

Domestic Dogs as Facilitators in Social Interaction: An Evaluation of Helping and Courtship Behaviors

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ABSTRACT Previous studies have suggested that dogs facilitate social interaction between humans. Furthermore, the nature of social interaction is limited to nonverbal behavior such as smiling or gazing or to commonplace conversations. Four studies were carried out in field settings in order to explore if dogs can facilitate closer relationships. In the first experiment, a male confederate (accompanied or not by a dog) solicited people for money in the street. The second experiment was the same except that a female confederate was used. In a third experiment, a male confederate (with or without a dog) accidentally dropped some coins on the ground, to see if people would help him pick them up. In the fourth experiment, a male confederate (with or without a dog) solicited young women in the street for their phone numbers. Results show that the presence of the dog was associated with a higher rate of helping behavior (experiments 1, 2, 3) and higher compliance with the request of the confederate (experiment 4). The influence of a domestic dog as a facilitator to create affiliation and relations in social interaction is discussed.

Keywords: domestic dogs, helping behavior, social interaction



Various researchers have studied the role of animals in human social interaction. In 1975, Mugford and M'Comisky found that elderly individuals who were provided with a caged budgerigar engaged in more social interaction than those given a houseplant or nothing at all. Similarly, Hunt, Hart and Gomulkiewicz (1992) explored the role of small animals, such as rabbits or turtles, in social interaction between strangers in a park. They found that in a community setting, without special effort or obvious need on the part of a young female confederate, the presence of small animals led unfamiliar children and adults to approach her more often and engage more favorably in conversation with her.

The role of domestic dogs in human interaction has been dealt with in several studies. Some studies suggest that the mere presence of a dog reduces aggression and agitation and promotes social behavior in people with dementia (Filan and Llewellyn-Jones 2006). Bernstein, Friedman and Malaspina (2000) found that during visits of rescue-sheltered dogs, social interaction between residents of nursing homes increased.

Acknowledgement between strangers is also influenced by the mere presence of a domestic dog. Individuals walking through a park with a dog were more likely to receive social acknowledgement from strangers than when they were walking alone (Messent 1984). McNicholas and Collis (2000) found in two observational studies that, within a range of normal daily activities in which a dog could be included and not confined to conventional dog walking areas, the presence of a dog increased the frequency of social interaction, especially interaction between strangers. These authors also found, by varying the apparel of the male confederate (accompanied or not by the dog), an increase in interaction when the confederate was smartly dressed. Furthermore, it was found that, irrespective of the person's style of clothing, the greatest effect was between the dog-present condition and the no-dog control condition.

In shopping malls and on school playgrounds, Mader, Hart and Bergin (1989) recorded the behaviors of passers-by in response to children in wheelchairs. In both settings, it was found that social acknowledgements such as friendly glances, smiles, and conversations were substantially more frequent when the service dog was present. The same effect was found with adults in wheelchairs (Hart, Hart and Bergin 1987; Eddy, Hart and Boltz 1988). For adults without any handicap, the same effect has been found. Fridlund and MacDonald (1998) tested the effect of a Golden Retriever puppy with a human companion on the approaches of passers-by. During their experiment, the puppy aged from 10 weeks to 33 weeks. It was found that approaches were most numerous when the puppy was youngest, and females approached more often than males during the first half of sampling, but approached a similar number of times to males during the second half. In a recent study carried out by Wells (2004) in a field setting, 1800 male and female pedestrians approaching a female experimenter were observed according to the presence of three dogs (Labrador Retriever pup, Labrador adult, Rottweiler adult), two neutral stimuli (teddy bear, potted plant), or without any accompaniment. The acknowledgement of the pedestrians were unobtrusively observed and coded with a grid of five levels of social interest (ignore, completely overlook the experimenter, look at the experimenter, smile at the experimenter, or talk to the experimenter). It was found that more people ignored the experimenter when accompanied by no stimulus, neutral stimuli, and the adult Rottweiler, whereas more pedestrians smiled at, or talked to, the experimenter when accompanied by the Labrador pup or adult. When the length of conversations was measured, it was found that passers-by engaged in longer conversations when she was accompanied by the Labrador pup than when she was with the Labrador adult.

Overall, the studies discussed above found that animals, and particularly domestic dogs, are associated with increased social interaction between humans. However, these studies focused only on brief social interaction. It would be interesting to explore the effect of domestic dogs on more elaborate or closer relations between strangers. To that end, we examined the role of domestic dogs in human helping and courtship behaviors in four experiments—a male confederate (a female confederate in one study) accompanied or not by a dog, solicited pedestrians for their help, and in one study solicited women for their phone numbers. Because previous studies have shown that domestic dogs enhance social interaction, we hypothesized that the presence of a dog would lead to greater compliance with a person's request, compared with when no dog was present.

Experiment 1

Methods

Participants: Eighty men and 80 women (age range approximately 25–60 years old) were chosen at random in the street. Eighty were randomly assigned to the experimental group (40 men and 40 women) and 80 were assigned to the control group (40 men and 40 women).

The confederate was a 22-year-old male of medium height (1.75 m) and weight (71.2 kg). He was neatly dressed and in a conventional way for a person of his age (jeans/sneakers/T-shirt).

This dog used in this study was a mongrel of medium height (42 cm) and weight (11.4 kg), with a black, mid-length coat. In a previous evaluation conducted in the street with 47 men and women, this dog was evaluated as kind, dynamic, and pleasant.

Procedure: The experiment took place in a public mall, during sunny, spring days in 2006. The confederate was instructed he had to approach the first man or woman, aged from 25–60 years old, who walked alone in the pedestrian zone. When the confederate was ready to solicit people, he was instructed to count from one to five pedestrians and then approach the first appropriate passer-by. With this method, it was not possible for the confederate to select a participant according to his subjective appreciation. If the first passer-by was a child, a teenager, an elderly man/woman, or a person in a group, the confederate had to ignore him/her and wait until an appropriate person passed by. After finishing with a participant, the confederate was instructed to count the next five pedestrians and then approach the next appropriate person.

In the experimental condition, the confederate kept a dog on a lead. In the no-dog control condition, the confederate was not accompanied by the dog, but was instructed to interact in the same way with the participants.

The confederate, who owned a dog but not the dog used in this experiment, was trained before the experiment was conducted. He was instructed to approach 10 people, accompanied or not by the dog, and his conversation was recorded using a digital recorder (Roland Edirol R1) which was placed in the inside pocket of his jacket. A very discrete microphone was placed on the lapel of his jacket (although small, the microphone was highly sensitive, enabling high-quality recordings to be made). Five judges (two males, 22 years old each and three females, 20–22 years old) listened to the recordings and were instructed to evaluate if the confederate was accompanied by a dog or not when soliciting the pedestrian. It was found that the discriminatory capabilities of the judges were not statistically different to what would be expected by chance.

In the experiment, the confederate approached each person and said, politely, “Sorry Madam/Sir would you have some money so that I can catch the bus, please?” In the case of a positive answer, the confederate waited for the participant to give him some money. He estimated the amount given and then gave it back to the participant. The person was then debriefed about the study.

The dependant variables used in this experiment were the number of participants who complied with the confederate’s request and the amount of money given by participants who had agreed to make a donation. The first dependant variable we used was in a 2×2 chi-square test, in order to test the relationship between the two dichotomous variables (experimental conditions: dog/no dog and compliance to the request: comply/not comply). The second dependant variable was a continuous variable, so we used a *t*-test in order to evaluate if the mean donation in the dog condition was statistically different from the mean donation in the no-dog condition.

Results and Discussion

On all measures employed in this study, no differences were found between male and female participants according to the experimental conditions, so data were aggregated. In the no-dog control condition, 11.3% (9/80) of the participants solicited complied with the confederate's request, compared with 35% (28/80) in the experimental condition. This difference was significant ($\chi^2_{(1)} = 15.26, n = 160, p < 0.001, r = 0.30$). The presence of the dog was associated with higher compliance with the confederate's request.

When we considered the mean amount of money donated by the people having accepted the request in each of the experimental groups, we found that participants gave an average of €0.63 (US\$0.26) in the no-dog condition versus €0.87 (US\$0.31) in the dog condition. This difference was significant ($t_{(85)} = 2.09, p < 0.05$, two-tailed, $d = 0.71$). Thus, the presence of the dog was associated with greater levels of generosity from the participants who agreed to the confederate's request.

Two pro-social effects were associated with the presence of the dog in this experiment. We found that a higher number of pedestrians helped the confederate when he was accompanied by a dog, and the pedestrians who complied with the request were more generous with their donations when the confederate was accompanied by the dog than when he was not. These effects show that altruism is strongly connected with the presence of a domestic dog. Previous research found that pedestrians' acknowledgement of a stranger increased when he/she was accompanied by a dog (Wells 2004) and that more people engaged in conversations when a dog was present. In this experiment, we found that more intimate social behaviors are also affected by the presence of a dog. Such effects suggest that the dog has a high ability to affect social interaction between humans.

In order to study this effect across the sexes, a second experiment was carried out, this time using a female confederate. Helping behavior has been found to be affected by the gender of the person seeking help (Bickman 1971; Juni and Roth 1981; Basow and Crawley 1982; Fiala et al. 1999)—women, more than men, receive help when soliciting it in the street.

Experiment 2

Methods

Participants: One hundred men and 100 women (age range approximately 25–60 years old), were chosen at random in the street. One hundred people were randomly assigned to the experimental group (50 men and 50 women) and 100 to the control group (50 men and 50 women).

The confederate was a 21-year-old female of medium height (1.66 m) and weight (59 kg). She was dressed neatly and in a conventional way for people of that age (jeans/sneakers/pullover/jacket).

The dog used in the experimental condition was the same as in the previous experiment, and the verbal solicitation was strictly the same as in the first experiment.

Procedure: The experiment took place in a public mall, during sunny, but cold, winter days in December 2007. The confederate approached appropriate passers-by using the same methodology as in the first experiment. A training period was used in order to prevent any difference in the behavior of the confederate in the two experimental conditions. As in the previous experiment, verbal behavior was recorded and evaluated by judges—they were not able to discriminate between the two experimental conditions. As before, the response of the

participant to the confederate's request and the amount of money given were the two dependant variables. Data were analyzed using the same statistical procedures as described in experiment 1.

Results and Discussion

No differences were found between male and female participants according to the experimental conditions, but in both conditions men complied more favorably to the request (52%) than women (25%). No interaction effect was found between the participants' gender and the experimental conditions, so data were aggregated. In the no-dog control condition, 26% (26/100) of the participants solicited complied with the confederate's request, compared with 51% (51/100) in the experimental condition. This difference was significant ($\chi^2_{(1)} = 13.20, n = 200, p < 0.001, r = 0.26$). The presence of the dog was associated with higher compliance to the confederate's request. When we considered the mean amount of money donated by the people having accepted the request in each of the experimental groups, we found that participants gave a mean of €0.54 (US\$0.31) in the no-dog condition versus €0.80 (US\$ 0.47) in the dog condition. This difference was significant ($t_{(75)} = 2.55, p = 0.02$, two-tailed, $d = 0.59$) and confirms that the presence of the dog was associated with greater levels of generosity of the participants who agreed to the confederate's request.

In the last two experiments, an explicit verbal request addressed to people in the street was found to be more favorably accepted when the confederate was accompanied by a dog. In order to compare the interaction effect between the gender of the confederate and experimental condition on compliance to the confederate's request, a 2 (dog/no-dog condition) \times 2 (male/female confederate) \times 2 (compliance/no compliance) log linear analysis was performed. Participants were found to comply more favorably ($G^2_{(1, 360)} = 9.99, p < 0.005$) with the female confederate's request (38.5%) than with the male confederate's request (23.1%). These results are in accordance with previous research on helping behavior which showed that females elicited greater compliance to a request than males (Bickman 1971; Juni and Roth 1981; Basow and Crawley 1982; Fiala et al. 1999). Furthermore, an interaction effect was also found between the gender of the confederate and the experimental conditions ($G^2_{(4, 360)} = 36.45, p < 0.001$) and revealed that the effect of the dog was greater with a male confederate (the gain of compliance increased more than threefold) than with a female confederate (the gain of compliance increased less than twofold). Therefore, the gain of compliance exerted by the mere presence of the dog seems to be greater with the male than with a female.

With the mean amounts of money donated by the people having accepted the request, a 2 (dog/no-dog condition) \times 2 (male/female confederate) ANOVA (Analysis of Variance) was performed. A main effect of the experimental condition was found ($F(1, 110) = 8.09, p < 0.001, \eta^2 = 0.13$) but no main effect of the gender of the confederate was found ($F(1, 110) = 0.82, ns, \eta^2 = 0.04$), and no interaction between the two main factors was found ($F(1, 110) = 0.02, ns, \eta^2 = 0.00$). So it seems that gender had no effect on the amount of the donation and does not interact with the presence versus absence of the dog.

This method to test altruism is a traditional one used in social psychology to explore the effects of some variables on helping behavior (Bierhoff 2002). However, the methodology used in research which focuses on helping behavior not only uses explicit request, but also implicit request. An implicit helping request is a request that is not directly addressed by one person to another: it is a situation where someone decides to help a person spontaneously. For example, a situation where someone drops coins or papers on the ground without soliciting

somebody to help him/her to pick them up is typically one where spontaneous helping behavior could occur: persons around, without solicitation, could decide themselves to help the person. This technique is frequently used in studies on helping behavior, and many scientists consider that it is a better method for studying the determinants of altruism because people who provide their help are not solicited and are free to choose—they could be considered Good Samaritans (Bierhoff 2002). Our third experiment, carried out again in a field setting (bus shelter), tested the effect of the presence of a domestic dog on the spontaneous helping behavior of strangers when something happens to a person but there is no solicitation for help.

Experiment 3

Methods

Participants: Forty men and 40 women (age range approximately 25–60 years old), who were sitting down and waiting in a bus shelter, were chosen at random.

The same male confederate who was used in the first experiment was used in this study. He was dressed in the same way as before. In the experimental condition, the confederate was accompanied by the same dog as before. Again, the dog was kept on a lead.

Procedure: An observer (a woman) in front of a bus shelter (30 meters away) waited until a man or a woman (approximately aged from 25–60 years) entered the bus shelter. She then phoned the confederate, who was waiting with the dog in a car 50 meters behind the bus shelter. The observer described the person who had just arrived and told the confederate to go to the bus shelter with or without the dog (this was randomized). The confederate had to enter the bus shelter, look at his watch, and then pretend to be engrossed in the bus timetable. He was instructed not to look at the other people during the time he was in the bus shelter. After 30 seconds, the confederate had to leave the bus shelter. While leaving, he had to put his hand in his pocket, take out a handkerchief, and “accidentally” drop some coins on the ground. The confederate was then instructed to wait two seconds before bending down to pick up the coins. Again, in both conditions (experimental and control), the confederate was instructed not to look at the participants when acting. If anyone helped him pick up the coins, the confederate was instructed to thank him/her and leave the bus shelter. If no help was provided by anyone, the confederate was instructed to pick up all the coins and leave the bus shelter. Overall, the confederate made 80 separate trips to the bus shelter.

The dependant variable used in this experiment was the number of participants who helped the confederate. To analyze our data we used a 2×2 chi-square test, in order to test the relationship between the two dichotomous variables (experimental conditions: dog/no dog and helping behavior: help/no help).

Results and Discussion

Between all measures employed in this study, no differences were found between male and female participants according to the experimental conditions. Again, data were aggregated. In the experimental condition, in which the confederate was accompanied by a dog, 87.5% of the participants (35/40) helped the confederate, compared with 57.5% (23/40) in the no-dog control condition. This difference is significant ($\chi^2_{(1)} = 9.03$, $n = 80$, $p < 0.005$, $r = 0.34$).

For the third time, with a different methodology, it was found that the presence of a dog elicited greater helping behavior. In this experiment, the effect of the dog is more interesting because the altruistic behavior tested was spontaneous and no previous verbal or non-verbal

interaction occurred between the confederate and the participants. The mere presence of the dog seems to have been sufficient to elicit greater helping behavior toward the confederate. These data suggest that the domestic dog is really a facilitator of social interaction that not only encourages social behaviors such as smiles or greetings (Wells 2004), but also a different range of social behaviors such as helping. In order to explore this effect further, a fourth experiment was conducted that tested the effect of the presence of a dog on highly intimate interactions and solicitation. In this new experiment, the effect of the presence of a domestic dog on a young man's courtship solicitation toward young women was tested.

Experiment 4

Methods

Participants: The participants were 240 young women (ranging in age from approximately 18–25 years) chosen at random while walking alone in a pedestrian zone in the same city where the two first experiments were conducted.

In this experiment, a 20-year-old, male confederate was used. He was selected by a group of three women, on the basis of a high physical attractiveness score, from a group of three male volunteers. An attractive man was used because pre-test evaluation showed that it was generally difficult to obtain phone numbers from young women in the street. This avoided creating conditions where the ceiling effect of compliance was low. The confederate wore the same style of clothing as in experiments 1 and 3.

The same dog that was used in the previous studies was used.

Procedure: The experiment was carried out on sunny days in July 2007. In this experiment, the participants were selected following a random assignment in which the confederate was instructed to approach the first young woman in the relevant age group (18 to 25 years) who was walking alone in the pedestrian zone where the experiment was being carried out. As in the previous experiments, when soliciting the young women the confederate kept his dog on a lead in the experimental condition, whereas he was not accompanied by his dog in the no-dog control condition. The same verbal solicitation was made by the confederate in both the control and the experimental conditions:

“Hello. My name’s Antoine. I just want to say that I think you’re really pretty. I have to go to work this afternoon, but I was wondering if you would give me your phone number. I’ll phone you later and we can have a drink together someplace.”

The confederate, who owned a dog, but not the dog used in this experiment, was trained before beginning the experiment. He was instructed to approach 10 participants, accompanied or not by the dog, and his conversation was recorded by a digital recorder (Roland Edirol R1), as in experiment 1. Five judges (2 males, 22 years old and 3 females, 20–22 years old) listened to the recordings and were instructed to evaluate if the confederate was accompanied by a dog or not when soliciting the pedestrian. It was found that the discriminatory capabilities of the judges were not statistically different to what would be expected by chance.

In the experimental situation, after making his request, the confederate was instructed to wait 10 seconds and to gaze and smile at the participant. If the participant accepted the confederate's solicitation, the confederate debriefed her about the study. An information sheet was then given to her and she was asked to provide some details for the experiment (name, age, address, phone number). The information sheet contained details of the project, the

laboratory's web site address, and the personal phone number of the director of the laboratory. To date (the fourth experiment was conducted in July 2007), no participant has phoned to obtain further information about the research. This method of debriefing was used in our experiment because firstly, this was the recommendation of the ethical committee of our laboratory, and, secondly, in previous experiments where the same request was solicited (Guéguen 2007a), a more in-depth debriefing had been performed (contacting the young women two days later), revealing that none of the participants had been insulted or troubled by the experiment. Indeed, most mentioned that it had been amusing to participate in such an experiment and that they had good and pleasant memories of it.

After debriefing each participant in our study, the confederate would say, *"Thanks for your participation and I'm sorry that I've taken up your time. Perhaps we could meet another time. Bye!"* If the participant had refused to give her number, the confederate was instructed to say, *"Too bad. It's not my day. Have a nice afternoon!"* and wait for another participant.

The dependant variable used in this experiment was the number of women who complied with the confederate's request by giving him her phone number. To analyze the data we used a 2×2 chi-square test to test the relationship between two dichotomous variables (experimental conditions: dog/no dog and compliance to the request: comply/not comply).

Results and Discussion

The dependent variable in this experiment was the number of participants who agreed to the courtship request. The results showed that 28.3% (34/120) of the women approached complied with the request when the confederate was with the dog, compared with 9.2% (11/120) of women when the confederate was not with the dog. This difference is significant ($\chi^2_{(1)} = 14.47$, $n = 240$, $p < 0.001$; $r = 0.25$).

For the fourth time, the presence of a domestic dog was found to have a positive impact on social interaction. Furthermore, in this experiment, the request of the male confederate had a high level of social intimacy. Despite this intimate request, the effect of the presence of the dog still remained, proving that a dog is a powerful facilitator of social interaction.

In a previous study on courtship behavior using the same methodology (Guéguen 2007a), it was found that tactile contact (young women were touched lightly by a male confederate when he asked for their phone number) elicited greater compliance with a courtship solicitation, but the rate of compliance (19.2%) is lower than the rate of compliance found in the current study (28.3%). However, the control groups in the two studies had similar rates of compliance: 10% in the no-touch control group (Guéguen 2007a) and 9.2% in the no-dog control group (current study). The effect size of the effect of touch ($r = 0.13$) and the effect size found here ($r = 0.25$) confirms the more powerful effect of the domestic dog. Given that these two experiments were similar methodologically (same confederate, same setting and period of testing and same request), the difference found suggests the higher efficiency of the domestic dog in social interaction.

General Discussion

The results of our four experiments show that requests addressed to pedestrians by a stranger accompanied by a dog are more favorably received than when the person is not accompanied by a dog. This agrees with previous research which found that dogs can enhance social interactions between humans and that a stranger accompanied by a dog receives more acknowledgements. In these earlier studies, the interactions were limited to greetings. However,

in our experiments, we used more elaborate and intimate social behaviors, and the results highlight that a large spectrum of social behaviors is influenced by the presence of dogs. Overall, our results confirm the social lubrication effect of dogs (Wells 2004).

Our purpose was only to study the effect of the domestic dog on various social behaviors associated with closeness and intimate social interactions. In addition, these behavioral effects have to be explained theoretically. A host of previous research has found that helping behavior toward a stranger is influenced by factors associated with the person, such as physical attractiveness (Harrel 1978; Nadler, Shapira and Ben-Itzhar 1982), apparel (Chierco, Rosa and Kayson 1982; Sinha and Jain 1986), and even the model of the person's car (Solomon and Herman 1977). Our results confirm that a dog is another factor that enhances the attractiveness of a person and helps elicit greater helping behavior toward him/her. Furthermore, some differences exist between the latter studies on helping behavior and the experiments conducted here. Indeed, in the earlier research, the apparel of the experimenter or the value of his/her car was associated with different levels of social status which were associated with his/her appearance. We think that the presence of a dog has no impact on such evaluations but could influence how a person is perceived. In our experiments, we think that the confederate accompanied by his dog was differently perceived on personal attributes than when he was not accompanied by the dog. Perhaps the presence of the dog led pedestrians to evaluate the confederate to be more kind, thoughtful, or sensitive, possibly because people who love animals, particularly dogs, are thought to have these attributes. In return, this evaluation of personal attributes may have led the pedestrians to be more agreeable and helpful. The positive effect of the young women toward the confederate in our fourth experiment is congruent with this explanation, given that positive social attributes of men are generally associated with greater attractiveness in a courtship context (Guéguen 2007b). Of course, this explanation in terms of the activation of positive social attributes associated with the confederate accompanied by a domestic dog remains speculative, given that the evaluation of such attributes was not performed. It would be interesting in future studies to evaluate the link between the presence of the dog and the personal attributes associated with his/her owner.

Of course, the results from our four experiments cannot be generalized to every dog. In our experiments, the same, black dog was used every time. Wells and Hepper (1992) found that people preferred blonde to black-coated dogs. Because of this, we hypothesize that greater helping behavior and compliance with a courtship request could be obtained with a yellow/light-coated dog. Also, Wells (2004) found that a female experimenter accompanied by a Labrador received more acknowledgements from pedestrians than when she was accompanied by a Rottweiler. Our experiments, however, were conducted using a mongrel, not a pedigree dog. It will be necessary in future studies to further test the influence of breed and color of dog on social interaction, particularly when trying to solicit helping behavior from strangers.

In our first and second experiments, we found no difference in helping behaviors in male and female pedestrians, which could be explained by the fact that we used an adult domestic dog. Fridlund and MacDonald (1998) found that a Golden Retriever puppy elicited a greater number of female pedestrian approaches than male pedestrian approaches, suggesting a human female preference for canine juvenescence. Therefore, regarding our fourth experiment, where a positive effect of the dog was found on eliciting positive responses to a courtship request addressed to young women in the street, we hypothesize that had we used a puppy, greater compliance with the request would have been achieved.

There are some other methodological problems in the experiments we conducted. In experiments 3 and 4, only young male confederates were used and so the results cannot be generalized for both sexes. We found in experiments 1 and 2 an interaction effect between the gender of the confederate and the presence versus absence of the dog on compliance with a request. With an explicit helping solicitation, the gain of compliance exerted by the mere presence of the dog was greater with the male confederate than with the female confederate. Such results need to be confirmed, but this gender effect is interesting—it shows that perhaps people react differently to a stranger accompanied by a dog according to the gender of the person. Thus, it will be interesting for further studies to evaluate reactions and representations associated with the presence of a dog according to its owner's gender.

The confederates in our studies were young and so the data are not generalizable to all age groups. Also, the results cannot be generalized to every culture, given that these experiments were conducted in France only, a country where dogs are very popular. Additional data are now necessary to explore the generality of the enhancing effect of domestic dogs on social interaction, to evaluate the factors associated with greater or lower efficiency of this effect, and to evaluate the theoretical explanations for it.

A possible confederate bias might have been present in our experiments. While the confederate was instructed to behave identically when soliciting participants, and we established in the first, second, and fourth experiments that there were no differences in the two conditions (with or without dog) according to the verbal behavior of the confederate, variation in non-verbal behavior may have occurred. Of course this bias might be present in all of the previous studies cited in this paper, too, but it is important to evaluate this effect in future studies by examining videotapes of the interactions, by increasing the number of confederates, and by training them more fully.

In summary, congruent with previous studies, our data on helping behavior and request solicitation confirm the positive role of domestic dogs in social interaction between strangers.

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