



PAPER

'No fair, copycat!': what children's response to plagiarism tells us about their understanding of ideas**Kristina R. Olson and Alex Shaw***Department of Psychology, Yale University, USA***Abstract**

Adults believe that plagiarizing ideas is wrong, which requires an understanding that others can have ideas and that it is wrong to copy them. In order to test when this understanding emerges, we investigated when children begin to think plagiarism is wrong. In Study 1, children aged 7, 9 and 11 years old, as well as adults, disliked someone who plagiarized compared to someone who drew an original drawing or someone who drew an identical picture by chance. Study 2 investigated the same question with younger children, focusing on children aged 3–6 years old. Children aged 5–6 years old evaluated plagiarizers negatively relative to unique drawers, but 3–4-year-olds did not. Study 3 replicated the findings from Study 2 and found that children justify their negative evaluations of plagiarizers by mentioning concerns over copying. These experiments provide evidence that, by age 5 years old, children understand that others have ideas and dislike the copying of these ideas.

Introduction

In 2001, Dave Kelly drew a comic of a cat, with her eyes closed, praying at her bedside, captioned 'Dear God, make everyone die. Amen.' In 2007, Todd Goldman's painting of a cat, with his eyes closed, praying at his bedside, thinking, 'Dear God, please make everyone die! Amen', was hung at a Los Angeles art gallery. Most adults asked to look at these two pictures would clearly see the latter as a plagiarized version of the former as all elements of the first picture – bed, cat, caption – are identical or nearly identical (Goldman added a light bulb, removed the cat's bow, and colored the previously black-and-white cartoon) to the second. Many adults would take this one step further, morally condemning Goldman for using the idea of another artist without giving credit to the originator of the idea. This condemnation indicates at least two underlying capacities – an understanding that people can create ideas and a belief that using others' ideas without their permission is wrong.

The current work investigates the emergence of these capacities by asking about children's evaluations of those who plagiarize others' *ideas*. By ideas we mean creative products of the mind such as stories, jokes, theories, and works of art. This somewhat intuitive definition is a useful starting point for this initial investigation of ideas.

While the question of when children understand that people have ideas is unanswered, there is considerable work on children's understanding of other types of

mental contents. For example, work in developmental psychology has focused on when children understand that others have preferences (Repacholi & Gopnik, 1997), desires (Wellman, 1991), intentions (Astington & Gopnik, 1991) and beliefs (Wimmer & Perner, 1983). Surprisingly little work has been done on one possible component of theory of mind: what young children understand about their own or other people's *ideas*.

Understanding that others have ideas may be difficult for young children because it requires an ability to track when they learn a new idea and an understanding that this idea could have never existed. When children aged 4–5 years are told a novel piece of information they will often report that they have known this information for a long time and believe that other children would also know this information (Taylor, Esbensen & Bennett, 1994). Children may similarly feel that they knew an *idea* all along. If children hear a new idea and automatically think they and others have always known it, they would be unable to recognize that the idea they are hearing or seeing was generated by someone else's mind. Additionally, understanding that others can generate ideas requires understanding that the idea in question might never have existed if it had not been created by someone's mind. Understanding that a currently existing thing could have never existed may be especially difficult for children to grasp because there is no direct way for them to test this claim. These difficulties suggest that children's understanding of ideas may emerge relatively

late, at least compared to their understanding of other types of mental contents.

Adult understanding of ideas, at least in many cultures, entails attaching a sense of ownership to one's own as well as other people's ideas; people from many cultures buy and sell ideas and even use the term 'intellectual property' to apply to some ideas. Developing such an understanding of ideas would therefore require the application of principles of ownership to ideas. Early in development, children understand ownership, at least insofar as it applies to physical objects. Children begin to use possessive pronouns between 18 and 24 months of age (Hay, 2006) and can identify objects as belonging to specific people (e.g. mommy's brush) by 24 months (Fasig, 2000). By the preschool years, children show advanced knowledge of ownership principles. Three- and 4-year-old children show evidence of a 'first possessor' rule, believing that the first person to possess an object is generally the true owner (Friedman & Neary, 2008). This rule is not only applied to third person scenarios, but in direct observations of children's behavior, where first possessors are more likely to win toy ownership disputes (Hay, Nash & Pedersen, 1983; Weigel, 1984). Additionally, children understand specific conditions of ownership, recognizing, for example, that someone who controls permission is the likely owner of an object (Neary, Friedman & Burnstein, 2009). Whether children apply the properties of physical ownership to ideas is an open question.

Adults not only recognize ownership of ideas, but they dislike those who plagiarize others' ideas. We use the term plagiarism to describe cases in which one person uses another person's idea without the original creator's explicit permission. (In our discussion and studies, we exclude cases in which someone explicitly lies about the creation, as these cases may elicit scorn not only because of the plagiarism, but also because of the lying.) There are norms against plagiarism in diverse domains such as stand-up comedy (Oliar & Sprigman, 2008), science (Vandervoort, 1995), journalism (Samson, 2005), and business (Nitterhouse, 2003). When violated, these norms prompt harsh criticism and scorn, not only from people within these domains but from the general public as well. Adults view plagiarism at best as boring and at worst as immoral (for a review see Park, 2003). As mentioned above, most adults would dislike Todd Goldman for plagiarizing David Kelly's work. Would children be offended by such an overt form of plagiarism, and what might children's reaction tell us about their understanding of ideas?

Plagiarism provides an indirect way to test if children understand that others have ideas. In order to dislike those who plagiarize, children must have some basic understanding that individuals have ideas. If all people have access to all ideas, then it would be completely plausible that two people came up with the exact same idea – you cannot 'take' something that everyone has

access to. Therefore, by finding evidence that children dislike plagiarizers, we can infer that they have some understanding that people have ideas which may be unique.

Of course, young children do not spontaneously use the word plagiarize, but there is anecdotal evidence that children use terms such as 'copy-cat' pejoratively, suggesting that at least some children are concerned with plagiarism. To date we know of no systematic investigations of children's responses to plagiarism. The one published example we know of comes from Susan Isaacs' careful observations of a nursery school classroom in the 1920s, in which she observed two children (ages 3 years, 6 months and 4 years, 8 months) on two different occasions becoming upset that someone else said *their* nursery rhyme (Isaacs, 1933). While this work suggests that children as young as preschoolers may have some understanding (albeit an overclaiming) of idea ownership, it is unclear whether these examples were mentioned by Isaacs because of their rarity or as examples of frequent behavior.

The goal of the current research is to make more systematic observations about children's response to plagiarism in order to better assess children's understanding of ideas and how that understanding may translate into attitudes towards copiers. Toward this end, across three studies participants were asked to make social evaluations of individuals who plagiarized drawings and those who did not. By varying the degree of similarity of the drawings, as well as whether identical drawings were created by copying or by chance, we can assess whether and when children begin to care about plagiarism.

Study 1

As a first test of children's response to plagiarism, we presented elementary aged children with vignettes describing individuals who either drew their own work for art class or drew identical copies – plagiarizing another person's work. We then asked participants to indicate how much they liked the drawers. We included adult participants to make sure our intuitions about plagiarism were correct. If children and adults dislike plagiarism, they should evaluate the plagiarizers negatively. However, children could evaluate plagiarizers negatively, not just because they dislike plagiarism, but because they think identical copiers are boring. Perhaps children like novelty and therefore like a person less when they are paired with an identical (boring) drawing as opposed to a unique (novel) drawing. To control for this possibility we included a 'coincidence condition' in which two people drew the same drawing, but were on opposite sides of the room so that plagiarism was not a plausible explanation for their drawing the same thing. If children's and adults' evaluations are driven by a novelty preference, then the

coincidence condition should look like the plagiarism condition, because the plagiarizer and coincidence drawer are both equally uncreative compared to the original drawer. If, instead, children and adults actually dislike plagiarism because of the copying element, then the coincidence condition should look more like the unique drawer condition.

Method

Participants

Participants included 12 6–7-year-olds (henceforth ‘7-year-olds’; $M = 84.2$ months, $SD = 8.5$ months; seven female), 12 8–9-year-olds (henceforth ‘9-year-olds’; $M = 108.0$ months, $SD = 5.9$ months; five female), 12 10–11-year-olds (henceforth ‘11-year-olds’; $M = 134$ months, $SD = 6.2$ months; seven female), and 12 adults ($M = 24$ years, $SD = 4.5$ years; seven female). Child participants were recruited through a database of families who had agreed to participate in developmental research. Adult participants were students working in a psychology laboratory who had no knowledge of the current study or topic.

Procedure

Participants were read a series of vignettes and were asked to evaluate one character from each vignette on a 6-point smiley-to-frowny face liking scale (labeled ‘really like’ to ‘really don’t like’; scored so that higher numbers indicated greater liking). The following three scenarios were interspersed with other items related to ownership, but not related to the current research question, in one of four orders. Participants were sequentially assigned to one of the four orders. The three items of interest were:

Identical (Plagiarism). Mrs Johnson asked the class to draw any pictures they wanted to. Andy drew a picture of a spaceship. Sam sat next to Andy and knew what Andy was drawing. Sam also drew a spaceship. How much do you like Sam?

Coincidence. Mrs Smith, a teacher, asked the class to draw any pictures they wanted to. Steve drew a picture of a spaceship. John sat on the other side of the classroom and did not know what Steve was drawing. John also drew a spaceship. How much do you like John?

Unique. Mrs Williams asked the class to draw any pictures they wanted to. Justin drew a picture of a spaceship. Scott sat next to Justin and knew what Justin was drawing. Scott drew a picture of a horse. How much do you like Scott?

We use the word unique in these experiments to indicate drawings that are different from the drawings produced by the other children. Adult participants evaluated

the same items interspersed with the same non-target items, but completed the evaluations as part of a questionnaire that they read and responded to privately. They also responded on a 6-point scale with labels ranging from ‘really like’ to ‘really don’t like’ (they did not have corresponding faces). Higher scores again indicated greater liking.

Results and discussion

To assess whether the evaluations of liking differed by age, a 3 (condition: identical, coincidence, unique) \times 4 (age group: 7-year-olds, 9-year-olds, 11-year-olds, adults) mixed-model ANOVA was conducted. There was a main effect of condition, $F(2, 88) = 27.19$, $p < .0001$. There was no significant main effect of age group nor a significant condition \times age group interaction, $ps > .50$ (see Figure 1). Post-hoc t -tests were then computed to assess differences among the three conditions. Participants preferred a target who drew a unique picture to one who drew an identical picture, $t(47) = 6.94$, $p < .0001$, a target who drew an identical picture by coincidence to one who drew an identical picture by copying, $t(47) = 5.10$, $p < .0001$, and a target who drew a unique picture to one who drew an identical picture by coincidence, $t(47) = 2.00$, $p = .051$.

We then examined the results at each age group by conducting t -tests. At all ages tested, children and adults preferred a unique drawer to a plagiarizer; 7-year-olds, $t(11) = 3.35$, $p = .006$, 9-year-olds, $t(11) = 3.45$, $p = .005$, 11-year-olds, $t(11) = 3.45$, $p = .005$, adults, $t(11) = 3.74$, $p = .003$. Additionally, the drawer in the coincidence condition was rated more positively than the drawer in the identical condition at all age groups; 7-year-olds, $t(11) = 2.38$, $p = .036$, 9-year-olds, $t(11) = 2.57$, $p = .026$,

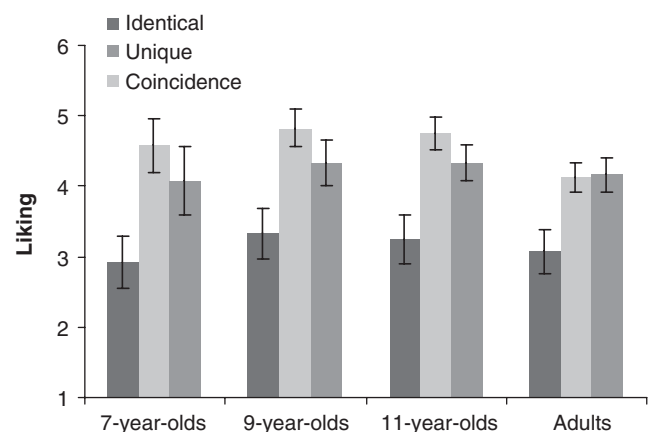


Figure 1 Mean liking rating (on 1–6 point scale, 6 = really like) of an individual who drew a picture that was identical by plagiarism, identical by coincidence, or unique from the picture of another individual by 7-year-old, 9-year-old, 11-year-old, and adult participants in Study 1. Error bars indicate standard error of the means.

11-year-olds, $t(11) = 2.32$, $p = .041$, adults, $t(11) = 2.72$, $p = .020$. The coincidence condition was not significantly different from the unique drawer condition at any age; 7-year-olds, $t(11) = 1.15$, $p = .275$, 9-year-olds, $t(11) = 1.32$, $p = .214$, 11-year-olds, $t(11) = 1.60$, $p = .137$, adults, $t(11) = 1.4$, $p = .889$.

By the time children are 7 years old they clearly prefer drawers who draw unique pictures to those who draw identical pictures – plagiarizers. This preference cannot be explained in terms of a simple preference for novelty because children prefer when someone draws something identical by coincidence rather than by plagiarizing, demonstrating that *knowingly* copying is the essential trait leading to lower social evaluation.

Study 2

Study 2 sought to determine when concerns over plagiarism begin to arise in young children. Because young children (aged 3–4 years and 5–6 years) had difficulty processing the vignettes, puppet shows mimicking the vignettes from Study 1 were created. In these videos one puppet looked at another puppet's drawing and then proceeded to draw something identical, something similar, or something unique. We added the similar condition to see if children would respond negatively to plagiarism even if the drawing was not an identical copy. Children were asked to judge the second puppet's goodness or badness.

Method

Participants

Participants included 40 3–4-year-old children (henceforth '4-year-olds'; $M = 49.2$ months, $SD = 7.5$ months; 23 female) and 41 5–6-year-old children (henceforth '6-year-olds'; $M = 72.07$ months, $SD = 6.1$ months; 23 female). Participants were recruited from either a database of families interested in participating in child development research or through local preschools.

Stimuli

Nine videos were created, each involving two male puppets. The basic sequence of events was identical for all videos. Puppet A asked, 'What should I draw for my art class?', then Puppet B said, 'I can't decide what to draw.' After a pause Puppet A stated, 'Oh, I know what I'll draw', and proceeded to begin drawing. Puppet B approached Puppet A, peered at the drawing, and stated, 'Oh, I've got it! I know what I'll draw', while returning to his spot to draw. After a pause Puppet A lifted his picture and stated to the camera, 'See what I drew?', and then Puppet B lifted his picture and stated, 'See what I drew?' The nine videos differed only in terms of which of several possible male puppets played

each role and what the two drawings looked like. Three sets of drawings were created, one with a house theme, one with a stars theme, and one with a boat theme. For each set, there was one prototype that was always used as Puppet A's picture. Three additional pictures existed for each set: an identical picture, a similar picture (which varied the color scheme or exact elements but kept the basic theme and was clearly related), and a different picture (which was an entirely different theme). From these nine videos, three unique sets of three videos were created, each given to one-third of the participants at each age. One group saw, for example, the identical house video, the similar boat video, and the different stars video. In this way, each participant only saw each pair of puppets once and each theme of drawings once.

Procedure

Participants were told that they would watch some videos and they would be asked if each person was good or bad. If they said he was good (bad), they would then be asked if he was really good (bad) or a little good (bad). In this way we were able to get a rating on a 4-point scale for each response (ranging from 1 = really bad to 4 = really good). Participants were given a few examples (e.g. 'So let's say there was a kid who kicked her little brother. Would that be good or bad? Really bad or a little bad?'). All children indicated that they understood how to respond after 2–3 examples.

Once the introduction was complete, children watched each of the three videos. The order of the videos was counterbalanced. After each video the child was asked to give a rating and the experimenter provided no feedback. Then the child was asked to indicate which puppet had drawn his drawing first (memory trial).

Results and discussion

Overall, memory for which puppet had drawn his drawing first was significantly better than chance for each age group (50%), 4-year-olds: identical, 75%, $p = .002$; similar, 77%, $p = .001$; unique, 74%, $p = .005$; 6-year-olds: identical, 98%, $p < .0001$; similar, 93%, $p < .0001$; unique, 100%, $p < .0001$. Whether we included or excluded those who missed the memory item did not affect the results, so we included all participants in our analyses.

To assess whether the evaluations of goodness differed by condition or age, a 3 (similarity: identical, similar, unique) \times 2 (age group: 4-year-olds, 6-year-olds) mixed-model ANOVA was conducted. There was a significant main effect of similarity, $F(2, 158) = 3.68$, $p = .027$, and a significant main effect of age group, $F(1, 79) = 7.54$, $p = .007$. The similarity \times age group interaction did not reach significance, $F(2, 158) = 1.87$, $p = .158$. Post-hoc paired t -tests were then computed to assess differences among the three conditions. The only significant

difference was between the identical and unique conditions, $t(80) = 2.59, p = .012$, indicating that those who drew unique pictures were preferred to those who drew identical pictures. (The difference between similar and unique conditions was not significant, $p = .094$, nor was the difference between identical and similar conditions, $p > .25$.)

To examine the possible influence of age on these evaluations, paired t -tests were conducted for each age group¹ as a form of exploratory analysis. None of these t -tests were significant for the 4-year-olds, all p s $> .25$ ($M = 3.20$ for the identical condition versus $M = 3.13$ for the similar condition versus $M = 3.33$ for the unique condition). In contrast, 6-year-olds showed a significant preference for those who drew unique pictures ($M = 3.07$) compared to those who drew identical pictures ($M = 2.51$), $t(40) = 2.60, p = .013$, and a marginal preference for those who drew similar pictures ($M = 2.85$) to those who drew identical pictures, $t(40) = 2.10, p = .042$. Also, significantly more 6-year-olds (59%) preferred those who drew unique drawings to those who drew identical ones than did 4-year-olds (25%), $\chi^2(1, N = 81) = 9.35, p = .003$.

To further examine these age differences we conducted independent samples t -tests comparing 4-year-olds' and 6-year-olds' evaluations for each condition. There were no differences between groups in how 4-year-olds and 6-year-olds evaluated unique and similar drawers, all p s $> .15$. However, 6-year-olds rated plagiarizers as significantly worse than did 4-year-olds, $t(79) = 3.14, p = .002$. These results can be seen in Figure 2.

Children as young as 5–6 years old showed an aversion to plagiarism, providing evidence that by age 5–6 years children understand that people have ideas. Their patterns of responses were similar to those of their older peers in Study 1, preferring those who made unique drawings to those who plagiarized another individual's drawings. This difference was maintained despite the change in stimuli and dependent variable: Children were now making moral judgments rather than judgments about how much they liked each individual.

Children aged 3–4 years old did not discriminate between puppets who drew unique drawings and those who plagiarized. The absence of differentiated judgments of plagiarizers and non-plagiarizers in 3–4-year-olds could be explained by many factors. Perhaps children at this age lack an understanding of ideas; perhaps they understand that people have ideas, but do not morally scorn those who copy; perhaps our manipulation was too weak to elicit a response from preschoolers; perhaps they were confused by the scales used to evaluate the puppets. Study 3 explored the latter possibility.

¹ Following up a non-significant interaction with t -tests is somewhat unconventional, which is why we labeled this analysis as exploratory. However, the replication of this result, this time with a significant interaction, in Study 3 allows us to be more confident that the result from Study 2 was not obtained by capitalizing on chance.

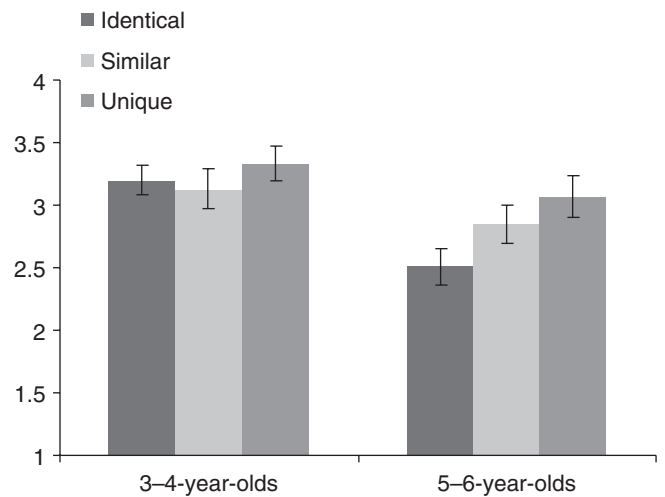


Figure 2 Mean rating of the goodness or badness (on a 4-point scale from 1 = really bad to 4 = really good) of a puppet who drew a picture that was identical to, similar to, or unique from the picture of another puppet by 3–4-year-olds and 5–6-year-olds in Study 2. Error bars indicate standard error of the means.

Study 3

While our interpretation of the above results is based on children's aversion to plagiarism, our judgment data provide only an indirect measurement of why children negatively evaluate one condition as compared to the other. In order to directly assess why children made their evaluations, in Study 3 we explicitly asked children 'why' after each of their evaluations. If children are making negative evaluations based on plagiarism, they may mention concerns with copying in their justification for their evaluations. Additionally, to be sure that participants, especially the youngest ones, understood our measures, we also included videos with more clear-cut good and bad behaviors outside of the domain of plagiarism.

Method

Participants

Participants included 24 3–4-year-old children (henceforth '4-year-olds'; $M = 47.1$ months, $SD = 8.3$ months; eight female) and 28 5–6-year-old children (henceforth '6-year-olds'; $M = 69.9$ months, $SD = 7.8$ months; 14 female). Recruitment was the same as in Study 2.

Stimuli

All participants saw two primary videos of interest that were similar to the unique and identical conditions from Study 2. We removed the similar condition from Study 3 because children at this age did not seem to differentiate between the similar and identical conditions. Four

versions of each video were made in order to counterbalance the female puppets that played each role, the final drawings, and the locations of the puppets. The basic sequence of events was identical for all videos. First, a teacher puppet² said, 'Hi, I'm Mrs Teacher. Today we're gonna draw for art class.' The teacher puppet then drew a picture and held it up, saying, 'See what I drew.' Puppet A then stated, 'I know what I'll draw', and proceeded to begin drawing. Puppet B approached Puppet A, peered at the drawing, stated, 'Oh, I've got it! I know what I'll draw', while returning to his spot to draw. After a pause Puppet A lifted his picture and stated to the camera, 'See what I drew?' and then Puppet B lifted his picture and stated, 'See what I drew?' The key difference between the two video types was that in one set the teacher drew one thing and the two student puppets drew the same thing as one another (identical condition) and in one set all puppets drew something unique (unique condition).

In addition to the two primary videos of interest seen by each participant, they also saw two others, one involving the theft of a physical object and one involving the sharing of a physical object. These videos were included so that we could be certain that even the youngest children could use our scale to distinguish between the protagonists in our videos. (In Study 2 there was a null result for 4-year-olds that could have been explained by their inability to use our scale.) Four versions of the stealing and sharing videos were made, again to counterbalance the relevant factors, though each child saw only one instance of each. Stealing videos began with Puppet A holding a rubber ducky and saying, 'I love my rubber ducky', then Puppet B saying, 'I want your rubber ducky.' Puppet A tried to shield the duck and exclaimed, 'No, it's mine!' Puppet B then took the duck. Sharing videos began with Puppet A holding a cookie and saying, 'I just baked some cookies, would you like one?' Puppet B stated, 'Yes please.' Puppet A then gave Puppet B the cookie and Puppet A said, 'Thank you!'

From these 16 videos (eight drawing, four stealing, four sharing), eight unique sets of four videos were created, each including one of each drawing scenario, one stealing, and one sharing video. Participants were sequentially assigned to one of each of the eight sets of videos.

² The teacher puppet was added because we also included a video meant to be seen as 'socially acceptable' copying, but this video was clearly not interpreted as such; rather, it was evaluated the same as the identical condition, all $ps > .25$. In this condition the teacher drew something and both students copied what the teacher had drawn. We meant children to interpret this as acceptable copying, but they instead treated it as just another case of plagiarism. While this result could suggest that children over-attribute plagiarism, a less interesting and more plausible explanation is that children missed the cue indicating that the first drawer was a teacher. In retrospect, we wish we had used a doll that looked more clearly like an adult rather than one that appeared the same age as the other two puppets. The pattern of results does not change if we leave this condition in the analysis; however, we do not discuss this condition for ease of understanding Study 3.

Procedure

After each video, participants were asked to indicate how good or bad each drawer was, just as participants had in Study 2, and were then asked 'Why?' They also indicated which puppet had drawn the picture first (memory trial).

Results and discussion

Overall, memory for which puppet had drawn the drawing first was significantly better than chance for each age group (50%), 4-year-olds: identical, 83%, $p = .003$; unique, 79%, $p = .007$; 6-year-olds: identical, 100%, $p < .001$; unique, 96%, $p < .0001$, and whether those participants who got the memory items wrong were included in our analyses or not had no effect on the results. Therefore all subjects were included.

First we separately examined evaluations of the plagiarism-related stimuli. To assess whether the evaluations of goodness differed by age, a 2 (similarity: identical, unique) \times 2 (age group: 4-year-olds, 6-year-olds) mixed-model ANOVA was conducted. There was a significant main effect of similarity, $F(1, 49) = 4.671$, $p = .036$, and a significant similarity \times age group interaction, $F(1, 49) = 6.80$, $p = .016$. The main effect of age group was not significant, $F(1, 49) = .724$, $p = .399$.

To examine the possible influence of age on these evaluations, a t -test was conducted for each age group. Four-year-olds did not show a preference between unique drawers ($M = 3.04$) and identical drawers ($M = 3.17$), $p > .70$. In contrast, 6-year-olds showed a significant preference for those who drew unique pictures ($M = 3.38$) compared to those who drew identical ones ($M = 2.60$), $t(26) = 3.89$, $p = .001$. Also, a Yates corrected chi-squared test revealed that more 6-year-olds (58%) than 4-year-olds (32%) preferred the unique drawer to the identical drawer, $\chi^2(1, N = 52) = 4.12$, $p = .042$.

To further examine these age differences we conducted independent samples t -tests comparing 4-year-olds' and 6-year-olds' evaluations for each condition. There were no differences between groups in how 4-year-olds and 6-year-olds evaluated unique drawers $t(50) = 1.49$, $p = .143$. However, 6-year-olds rated plagiarizers significantly worse than did 4-year-olds, $t(50) = 2.23$, $p = .031$. These results can be seen in Figure 3.

We also examined the new non-plagiarism-related videos. To assess whether the evaluations of goodness differed by age, a 2 (condition: stealing, sharing) \times 2 (age group: 4-year-olds, 6-year-olds) mixed-model ANOVA was conducted. There was a significant main effect of condition, $F(1, 50) = 182.83$, $p < .0001$, and a significant condition \times age group interaction, $F(1, 50) = 17.05$, $p < .0001$. The main effect of age group was not significant, $F(1, 50) = .86$, $p = .358$.

To decompose the condition \times age group interaction, we conducted independent samples t -tests comparing 4-year-olds' and 6-year-olds' evaluations for each condition. Four-year-olds rated the sharing condition

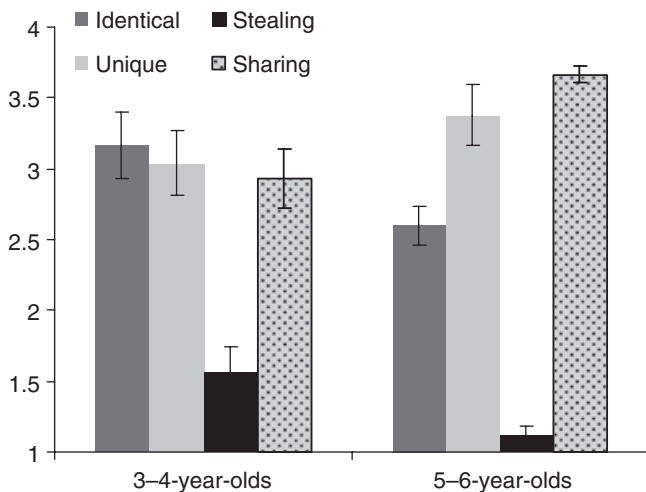


Figure 3 Mean rating of the goodness or badness (on a 4-point scale from 1 = really bad to 4 = really good) of a puppet who drew a picture that was identical to or unique from the picture of another puppet as well as ratings of puppets who stole or shared by 3-4-year-olds and 5-6-year-olds in Study 3. Error bars indicate standard error of the means.

significantly worse than did 6-year-olds, $t(50) = 3.18, p = .003$, while 6-year-olds rated the stealing condition significantly worse than did 4-year-olds, $t(51) = 2.36, p = .022$. To further examine the possible influence of age on these evaluations, t -tests for each condition were conducted for each age group. The 4-year-olds showed a significant preference for the sharing condition ($M = 2.93$) over the stealing condition ($M = 1.56$), $t(23) = 5.04, p = .0001$, as did the 6-year-olds ($M = 3.66$ for sharing versus $M = 1.12$ for stealing), $t(26) = 20.73, p < .0001$. Taken together, these results indicate that both 4- and 6-year-olds positively evaluate those who share compared to those who steal, but this difference between conditions is greater for 6-year-olds. Importantly, in both age groups, the stealing condition was negatively evaluated compared to all other conditions (4-year-olds: stealing vs. identical, $t(23) = 5.89, p < .0001$; stealing vs. unique, $t(24) = 4.63, p = .0001$; 6-year-olds: stealing vs. identical, $t(27) = 7.01, p < .001$; stealing vs. unique, $t(26) = 15.38, p < .0001$), which indicates that even the youngest children are capable of using our scale and are not just giving the same answer across the board.

We then examined children's 'why' responses by having two independent coders evaluate and then divide the responses into two groups. Those who explicitly mentioned copying ($n = 16$) or said 'drew the same thing' ($n = 8$) as a reason were labeled as 'copying mentioned' (45% of participants). All other children either mentioned something about drawing not related to copying ($n = 12$) or something irrelevant ($n = 17$) and were labeled as 'copying not mentioned' (55% of participants).³ Those

³ For the copying mentioned group, results did not differ if children invoked copying or similarity as their justification. Similarly, for the copying not mentioned group, results did not differ if children mentioned drawing or something irrelevant.

who mentioned drawing said things such as, 'She drew a tree', whereas those who said something irrelevant said things such as, 'I'll be happy when I'm a witch.' The independent coders agreed 96% of the time and, in the two cases of disagreement, the coders came to an agreement based on discussion. We first looked at children's why responses by age group. A Yates corrected chi-squared test revealed that 6-year-olds were much more likely to mention copying (75% of participants) than 4-year-olds (12.5% of participants), $\chi^2(1, N = 52) = 17.85, p < .0001$.

We next examined evaluation difference scores (unique condition minus identical condition) as a function of why responses, rather than age. If children disliked plagiarism relative to unique drawers, this difference score should be positive. The difference scores for those who mentioned copying ($M = 1.12$) were significantly different from chance, $t(23) = 4.78, p = .0001$, while the difference scores for those who did not mention copying ($M = -.19$) were not, $t(26) = .72, p = .476$. Also, the difference scores were larger when copying was mentioned than when it was not, $t(49) = 3.73, p = .001$. These results, which can be seen in Figure 4, indicate that those who mentioned copying made more negative evaluations of identical drawers as compared to unique drawers than those who did not mention copying. We then looked at how children's evaluations of the identical drawers correlated with their why responses. We found a significant correlation between mentioning copying and one's evaluation of identical drawers, $r(52) = -.52, p < .0001$; mentioning copying was associated with a lower evaluation of those who drew identical drawings.

Using new stimuli, we again found that 5-6-year-olds negatively evaluate those who plagiarize while 3-4-year-olds do not, and learned children's reasoning behind their judgments. Almost half of the children mentioned

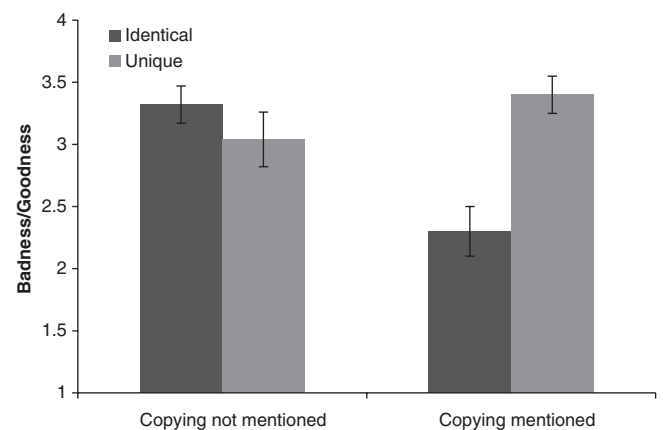


Figure 4 Mean rating of the goodness or badness (on a 4-point scale from 1 = really bad to 4 = really good) of a puppet who drew a picture that was identical to or unique from the picture of another puppet by children's why justifications for their evaluations. Participants were coded as either mentioning copying or the similarity between the drawings (Copying mentioned) or not (Copying not mentioned). Error bars indicate standard error of the means.

copying in their justification for their evaluations and these children made more negative evaluations of plagiarizers than those who did not mention copying-related concerns. We also demonstrated that the 3–4-year-olds' failure to negatively evaluate plagiarizers in Studies 2 and 3 was not due to an inability to properly use our scales because the 3–4-year-olds were able to negatively evaluate a puppet who stole physical property.

General discussion

Despite the relative complexity of understanding ideas and using this understanding to form judgments about others, these results indicate that children as young as 5 years old have some understanding of these concepts. Five- and 6-year-old children make negative moral evaluations about those who plagiarize as compared to those who produce unique work and children aged 6 to 11 prefer non-plagiarizers to those who plagiarize. Additionally, children's dislike of plagiarism is not driven by a tendency to dislike identical drawings, as children clearly distinguished cases in which one person copied another's drawing from cases in which two people happened to draw the same thing. Finally, when asked explicitly why they made these negative evaluations, children mentioned copying concerns as a justification. These results demonstrate a relatively sophisticated understanding of ideas as early as age 5 years.

Disliking plagiarism requires at least two capacities: recognizing that others have ideas and negatively evaluating those who use others' ideas in certain contexts. As mentioned before, if everyone had access to all possible ideas then plagiarism would not be possible and disliking plagiarism would not be logical. Understanding that others have ideas that are different from other people's ideas may be necessary, but not sufficient for children to dislike plagiarizers. This reasoning suggests that 3–4-year-old children may have 'failed' this task for one of at least two reasons. One possibility is that 4-year-olds do not understand that people have ideas that are different from other people's ideas – even older children have difficulty recognizing that people can have different trains of thought (Eisbach, 2004). Alternatively, preschoolers may understand that others have ideas, but do not negatively evaluate those who take ideas. Future studies should be designed to tease these possibilities apart.

Yet another explanation for the null results in preschoolers is that the task was too difficult for children, obscuring the fact that preschoolers really do have these intuitions. One way to make the task less difficult would be to ask children to evaluate instances in which they themselves have been plagiarized rather than having them evaluate plagiarism being done by third parties. Such first party interactions should be much simpler for young children to understand.

Another possible non-cognitive reason for the emergence of plagiarism concerns at age 5–6 years, but the

absence of these concerns at age 3–4 years, is that the former children likely attend elementary school and may have been explicitly taught that copying is bad. Therefore, while clearly speculative, it is possible that exposure to older peers and teachers via formal schooling is creating the tendency to care about plagiarism. Further research will be needed to examine the influence of peers and teachers on perceptions of plagiarism and will need to focus on communities in which children attend elementary school at different ages or on children who do not attend school (e.g. unschoolers).

Putting aside the question of whether or not 4-year-olds dislike those who plagiarize, this research suggests that children as young as 5 years old differentially evaluate strangers who produce original work versus those who plagiarize. This result provides indirect evidence that by 5 years of age children understand that others have ideas and can use this information to make social evaluations about those who use others' ideas, thus providing an initial estimate for the ontogenic emergence of understanding ideas. Now that we know that young children do indeed care about plagiarism, we can implement new controlled studies to examine the exact psychology that underlies these tendencies. With this knowledge we can better understand not only the emergence of children's understanding of ideas, but also begin to investigate whether children really think about ownership in the realm of ideas and, if they do, how children's intuitions about ownership of ideas are similar to and different from their intuitions about ownership of physical property. In Study 3, we had a direct comparison of someone stealing an idea and someone stealing a piece of physical property. Children evaluated the physical property thief much more harshly, which could indicate that violating physical ownership is worse than violating the ownership of ideas or that children really do not feel ownership over ideas at all. Whether children's negative evaluations of plagiarizers are being driven by violations of ownership or by a lack of creativity on the part of the plagiarizer (Goodenough & Decker, 2009) is an open question. Future research will need to investigate the extent to which children's early notions of ownership are tied to their understanding of ideas.

The current studies reveal that children as young as 5 years old have a basic understanding that others have ideas. Since ideas seem to be such a common part of our folk psychology, it is important to investigate how our understanding of ideas develops and what specific psychological mechanisms underlie this understanding. Our hope is that our idea about ideas is unique and will motivate future research.

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