44$, $Wald = 7.07$, $df = 1$, $p = .008$, $odds\ ratio = 3.21$, $95\% \text{ CI} = 1.36\text{--}7.59$). The other was a main effect of Gender, indicating that 5-year-old boys cheated significantly more often than 5-year-old girls in both conditions (68% vs. 42%; $\beta = 1.17$, $SE \beta = 0.44$, $Wald = 7.07$, $df = 1$, $p = .008$, $odds\ ratio = 3.21$, $95\% \text{ CI} = 1.36\text{--}7.59$). No other effects were included in the model ($ps > .1$). For 3-year-olds, neither the regression model nor any of these effects were significant ($ps > .1$).



For the participants who cheated we also adopted a series of non-parametric analyses (i.e., Mann–Whitney *U* tests) on their cheating latencies, given that the latencies were not normally distributed. We examined whether cheating latencies differed between the two conditions for both age groups and gender but did not find any significant differences ($ps > .1$).

4 | DISCUSSION

We investigated the effects of overheard evaluative comments on young children's moral behavior. After asking participants to promise not to cheat in a guessing game, we assessed the extent to which they would break this promise across two conditions: an overheard praise condition in which children overheard that a classmate who was no longer present is smart, or a control condition in which they overheard comments that involved non-social information.

We found that the effects of overhearing ability praise differed by age: 5-year-olds cheated significantly more frequently in response to overheard ability praise than to overheard non-social information, but the 3-year-olds' cheating rate was not sensitive to this manipulation. These results extend prior findings (Zhao et al., 2017) by showing that, at least for 5-year-olds, ability praise can promote cheating without it being conveyed to children directly.

It is noteworthy that Zhao et al. (2017) found direct ability praise promoted cheating even among 3-year-olds, with 62% of 3-year-olds and 58% of 5-year-olds engaging in cheating in response to direct ability praise, as compared to 40% and 68%, respectively, in the overheard praise condition of this study. Why might these contexts have a differential effect for 3-year-olds but not 5-year-olds? We believe this difference may be due to the information processing demands of overhearing a multi-party communication. In this research, the overheard communication involved three other individuals (the two adults who were speaking, and the classmate who was being praised), as compared to one other individual (the experimenter) in the prior work on direct praise. One might expect this cognitive complexity to affect 5-year-olds as well, but this does not appear to be the case. This may be because by age 5, children have the cognitive capacity to be able to understand complex multi-party interactions, and because they have the relevant social experience to know that they can learn a great deal from overheard conversations about other people.

An alternative explanation is that 3-year-olds are only sensitive to information about their own abilities, and thus the developmental transition concerns gaining the ability to see the behavior of others as relevant to the self. This is plausible because the direct praise study differed from the overheard praise condition in this study not only in the form the communication took (direct vs. overheard), but also in the target of the praise (the participant vs. another child). However, the preliminary results of an ongoing study we are conducting suggest that this target effect cannot account for this difference: we are finding that after overhearing that they themselves are smart, 3-year-olds are cheating at a level that is close to the 40% rate

that was seen in this study. However, this does not rule out the possibility that processing information about others is inherently more complex than processing information about the self, and that it may add to the complexity of processing overheard information in third-party contexts. This possibility would be generally consistent with theories suggesting that children use the self as a starting point for social cognition (Meltzoff, 2007). Consequently, future studies will be needed to disentangle the effects of the type of communication, versus the target of the evaluative comments.

Further research will also be needed to more fully understand the effect of overheard ability praise that was observed among 5-year-olds in this study. As noted previously, overheard ability praise may elicit concerns with social comparison. It may also lead to the inference that the experimenter places a high value on being smart, or that being smart is highly valued more generally. These possibilities could be explored by examining whether there are similar effects on cheating when concerns with social comparison are elicited in other ways, or when the social value of being smart is communicated in other ways.

An additional finding from this study was that among 5-year-olds, boys cheated more than girls, which is consistent with gender differences in dishonesty among adults (e.g., Alm et al., 2009; Bucciol et al., 2013; Tibbetts, 1999). However, it is somewhat surprising that no gender by condition interaction was found within either age group, given the three-way interaction observed for participants overall. This might be due to the fact that our sample size for this age group was not large enough to reveal a significant two-way interaction. This possibility is supported by a power analysis based on the results of our three-way interaction for participants overall, which revealed that a required sample size of 107 would be needed to detect a significant interaction, just seven participants more than the current sample size of 100 (However, we made similar power analyses based on the results of the condition and gender effects for 5-year-olds. Both analyses yielded a required sample size of 220, which is more than twice the current sample size of 100). Given that our sample size was predetermined on the basis of existing findings of condition differences, future research with larger sample sizes will be needed to look more closely at this issue.

This research significantly extends previous work on the effects of overheard conversations. This prior work has primarily focused on how overheard interactions might promote children's learning about language, objects, and emotions (e.g., Akhtar, 2005; Akhtar et al., 2001; Floor & Akhtar, 2010; Phillips et al., 2012; Repacholi & Meltzoff, 2007). Our work shows that overheard conversations can have unintended consequences for children's moral behavior.

Our findings also extend previous work on gossip (e.g., Eder & Enke, 1991; Gottman & Mettetal, 1986; Hill, 2007; Ingram & Bering, 2010), given that overheard ability praise can be considered a form of gossip, which is commonly defined as 'the sharing of evaluative information about an absent third party' (e.g., Dunbar, 1996; for a review, see Foster, 2004). Previous work has suggested that it is not



until about 8 years of age that children begin to use gossip to help them navigate social situations such as inferring social norms (e.g., Aikins, 2015; see also, Hill, 2007). These findings suggest that even 5-year-olds have some capacity to use gossip in a similar way, and it raises questions about other ways in which young children might use gossip to make sense of the social world.

Future research will be needed to examine the effects of overhearing other forms of praise, such as praise for being honest. Another important topic to address will be the effects of overheard criticism, although addressing this question raises challenging ethical issues. The results of this research will help us to better understand the effects of overheard evaluative comments on children's moral socialization.

Our findings have broad practical implications for parents, teachers, and other caregivers. Given that evaluative comments such as ability praise are often made in public contexts, more attention should be paid to minimize the potential negative effects on children who may be listening.

In summary, this research is the first to demonstrate that children as young as age 5 are more likely to engage in cheating after overhearing praise of another child for being smart. Our findings suggest that the negative implications of ability praise can spread outward, beyond the intended recipient, to affect the behavior of children who are mere observers. More broadly, our findings identify overheard evaluative information, a ubiquitous aspect of children's social environment, as an important force in shaping moral development.

ACKNOWLEDGEMENTS

The contributions of L. Zhao, L. Chen and W. Sun were funded by a grant from the National Natural Science Foundation of China (31900773) and a grant from the Zhejiang Provincial Office for Philosophy and Social Sciences of China (19NDJC058YB).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from L. Zhao (email: zhaoli@hznu.edu.cn) upon request.

REFERENCES

- Akhtar, N. (2005). The robustness of learning through overhearing. *Developmental Science*, 8, 199–209. <https://doi.org/10.1111/j.1467-7687.2005.00406.x>
- Akhtar, N., Jipson, J., & Callanan, M. A. (2001). Learning words through overhearing. *Child Development*, 72, 416–430. <https://doi.org/10.1111/1467-8624.00287>
- Alm, J., Jackson, B. R., & McKee, M. (2009). Getting the word out: Enforcement information dissemination and compliance behavior. *Journal of Public Economics*, 93, 392–402. <https://doi.org/10.1016/j.jpubeco.2008.10.007>
- Annett, J. (1969). *Feedback and human behaviour*. Harmondsworth, Middlesex: Penguin Books.
- Au, T. K., Knightly, L. M., Jun, S. A., & Oh, J. S. (2002). Overhearing a language during childhood. *Psychological Science*, 13, 238–243. <https://doi.org/10.1111/1467-9280.00444>
- Brown, E. J. (1932). Knowledge of results as an incentive in schoolroom practice. *Journal of Educational Psychology*, 23, 532–552. <https://doi.org/10.1037/h0074392>
- Brummelman, E., Crocker, J., & Bushman, B. J. (2016). The praise paradox: When and why praise backfires in children with low self-esteem. *Child Development Perspectives*, 10, 111–115. <https://doi.org/10.1111/cdep.12171>
- Buccioli, A., Landini, F., & Piovesan, M. (2013). Unethical behavior in the field: Demographic characteristics and beliefs of the cheater. *Journal of Economic Behavior & Organization*, 93, 248–257. <https://doi.org/10.1016/j.jebo.2013.03.018>
- Cimpian, A., Arce, H. M. C., Markman, E. M., & Dweck, C. S. (2007). Subtle linguistic cues affect children's motivation. *Psychological Science*, 18, 314–316. <https://doi.org/10.1111/j.1467-9280.2007.01896.x>
- Ding, X. P., Omrin, D. S., Evans, A. D., Fu, G., Chen, G., & Lee, K. (2014). Elementary school children's cheating behavior and its cognitive correlates. *Journal of Experimental Child Psychology*, 121, 85–95. <https://doi.org/10.1016/j.jecp.2013.12.005>
- Dunbar, R. I. M. (1996). *Grooming, gossip and the evolution of language*. Cambridge, MA: Harvard University Press.
- Eder, D., & Enke, J. L. (1991). The structure of gossip: Opportunities and constraints on collective expression among adolescents. *American Sociological Review*, 56, 494–508. <https://doi.org/10.2307/2096270>
- Engelmann, J. M., Over, H., Herrmann, E., & Tomasello, M. (2013). Young children care more about their reputation with ingroup members and potential reciprocators. *Developmental Science*, 16, 952–958. <https://doi.org/10.1111/desc.12086>
- Floor, P., & Akhtar, N. (2010). Can 18-month-old infants learn words by listening in on conversations? *Infancy*, 9, 327–339. https://doi.org/10.1207/s15327078in0903_4
- Foster, E. K. (2004). Research on gossip: Taxonomy, methods, and future directions. *Review of General Psychology*, 8, 78–99. <https://doi.org/10.1037/1089-2680.8.2.78>
- Fu, G., Heyman, G. D., Qian, M., Guo, T., & Lee, K. (2016). Young children with a positive reputation to maintain are less likely to cheat. *Developmental Science*, 19, 275–283. <https://doi.org/10.1111/desc.12304>
- Getsie, R. L., Langer, P., & Glass, G. V. (1985). Meta-analysis of the effects of type and combination of feedback on children's discrimination learning. *Review of Educational Research*, 55, 9–22. <https://doi.org/10.3102/00346543055001009>
- Gottman, J. M., & Mettetal, G. (1986). Speculations about social and affective development: Friendship and acquaintanceship through adolescence. In J. M. Gottman & J. G. Parker (Eds.), *Conversations of friends: Speculations on affective development* (pp. 192–240). New York, NY: Cambridge University Press.
- Heyman, G. D., Fu, G., Lin, J., Qian, M. K., & Lee, K. (2015). Eliciting promises from children reduces cheating. *Journal of Experimental Child Psychology*, 139, 242–248. <https://doi.org/10.1016/j.jecp.2015.04.013>
- Hill, V.A. (2007). *Children's understanding of gossip as it relates to reputation*. Unpublished doctoral dissertation. Dekalb, IL: Northern Illinois University.
- Ingram, G. P. D., & Bering, J. M. (2010). Children's tattling: The reporting of everyday norm violations in preschool settings. *Child Development*, 81, 945–957. <https://doi.org/10.1111/j.1467-8624.2010.01444.x>
- Kamins, M. L., & Dweck, C. S. (1999). Person versus process praise and criticism: Implications for contingent self-worth and coping. *Developmental Psychology*, 35, 835–847. <https://doi.org/10.1037//0012-1649.35.3.835>
- Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, 119, 254–284. <https://doi.org/10.1037/0033-2909.119.2.254>
- Knight, G. P., & Chao, C. C. (1989). Gender differences in the cooperative, competitive, and individualistic social values of children. *Motivation & Emotion*, 13, 125–141. <https://doi.org/10.1007/BF00992958>



- Leimgruber, K. L., Shaw, A., Santos, L. R., & Olson, K. R. (2012). Young children are more generous when others are aware of their actions. *PLoS ONE*, *7*, e48292. <https://doi.org/10.1371/journal.pone.0048292>
- Ma, F., Heyman, G. D., Jing, C., Fu, Y., Compton, B. J., Xu, F., & Lee, K. (2018). Promoting honesty in young children through observational learning. *Journal of Experimental Child Psychology*, *167*, 234–245. <http://10.1016/j.jecp.2017.11.003>
- Meltzoff, A. N. (2007). 'Like me': A foundation for social cognition. *Developmental Science*, *10*, 126–134. <http://10.1111/j.1467-7687.2007.00574.x>
- Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology*, *75*, 33–52. <https://doi.org/10.1037/0022-3514.75.1.33>
- Oshima-Takane, Y., Goodz, E., & Derevensky, J. L. (1996). Birth order effects on early language development: Do secondborn children learn from overheard speech? *Child Development*, *67*, 621–634. <https://doi.org/10.2307/1131836>
- Phillips, B., Seston, R., & Kelemen, D. (2012). Learning about tool categories via eavesdropping. *Child Development*, *83*, 2057–2072. <https://doi.org/10.1111/j.1467-8624.2012.01827.x>
- Piazza, J., Bering, J. M., & Ingram, G. (2011). "Princess Alice is watching you": Children's belief in an invisible person inhibits cheating. *Journal of Experimental Child Psychology*, *109*, 311–320. <https://doi.org/10.1016/j.jecp.2011.02.003>
- Repacholi, B. M., & Meltzoff, A. N. (2007). Emotional eavesdropping: Infants selectively respond to indirect emotional signals. *Child Development*, *78*, 503–521. <https://doi.org/10.1111/j.1467-8624.2007.01012.x>
- Sheskin, M., Bloom, P., & Wynn, K. (2014). Anti-equality: Social comparison in young children. *Cognition*, *130*, 152–156. <https://doi.org/10.1016/j.cognition.2013.10.008>
- Sullivan, K. J., Kantak, S. S., & Burtner, P. A. (2008). Motor learning in children: Feedback effects on skill acquisition. *Physical Therapy*, *88*, 720–732. <https://doi.org/10.2522/ptj.20070196>
- Talwar, V., & Lee, K. (2002). Development of lying to conceal a transgression: Children's control of expressive behavior during verbal deception. *International Journal of Behavioral Development*, *26*, 436–444. <https://doi.org/10.1080/01650250143000373>
- Teixeira, A. A. C., & Rocha, M. F. (2010). Cheating by economics and business undergraduate students: An exploratory international assessment. *Higher Education*, *59*, 663–701. <https://doi.org/10.1007/s10734-009-9274-1>
- Tibbetts, S. G. (1999). Differences between women and men regarding decisions to commit test cheating. *Research in Higher Education*, *40*, 323–342. <https://doi.org/10.1023/A:1018751100990>
- Wargo Aikins, J., Collibee, C., & Cunningham, J. (2015). Gossiping to the top: Observed differences in popular adolescents' gossip. *Journal of Early Adolescence*, *37*, 642–661. <https://doi.org/10.1177/0272431615617291>
- Zhao, L., Heyman, G. D., Chen, L., & Lee, K. (2017). Praising young children for being smart promotes cheating. *Psychological Science*, *28*, 1868–1870. <https://doi.org/10.1177/0956797617721529>
- Zhao, L., Heyman, G. D., Chen, L., & Lee, K. (2018). Telling young children they have a reputation for being smart promotes cheating. *Developmental Science*, *21*, e12585. <https://doi.org/10.1111/desc.12585>

How to cite this article: Zhao L, Chen L, Sun W, Compton BJ, Lee K, Heyman GD. Young children are more likely to cheat after overhearing that a classmate is smart. *Dev Sci*. 2020;23:e12930. <https://doi.org/10.1111/desc.12930>