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Articles

Children Selectively Trust Individuals Who Have Imitated Them

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Abstract

We investigated the influence of being imitated on children's subsequent trust. Five- to six-year-olds interacted with one experimenter who mimicked their choices and another experimenter who made different choices. Children were then presented with two tests. In a preference test, the experimenters offered conflicting preferences for the contents of two opaque boxes, and children were asked to choose a box. In a factual claims test, the experimenters offered conflicting claims about the referent for a novel word, and children were asked to state which object the word referred to. Children were significantly more likely to endorse both the preferences and the factual claims of the experimenter who had mimicked them. These results demonstrate that imitation is a powerful means of social influence in development.

Keywords: being imitated; social imitation; trust; preference

Introduction

Imitation is not only a means by which to learn from others but also serves important social functions (Nadel, 2002; Uzgiris, 1981, 1984). Through imitation, we are able to increase our similarity to our social partners. Being imitated, results in the feeling that 'you are like me' (Meltzoff, 2005), and likewise imitating others, can convey the message 'I am like you' (Carpenter & Call, 2009; Over & Carpenter, 2012).

Chartrand and Bargh (1999) hypothesized that the relationship between imitation and perceived similarity should increase affiliation and rapport between individuals. In support of this hypothesis, empirical research in adults has demonstrated that imitation and affiliation are associated bi-directionally. Participants who have been given a goal to affiliate (e.g., through priming with the words, *friend*, *together*, *partner*, and

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affiliate) engage in significantly more mimicry than participants who have not been given a goal to affiliate (Lakin & Chartrand, 2003). Furthermore, participants who have had their mannerisms mimicked by a confederate rate the quality of their social interaction, as well as their social partner, more favourably than participants who have not been mimicked (Chartrand & Bargh, 1999).

In children too, imitation is connected with affiliation. Over and Carpenter (2009) have shown that children increase their tendency to imitate when affiliation is important to them: five-year-olds who have been given a goal to affiliate (through priming with third-party social exclusion) copy the specific actions of a model significantly more closely than children who have not been given a goal to affiliate. There is relatively little experimental research investigating the effects of being imitated in development, but Meltzoff (1990) found that 14-month-old infants look towards and smile more at an experimenter who mimics them than at an experimenter who engages in different, but equally contingent, behaviour. Related work by Eckerman and Stein (1990) has shown that 24-month-olds are more likely to repeat their actions and look to an experimenter's face when that experimenter imitates their actions on an object compared with when that experimenter performs a different action on the same object.

In addition to increasing liking, imitation serves as a powerful form of social influence. For example, being imitated exerts an influence over adults' attitudes: participants who have been mimicked are more easily persuaded by a controversial message than participants who have not been mimicked (Bailenson & Yee, 2005; see also Tanner, Ferraro, Chartrand, Bettman, & van Baaren, 2008).

Thus, overall, the effects of imitation are generally positive, as they promote affiliation and agreement among social partners. These positive, affiliative consequences of mimicry on adults' social behaviour have led Lakin, Jefferis, Cheng, and Chartrand (2003) to argue that the human tendency to mimic evolved to promote good relations between individuals and to increase cohesion within social groups.

However, there are specific cases in which imitation may have unintended negative consequences. Previous empirical research has demonstrated that individuals tend to engage in imitation when they do not know the correct response to a problem (Caldwell & Millen, 2010; Williamson, Meltzoff, & Markman, 2008). Consequently, imitating another individual may, under certain circumstances, signal that the imitator is relatively inexperienced. Relatedly, imitating a social partner may also imply deference to their opinions. Previous research has shown that preschool children are more likely to imitate prestigious individuals (e.g., Chudek, Heller, Birch, & Henrich, 2012). People who imitate may thus be perceived as relatively low in power, status, and/or expertise relative to non-imitators. In these circumstances, an individual who does *not* imitate may be trusted to know more than an individual who imitates.

In the current study, we were interested in how being imitated would affect children's susceptibility to social influence; in particular, whether being imitated would increase or decrease children's trust in others. To address these questions, we engaged five- to six-year-old children in a social interaction in which one experimenter consistently imitated their choices and another experimenter consistently made independent choices. Following this, we presented children with two tests: a preference test and a factual claims test.

The preference test was somewhat similar to a test designed by Fawcett and Markson (2010). In that study, children were presented with one adult who liked fun toys and another adult who liked boring toys and then, when given the choice of the unseen favourite toy of each adult, they chose the toy of the adult who had previously

had similar preferences to children's own. Similarly, in the current study, after being imitated or not, children were presented with a situation in which the two experimenters expressed conflicting preferences about the contents of two boxes. Based on research demonstrating the relationship between imitation, perceived similarity, and liking (Chartrand & Bargh, 1999; Lakin & Chartrand, 2003), we predicted that, when offered the choice between the two boxes, children would choose the box containing the object preferred by the experimenter who had previously imitated them.

The factual claims test was inspired by previous research investigating children's trust in testimony (e.g., Birch, Vauthier, & Bloom, 2008; Koenig, Clément, & Harris, 2004). Among the best-known results from this literature is the finding that children trust the factual claims of previously reliable over unreliable informants (e.g., Koenig & Harris, 2005; Scofield & Behrend, 2008). In our version of this test, children were presented with a situation in which the two experimenters each applied the same novel word to a different object. Here, there were two possible outcomes. One possibility was that children would infer that the experimenter who had imitated them was relatively inexpert and would therefore apply the novel word to the object indicated by the experimenter who had previously made independent choices. However, an alternative possibility was that imitation would have positive consequences even under these circumstances, and that children would apply the novel word to the object indicated by the experimenter who had previously imitated them.

Method

Participants

Participants were 32 five- to six-year-olds (mean age in each imitation condition = 5 years, 8 months, total age range = 4 years, 10 months to 6 years, 9 months). Sixteen of the participants were females, and 16 were males, with an equal number of males and females in each imitation condition. Children were tested in a mid-sized German city and were recruited through a database of parents who had expressed an interest in participating in child development studies. Further, demographic information was not collected. An additional three children were tested but excluded from analyses due to experimenter error. Participants were recruited through their day care centres.

Materials

In both conditions, the materials for the imitation phase consisted of six laminated photo-sheets (9 cm × 28 cm in size) each containing three photographs of animals sure to be unfamiliar to the children (see Muris & Field, 2010, for the use of similar stimuli). For example, one sheet contained photographs of a brush-tailed porcupine, an echidna, and a Brazilian porcupine. The photographs were arranged in line running horizontally across the page.

For the preference test, the materials were two identical cardboard boxes (24 cm × 16 cm × 10 cm in size), each of which contained a small plastic frog. For the factual claims test, the materials were two similarly shaped wooden objects. Each object had an identical wooden base 10 cm × 5 cm × 3 cm in size. Whereas one object had a small wooden triangle glued to this base and was painted blue and grey, the other had a small wooden sphere attached to its base and was painted green and black. A pretest with 12 different participants (age range 5 years, 1 month–6 years, 9 months) had previously established that, when asked to guess, children were equally likely to apply the novel word (*danu*) to each of these two objects.

Design

Because it was possible that context would affect children's reactions to imitators, we manipulated the nature of the imitative interaction between children and the experimenters. For example, we reasoned that, if imitation reduces perceived expertise, then this effect would be stronger when the imitation phase itself, along with the test, involved factual claims. Thus, for half the children, the imitation phase was preference based: one experimenter (the mimic) copied children's preferences for the series of novel animals whereas the other experimenter (the non-mimic) made independent choices, indicating one of the other two animals on the photo-sheets. The photo-sheets each contained three photographs to increase the impression that the non-mimic was making independent choices rather than always choosing the opposite picture from that chosen by the child. For the other half of children, the imitation phase was expertise based: in this case, the mimic copied children's responses to an assistant's factual questions about the same set of animals. The questions did not actually relate to genuine characteristics of the animals depicted and so were impossible to answer correctly or incorrectly.

Following the imitation phase, all children participated in both the preference test and the factual claims test (in counterbalanced order; see below). The preference test measured whether children were more likely to share the preferences of the mimic or the non-mimic. The factual claims test measured whether children would apply a novel word to the object chosen by the mimic or the non-mimic.

Procedure

Testing was conducted by two experimenters and an assistant, all of whom were female. At the start of the experiment, the assistant invited the child into a quiet room in their kindergarten and asked them to sit on a rug on the floor opposite the two experimenters, who sat equidistant from the child, approximately 1 metre away. When the child entered the room, the experimenters were each reading magazines, but they put them down once the child sat down. Following this, the assistant introduced the imitation phase by saying that she was going to show the child and the two experimenters some photographs of animals. The nature of the imitation phase varied according to condition. In the preference-based imitation condition, the assistant brought out one of the six photo-sheets, placed it on the floor between the child and the experimenters (so that it was facing the child) and asked the child 'Which animal do you like best? Show me!' Once the child had made his or her choice, the two experimenters chose their favourite animals. The mimic imitated the child's choice, indicating her imitation by pointing to the same animal as the child had done and saying 'Hm, I also like that one the best.' The non-mimic made an independent choice, indicating her decision by pointing to one of the other two animals on the photo-sheet and saying 'Hm, I like this one the best.' The procedure continued in the same way for the remaining five photo-sheets (which were always presented in the same order).

In the expertise-based imitation condition, the assistant brought out the first photo-sheet and asked the child a factual question about the animals depicted, for example, 'Look! One of these three animals has poisonous spines and the other two do not. Which of these animals do you think has poisonous spines? Show me!' Once the child had made his or her choice, the two experimenters took their turns. Once again, the mimic imitated the child's choice, indicating her imitation by pointing to the same

animal as the child had done, saying 'Hm, I also think that one has poisonous spines', and the non-mimic made an independent choice, indicating her decision by pointing to one of the other two animals, saying, 'Uh uh, I think this one has poisonous spines.' The assistant then brought out the remaining five photo-sheets in turn and asked the child and the experimenters a different factual question about each set of animals.

Following the imitation phase, all children participated in both the preference test and the factual claims test. In the preference test, the assistant brought out the two identical cardboard boxes, turned to the two experimenters, and told them, 'Look in the boxes and tell me which one you like best'. One of the two experimenters, for example, the mimic, looked in the box closest to herself and said 'Oh, I like that one!' and then looked in the other box and said 'Oh, I don't like that one so much.' The non-mimic then took her turn and expressed the opposite preferences, starting with the box closest to her. Following this, both experimenters took the box they liked best and played briefly with what was inside (without allowing the child to see it). The two experimenters then placed the boxes on the floor in front of them, equidistant from the child, before turning away from the interaction to read their magazines. As the experimenters were looking away from the child, the assistant turned to the child and said, 'Now you. Which box do you like best? Show me!' After the child had made his or her choice, the assistant removed the other box and the child was allowed to play briefly with the contents of their preferred box.

In the factual test, the assistant brought out the two novel objects and placed them both on the floor, equidistant from the child. The assistant then turned to the two experimenters and said 'One of these two objects is a *danu*, but which? Do you know?' The two experimenters then simultaneously pointed to the object directly in front of them and said 'That is the *danu*!' After briefly expressing their disagreement with one another (by turning to each other, shaking their heads, pointing once more to the object in front of them, and saying 'No, that!'), the two experimenters turned away from the child once again to read their magazines. As the experimenters were looking away, the assistant turned to the child and asked 'What do you think, which one is the *danu*? Show me!'

Counterbalancing and Manipulation Checks

Four variables were fully counterbalanced. Firstly, the order in which the preference and factual claims tests were presented: for half the children, the preference test was presented before the factual claims test and for the other half, the factual claims test was presented before the preference test. Secondly, the identity of the experimenter (E1 or E2) who imitated the child: for half the children, E1 was the mimic and for the other half, E2 was the mimic. Thirdly, the experimenter who took her turn first in each task: for half the children, E1 took her turn before E2 on the first, third, and fifth trials of the imitation phase and looked in the boxes first during the preference test. For the other half of children, it was E2 who took her turn first on these occasions. Fourthly, the experimenter who sat closest to the assistant during the test: for half the children, E1 sat closest to the assistant and for the other half, E2 sat closest to the assistant. In addition to this, during the factual claims test, for half the children, the blue object was placed to their left and for the other half of children, the blue object was placed to their right.

In addition to counterbalancing the identity of the experimenter who acted as the mimic, the two experimenters were trained to match their behaviour to each other as

closely as possible. To make sure that the mimic and non-mimic were equivalent in terms of friendliness and perceived expertise, after completion of the study, we asked a rater to code their behaviour. This rater, who was unaware of the hypotheses of the study, and unable to see the behaviour of the participants from the tape, rated each experimenter on how friendly and how expert they appeared on scales ranging from 0 (very unfriendly/inexpert) to 7 (very friendly/expert). Ratings from 50 percent of the dataset revealed that the mean friendliness rating for the mimic was 4.97 and the mean friendliness rating for the non-mimic was 4.75. There was no significant difference in perceived friendliness between the mimic and the non-mimic, $t(15) = 1.24, p = .23$. The mean expertise rating for the mimic was 4.28, and the mean expertise rating for the non-mimic was 4.41. There was no significant difference in perceived expertise, $t(15) = -.542, p = .60$, between the mimic and the non-mimic.

Coding

Children's responses towards the boxes (in the preference test) and the novel objects (in the factual claims test) were coded. Children's responses were unambiguous; all children provided clear pointing responses or directly chose one of the objects (e.g., opened one of the boxes) when requested to do so by the assistant. Coding for both tests was conducted live by the assistant. Twenty-five percent of the dataset was second coded from videotape by a coder who was unaware of which of the experimenters was the mimic and which was the non-mimic; agreement between the two coders was 100 percent.

Results

Initial inspection of the data revealed that the nature of the imitation phase (preference based or expertise based) did not affect children's performance in either the preference test, $\chi^2(1, N = 32) = 0.15, p = 0.7$ or the factual claims test $\chi^2(1, N = 32) = 0.15, p = 0.7$. In the preference test, 11 of 16 children in the preference-based imitation condition chose the mimic, and 12 of 16 children in the expertise-based imitation condition chose the mimic. In the factual claims test, 12 of 16 children in the preference-based imitation condition chose the mimic, and 11 of 16 children in the expertise-based imitation condition chose the mimic. The data were collapsed across this variable for further analysis.

Figure 1 indicates the number of children who chose the same box as the mimic in the preference test, and who chose the object the mimic labelled as the *danu* in the factual claims test. In the preference test, a chi-square goodness of fit test revealed that children chose the box preferred by the mimic significantly more often than the box preferred by the non-mimic, $\chi^2(1, N = 32) = 6.13$, two tailed $p = .013$, $\phi = .44$. In the factual claims test, a further chi-square goodness of fit test revealed that children chose the object the mimic labelled as the *danu* significantly more often than the object the non-mimic labelled as the *danu*, $\chi^2(1, N = 32) = 6.13$, two tailed $p = .013$, $\phi = .44$. Looking at the pattern of results across the preference and factual claims tests, 18 children chose the mimic in both tasks, five children chose the mimic in the preference test but not the factual claims test, five children chose the mimic in the factual claims test but not the preference test, and four children chose the non-mimic in both tests.

Figure 1. The Number of Children Endorsing the Choice of the Experimenter Who Had Previously Imitated, vs. Not Imitated, Them in the Preference Test and Factual Claims Test. Asterisks indicate statistically significant results ($p < .05$).

Discussion

The present study sought to test how being imitated would affect children's susceptibility to social influence. In particular, we were interested in whether being imitated would increase or decrease children's trust in the preferences and factual claims of their social partners. The results of the preference test demonstrated that children expect to share the preferences of an experimenter who has previously imitated them. One possible explanation for this is that they view individuals who imitate them as being more similar to themselves (Chartrand & Bargh, 1999; Meltzoff, 1990, 2007). Support for this interpretation is offered by other recent research suggesting that young children expect to share preferences with individuals who are similar to themselves (Fawcett & Markson, 2010). Perhaps more surprisingly, given the idea that imitation may signal lack of expertise or low status, the results of the factual claims test showed that children are also more likely to believe the novel object labels of an experimenter who has imitated them. Consequently, these data support the hypothesis that imitation influences trust even in the case of factual claims. The fact that this effect held across two different types of imitation highlights the robustness of imitation as a means of social influence in children.

We found no support for the hypothesis that imitation reduces perceived expertise. There are a number of possible reasons why children may have endorsed the choice of the mimic in the factual claims task. One possibility is that children endorsed the object label of the mimic for the same reason that they endorsed her preference, because they considered themselves to be more similar to her and liked her more. This interpretation fits well with previous social psychological research with adults suggesting that individuals are more persuaded by people they categorise as similar to themselves and like (Cialdini, 2001; see also Bailenson & Yee, 2005; Tanner et al., 2008; Turner, 1991). A related possibility, which also involves perceived similarity, is that the consensus between children's own responses and those of the mimic during the imitation phase led them to believe that they agreed on the appropriate response. Children may thus have viewed the mimic as an expert relative to the non-mimic and endorsed her

preferences and her factual claims for that reason. These two possibilities are not necessarily incompatible with each other and may even form part of the same influence process (Turner, 1991). It is likely not the case that children endorsed the object label offered by the mimic in response to perceived social pressure from the mimic to copy her, as she had done them, because both experimenters were turned away from children (reading magazines) during the test phase.

An outstanding question relates to how great the relative difference in similarity needs to be in order for children to prefer a mimic to a non-mimic. Clearly, similarity between any two individuals exists along a continuum. In this study, we compared children's preferences for an experimenter who always imitated their choices to their preferences for an experimenter who never imitated their choices. It remains for future research to determine whether more subtle manipulations (e.g., a comparison between an experimenter who imitated 60 percent of children's choices vs. an experimenter who imitated 40 percent of children's choices) would also show an effect. What is clear from our results, however, is that perceived similarity is a significant force in children's social interactions.

This study adds to a growing body of research suggesting that being imitated exerts a powerful influence over children's cognition and behaviour. Previous developmental research has demonstrated that even infants respond positively to being imitated. Meltzoff (1990) found that 14-month-olds look toward and smile more at an experimenter who imitates them than at an experimenter who engages in equally contingent but non-imitative behaviour. Here, we move beyond this and show that being imitated also influences more significant social behaviours like children's susceptibility to social influence, including their preferences and even their trust in others' factual claims. Future research should investigate the boundary conditions of the positive consequences of imitation, and whether imitation ever has negative consequences.

More generally, this research supports the claim that imitation performs an important social function in development (Meltzoff, 2007; Nadel, 2002; Over & Carpenter, 2012; Užgiris, 1981, 1984). The vast majority of recent developmental research on imitation has concentrated on how children use imitation to learn about the physical world. The current findings add to a growing body of evidence demonstrating that imitation also plays a critical role in children's social interactions (see, e.g., Eckerman, Davis, & Didow, 1989; Nadel, 2002; Nielsen, Simcock, & Jenkins, 2008). More specifically, they add to evidence suggesting that imitation is an important way of generating affiliation and agreement between individuals (Chartrand & Bargh, 1999; Nadel, 2002; Over & Carpenter, 2009, 2012).

In addition to contributing to the imitation literature, the present study has important implications for our understanding of children's trust in others. Past research has shown that children learn selectively and appropriately from others based on a variety of social and contextual factors (e.g., Corriveau, Fusaro, & Harris, 2009; Corriveau & Harris, 2009; Kinzler, Corriveau, & Harris, 2011; Koenig et al., 2004; Koenig & Harris, 2005; Scofield & Behrend, 2008; VanderBorgh & Jaswal, 2009). Here, we add to this research by showing that social strategies such as imitation can be used by a model in order to influence children's trust in her preferences and even her factual claims.

In summary, this study demonstrates that imitation is a powerful form of social influence in children, as it is in adults, impacting the extent to which children are influenced by the preferences and opinions of those around them.

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