

Bachelor Thesis - A Walk on the Wild Side: How do we Evaluate Strangers?

Maria Charlotte Begall

s5052610

Department of Psychology, University of Groningen

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Supervisor: Prof. Dr. Russell Spears

Second evaluator: A.A Desphande

In collaboration with: Emma Boye, Anne Mae Brand, Guus van Dijken, Sherida van

Leeuwen, and Daniela Longo

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Abstract

Dogs are often described as the humans' best friend and are valued family members. In human-to-human relationships, this shared identity affects our behavior and unconscious information processing. This study aims to investigate whether this also holds for human-to-dog relationships, more specifically, whether a dog's reaction affects human impression formation of strangers. This is done by presenting the participants with two different framing texts (rational vs. intuitive decision-making), followed by two scenarios where the dog first has a friendly reaction and then a hostile reaction towards the stranger. The stranger will either be wearing a uniform (clear setting) or not (ambiguous). We hypothesized that there would be main effects for all three factors and that the influence would be the strongest in the intuitive, ambiguous scenario with a negative reaction. Due to the combination of the main effects and an interaction effect between the three. The results showed that the reaction of the dog did influence the participants' perception of the stranger, and the influence of an ambiguous situation and the overall interaction effect were supported by a two-way interaction found between the reaction of the dog and Stranger Type. However, there was no significant main effect found for the framing. This shows that the concept of shared identity with animals, more specifically dogs, is not fully understood yet and should be paid more attention to. Thus, one can get a better grasp of how these animals influence us and our relations to other humans.

Keywords: Dogs, Shared Identity, Humans-to-Nonhuman Relationships, Social Influence

A Walk on the Wild Side: How do we Evaluate Strangers?

The Robbers Cave Experiment and its result by Muzafer Sherif (1961) are to this day relevant and shocking. In this experiment, Sherif split a group of boys into two teams, “The Eagles” and “The Rattlers”. Within days, the boys went from friendly strangers to enemies and actively tried to harm the opposing teams because of ingroup versus outgroup biases and stigmatization. It took days and a lot of active work to break the bond that had been arbitrarily formed at the beginning of the camp. This study demonstrates how powerful and influential a shared identity can be in shaping humans' perception of others and their behavior towards them. Perhaps this shared group identity is not only applicable to human-to-human relationships but also to human-animal relationships, more specifically dogs. Having a dog raises the chances for social contacts and makes one more approachable (Guéguen & Ciccotti, 2008 and Wood et al., 2017b). This opens possibilities of forming new strong relationships, but could it be that dogs are influencing who their owner is going to befriend and who not by their reactions? This study is interested in finding out whether dogs influence humans' perception of strangers through a shared social identity.

Relevance

This is of importance since most research focuses on human-to-human shared identity relationships. However, by investigating the influence of animals, one can better explore the full scope of shared identity and its limitations, thereby contributing valuable new insights to the existing body of research. Furthermore, the percentage of single-person households has increased in the last couple of years (European Union Labour Force Survey, 20203), and more people report feeling lonely (Federal Institute for Population Research, 2024). One could speculate that more people will get dogs to satisfy the need for a safe haven, which could combat loneliness (Kurdek, 2009b). Hence, the importance of understanding how they are influencing us is also increasing.

Understanding Shared Identity

Having a shared identity can affect humans in several ways. Maybe people go along to avoid rejection, or they want to improve the group's outcome. However, the influence can go a step further and unconsciously affect how humans integrate and perceive information. For instance, in Asch's conformity experiment, they found that participants not only reported that a non-fitting line was the matching line to the one the experimenter presented, but they also genuinely perceived it as such (Asch, 1956). This was later further supported by Berns et al. (2005), who found that while conforming, there was increased activity in the brain regions for visual and spatial perception, and not just in decision-making or social pressure.

This change in perception could be related to the process of self-categorization. Self-categorization explains that people can shift between a personal and social identity. This social identity, however, can become a part of the self (Spears, 2021). Hence, group influence is also partially self-influence. This might explain why people's perception adapts to the presented group's perception. This is something the study is interested in investigating: how and whether dogs' reactions influence humans' perceptions.

Shared Identity in Human–Dog Relations

To be able to research this, the study assumes that humans can perceive dogs as ingroup members. There is quite some evidence in favor of this, which will be presented here. There are numerous studies that have reported people perceiving dogs as family members or that humans have childlike relationships with them (Topál et al., 1998). The identification process was linked to humans attributing human-like characteristics and traits to their dogs, e.g., anthropomorphizing. For example, Pickersgill et al. (2023) discovered that dog owners believed their dogs had a similar range of emotions to humans, but cat owners did less so, and in the study by Arahori et al. (2017), they found that dog owners viewed their dogs more often as family members than cat owners. Perceiving dogs to be more similar to humans than

cats is probably why they are more often considered to be an ingroup member compared to cats.

The previous paragraph talked about the likelihood of a shared identity between humans and dogs and that this is caused by humans perceiving dogs to be somewhat similar to humans. However, if this is true, then there should be a link between similarity and influence. This would further support that a shared identity was established. This effect was indeed observed by Abrams et al. (1990), who replicated Asch's experiment and found that participants chose more often the line that the actors declared to be the right one when the actors were viewed as more similar to ingroup members.

The present study

Therefore, this study will highlight similarities and differences to manipulate group identification with the dog. This study proposes that if participants perceive dogs as ingroup members, they will consider the dog's reaction for impression formation. According to Kahneman (2011), there are two systems when it comes to information processing. One is fast, automatic, and intuitive, and the other is slow, analytical, and rational. Dogs are most likely to use the intuitive system, whereas humans can use both. If humans are actively primed to use the intuitive system, they will be similar to dogs, whereas if participants receive the rational priming, they will view themselves as dissimilar. Hence, our first hypothesis is that the influence of the dog will be stronger in the group that is intuitively primed (H1). Due to the perceived similarity, which will supposedly activate a shared identity.

To increase the common social identity further, this study created one scenario that induces uncertainty/ambiguity, which will be compared to one scenario that emits reassurance

while meeting a stranger. We hypothesize that the influence of the dog will be stronger in the uncertain/ambiguous situation (H2). This is expected to be due to the knowledge difference. In the clear/reassuring scenario, participants are most likely to disregard the dog's input since they perceive themselves to be more knowledgeable. Whereas in the uncertain and slightly threatening scenario, the participants are more similar to the dog in knowledge and cannot activate any schemas for help, so they are more likely to consider the dog's reaction for any additional information.

Furthermore, we hypothesize that the negative reaction of the dog towards the stranger is going to be more influential (H3). This is supported by the finding that people respond more quickly and pay more attention to negative stimuli (Carretié et al., 2001). This could be due to an evolutionary advantage of detecting potentially life-threatening information faster. Therefore, the negative reaction of the dog might be more influential, since it could indicate a threat, which is possibly more important to take into consideration than knowing whom to befriend (positive reaction).

Additionally, all these main effects combined might interact with each other and are not just additive. Therefore, we hypothesize that there is an interaction effect between the framing, certainty/Stranger Type, and reaction conditions (H4). Humans can use higher-order processing (rational framing), whereas dogs cannot. This is an important difference and is most likely to play a role in whether humans will identify with dogs or not. The ambiguous situation could reinforce the intuitive framing since a rational approach is less useful, and there might be some natural reliance on gut instinct coming in as well. Consequently, humans are more similar to dogs, and relying on the dog's instincts and senses could be beneficial. This could be further enhanced by a negative reaction from the dog. Since dogs might have access to more subtle or hidden information than humans, which could make humans more

suggestible, especially in ambiguous and potentially threatening situations. For example, imagine a person who believes in trusting their gut instincts, who is lost in an unknown forest in a foreign country at dawn, and then a rabbit shows up. First, it looks relaxed, then suddenly it sits up right, looks stressed, and quickly hops away. Odds are the person would also start feeling anxious and would leave, because they identify with a rabbit on a level of being prey and trust that the rabbit could hold useful information (Spears, 2021).

Another interesting factor to look at is dietary preference and whether it impacts the results. The main motivation for vegans/vegetarians is animal rights, and morally motivated vegetarians feel disgusted toward meat (Dhont & Ioannidou, 2024 and Rosenfeld & Burrow, 2017). The decision to stop eating meat could stem from an identification process with animals. This assumption gets supported by Ellemers et al. (2013c), who found that people tend to feel stronger moral obligations towards ingroup members. Identifying with animals could explain the heightened empathy toward them, which is stronger for ingroup members and could provide a heightened baseline of a shared identity, which in return should make vegans and vegetarians more accessible for the dog's reaction. Hence, we hypothesize that the influence will be stronger if the participants are vegan or vegetarian (H5).

In summary, this study investigates how shared identity affects human–nonhuman relationships. More specifically, it examines whether a shared identity between humans and dogs can lead humans to perceive a stranger in line with the dog's reaction, particularly in situations where people view themselves as similar to dogs, within an ambiguous and slightly threatening environment, especially when the dog shows a negative reaction.

Method

Participants and Design

This study recruited 74 first-year bachelor's students from the Faculty of Behavioral and Social Sciences at the University of Groningen. Participants were recruited through the SONA system, a participant pool management software provided by the University of Groningen. Additionally, we collected data from 223 participants who were directly invited by the researchers through other platforms such as social media. A total of 130 responses were eliminated because the respondents either did not complete the questionnaire, took less than five minutes, admitted they did not respond seriously, or failed the attention checks. The final sample for the analysis consisted of 167 participants (Table 1, Appendix A).

Demographic variables such as gender and dog ownership status were recorded. Of these, 40 identified as male, 126 as female, and one participant preferred not to say (Table 1 in Appendix A). Furthermore, 32 participants expressed their dietary preference as vegan/vegetarian (Table 2, Appendix A).

Direct invites or the SONA system were used to recruit participants. First-year University of Groningen psychology bachelor's students who took part in the SONA system were compensated with 0.6 SONA credits. Both the Dutch and international tracks were eligible to participate, with the only requirement being an understanding of English, as the questionnaire was conducted in English. The study is based on a convenience sample as a result of these recruitment techniques. The study and its procedures were approved by the ethics committee of the University of Groningen.

The study employed a mixed 2x2x2 factorial design: 2 (Framing: intuitive vs. rational) \times 2 (Type of stranger encountered: uniformed vs. not) \times 2 (Dog's reaction to stranger: positive vs. negative), with the first two factors being between-subjects and the last factor within-subjects. The participants were randomly assigned to the between-subjects experimental conditions.

In the complete stranger condition, there were 45 participants in both the intuitive and rational groups, totaling 90 participants (Table 3). In the uniform stranger condition, 44 participants were in the intuitive group and 33 in the rational group, totaling 77 participants (Table 3). Data will be analyzed using SPSS to test for main and interaction effects between the experimental conditions.

Materials and Procedure

The study was administered via Qualtrics, an online survey tool that allows one to build and distribute surveys and analyse responses. Before the study commenced, participants provided informed consent. This consent form included information about data collection, data processing, data handling after the study, voluntary participation, and privacy. Participants were informed about the general aim of the study, namely, how people form impressions.

Subsequently, we randomly assigned them to one of the two framing conditions, rational or intuitive. This framing served to activate relevant mental representations that influenced responses in meaningful ways. In the rational framed condition, they received a text on how thoughtful impression formation and decision-making can be much more accurate than relying on instinct (see Appendix B). This was used to draw attention to the cognitive differences between humans and dogs, given that dogs are unable to engage in this form of rational processing. In the intuitively framed condition, to encourage reliance on fast and automatic thinking, other participants received a text highlighting the evolutionary benefits of instinct and gut feelings in impression formation and decision-making (see Appendix B). In this case, dogs and humans are considered similar, as both species rely heavily on intuitive processes for rapid decision-making. Both framing conditions were followed by a manipulation check to assess whether the participants read and properly understood the texts.

Next, each participant was randomly assigned to one of two conditions: a uniformed stranger or complete stranger. In both conditions, participants were presented with two scenarios. In the first scenario, the dog reacted positively to the stranger, and in the second, the dog reacted negatively. The dog's reaction served as a within-subject manipulation. In the uniform condition, participants encountered a postman in the first scenario and a policeman in the second. This was considered a clear situation, as humans can easily recognize uniforms and associate them with safety figures carrying out specific roles, whereas dogs cannot. In the complete stranger condition, participants encountered two unfamiliar individuals described with a few subtle cues about clothing and appearance. This created an unclear situation in which both the participant and the dog relied on the same limited social cues.

All scenarios were otherwise kept similar: participants imagined walking outdoors with their dog, encountering only one stranger who crossed their path, with no other people around (see Appendix B). After each scenario, participants rated their feelings toward the stranger and the dog, as well as their sharing and understanding of the dog's reaction.

Afterwards, participants were presented with questions about shared identity to measure how they may see themselves and their pet as part of a shared social group. These were followed by a further manipulation check, which served to confirm that the framing worked as intended. In the end, participants were asked about their gender, their diet (vegetarian/vegan), and dog ownership. These were followed by a strong attention check, the funnel debrief, which gave participants the option to tell us what they think the study was about, and the debrief.

Measures

This study investigated whether humans could be socially influenced by dogs because of shared identity processes.

Judgement

After each vignette, several questions were asked. These questions were the same for each scenario. The first section of questions was about how participants judged the stranger. This judgment section was composed of 7 questions regarding the following variables: trust, suspiciousness, friendliness, threat perception, fear, distance, and reaction justification.

Participants rated their level of judgement on a 7-point scale, from 1 “not at all” to 7 “extremely” (See Appendix B)

Emotion perception

Next, participants were asked to answer some questions about how they think the dog felt towards the stranger in the scenario they had just read. These questions were the same for each scenario. Participants were asked to rate their emotional perception of the dog’s feelings on a 7-point scale from 1 “not at all” to 7 “extremely”. The emotions were: “Happy”, “Angry”, “Fearful”, “Positive”, “Negative”, and “Friendly” (see Appendix B).

This was followed by questions about the participant’s feelings towards the dog, using the 7-point scale from 1 “not at all” to 7 “extremely”. In this section, the emotions were “Happy”, “Disappointed”, “Worried”, “Curious”, “Surprised”, and “Angry” (see Appendix B).

Cognitive and Affective Empathy

To assess participants’ cognitive and affective empathy with their dogs, two more items were administered. Participants were asked to rate (1) how well they understood the feelings of their dog, and (2) the extent to which they shared their dog’s feelings. Responses were again recorded on a 7-point scale ranging from 1 (“Not at all”) to 7 (“Extremely”) (see Appendix B).

To test whether participants were paying attention, they were instructed to select “Somewhat” (corresponding to 3 on the scale).

Shared Identity

Afterwards, participants were presented with the Inclusion of Others in Self scale (Schubert & Otten, 2002) to measure their perceived level of shared social identity with their dog. Seven images with two circles were introduced. In the first image, there was no overlap between the two and by the seventh image, they were completely aligned with one another (see Appendix B). Participants were asked to choose the image that best describes the relationship with their actual or imagined dog, with greater overlap symbolizing a stronger sense of closeness. To capture group identity further, two questions followed. “How aligned do you feel your own impressions of people are with your dog's reactions to them?” and “To what extent do you trust your dog’s judgment of new people?” using the 7-point scale from 1 “Not at all” to 7 “Extremely” to assess the participants feelings/beliefs. (Non-dog owners were asked to imagine the dog.)

Attention and Seriousness Check

To test whether participants were paying attention while reading the scenarios and framing texts, control questions regarding the content were integrated (see Appendix B). Furthermore, attention checks like “Select ‘Somewhat’” were used as well for a better assessment of seriousness. In the very end, participants had to indicate whether they answered the questionnaire truthfully. To encourage an honest response, it was stated that there would be no consequences for the participants and that the SONA credits would still be received.

Results

Preparatory analyses

Reliability

First, the dependent variables were created by combining the Judgment scales in the positive reaction scenario and the ones in the negative reaction scenario to assess the dog's influence on the participants' perception of the stranger in the positive and negative directions. To test whether the scales created are reliable, Cronbach's alpha was checked and indicated reliability (Table 5). The values showed that the scales are reliable and are assessing Judgment. However, in both scales, “Liking” lowered the Cronbach’s alpha slightly (Tables 6 and 7 in Appendix A).

Table 5

Reliability Statistics for Judgement Scales

	Cronbach's Alpha	Standardized Items	N of Items
Positive Judgment	.85	.85	6
Negative Judgment	.87	.87	6

Assumption Checks

The following Result section should be treated with caution due to some violations of normality and homogeneity. Nonetheless, ANOVA tends to be a robust measure. Before the hypotheses were tested, normality and homogeneity were examined. To determine normality, the Shapiro-Wilk test was used, which showed that negative Judgment was normally distributed across both framing conditions (Tables 8 and 9 in Appendix A). However, the test was significant for the positive Judgment scale, which was supported by the graph, which displayed a right-skewed curve across all conditions (Tables 8 and 9). This pattern was expected for the negative Judgment scale, not for the positive Judgment scale. Furthermore, Levene's Test for Positive Judgment was violated, but not for the negative one. This was

surprising, as a violation of homogeneity was predicted for the negative Judgment scale (see Table 10 in Appendix A).

Manipulation Checks

To test whether the framing at the beginning of the questionnaire worked, manipulation tests were conducted. By doing a cross-tab analysis, it was found that a lot of people answered the questionnaire intuitively and quickly, violating the expectation that it depends on what framing condition the participants were in (Table 11). Nonetheless, a linear-by-linear association was found (Table 12), meaning that the distribution is in the right direction and the framing had somewhat of an effect, even though it was not significant. Lastly, it was checked whether the manipulation of the positive and negative reaction of the dog worked as predicted and indeed, the dog's positive reaction to the stranger led to the participants rating the stranger as positive, whereas the negative reaction led to a negative reaction (see Tables 13 and 14 in Appendix A).

Table 11

Crosstabulation of Framing Conditions

Framing Condition	2	3.	4.	Total
Intuition	61	20	8	89
Rational	43	20	16	78
Total	103	40	24	167

Note. Cross-tabulation for Manipulation Check, 2= chose 2* Intuitive, 3= 1 Intuitive and 1 Rational, 4= 2* Rational

Table 12

Chi-Square Tests for Framing Conditions

Test	Value	df	Asymptotic Sig. (2-sided)
Pearson Chi-Square	5.26	2	.07
Linear-by-Linear Association	5.07	1	.02

Shared Identity Scale

To investigate further whether the manipulation worked, the shared identity items were analyzed. First, the “Please choose the image that best describes your relationship with your dog” (Schubert & Otten, 2002) was used via a two-way univariate ANOVA to assess whether there is a difference in shared identity across the framing and clothing conditions. However, the results showed no significant difference (Table 15).

Table 15

ANOVA: Main Effects for the Shared Identity Scale

	F	Sig.	Partial η^2
Framing	.05	.83	0
Stranger Type	.08	.78	0
Framing * Stranger Type	.2	.66	.00

Main Analysis

Hypothesis 1: The influence of the dog will be stronger in the group that is intuitively primed

To answer the question of whether intuitive priming is more influential, a repeated-measure analysis was conducted for the dependent variables Positive Judgment and Negative Judgment to measure influence. For the positive Judgment scales, the negative items were reversed, and for the negative scale, the positive ones; afterwards, all the items pointed in the right direction. Thus, they reflect influence in the direction of the dog's positive and negative reactions. The predicted main effect was not found for the priming condition (see Table 17). The mean for the intuitive framing ($M=4.80$, $SD=.07$) is slightly higher than the mean for the rationally primed individuals ($M=4.70$, $SD=.07$, see Table 18 in Appendix A). Hence, they at least point in the right direction.

Table 17

RM-ANOVA: Main and Interaction Effects for the Influence of the Dog across Stranger Type and Framing

	F	Sig.	Partial η^2
Framing	.97	.33	.01
Stranger type	.46	.5	.00
Framing* Stranger Type	.20	.65	.00

Hypothesis 2: The influence of the dog will be stronger in the uncertain situation/complete Stranger

To answer the question of whether an ambiguous setting is leading to a higher influence of the dog's reaction, a repeated-measure analysis was again conducted. With the dependent variables, Positive Judgment and Negative Judgment. A main effect was not found for the Stranger condition (Table 17). However, an interaction effect was found for the reaction of the dog and Stranger Type (Table 20). This is in line with other predictions, namely that the positive reaction of the dog would amplify the already positive impression of a mailman and that the people would disregard the reaction of the dog if it reacted negatively to the policemen. The positive uniform condition is the most influential compared to all the others.

Table 19

Means for the Interaction between Stranger Type \times Dog Reaction

Stranger Type	Dog reaction	Mean	SE
Stranger	Positive	4.71	.11
	Negative	4.86	.12
Uniform	Positive	5.24	.12
	Negative	4.19	.13

Hypothesis 3: The negative reaction is going to be more influential

To investigate which reaction of the dog is more influential, a repeated-measure analysis was performed. A significant effect was found for the main effect of "dog reaction" (Table 20). The effect size is large. The mean of the positive reaction is higher than the

negative one (see Table 21). Hence, the positive reaction was more influential than the negative, which is the opposite of what was expected.

Table 20

RM-ANOVA: Main and Interaction Effects for the Influence of the Dog Reaction

	F	Sig.	Partial η^2
dogreaction	11.98	<.001	.07
dogreaction * Stranger Type	21.27	<.001	.12

Table 21

Means for Dog Reaction

Dog reaction	Mean	SE
Positive	4.98	.08
Negative	4.52	.09

Hypothesis 4: There is an interaction effect between the Framing, the Stranger Type, and the Reaction conditions

There was no 3-way interaction found between the reaction of the dog, the stranger, and the framing condition. Nonetheless, there is a certain trend in the means; the participants who were intuitively primed were more affected by the dog, except for in the intuitive, stranger, negative reaction cell (Table 22). More importantly, however, is that a two-way interaction between Stranger Type and Dog Reaction was found (Table 19). Since the manipulation of the framing failed, this part of the interaction supports the rationale behind the three-way interaction.

Table 22

Means for the Interaction of Framing \times Stranger Type \times Dogreaction

Framing	Stranger Type	Positive Reaction		Negative Reaction	
		M	SE	M	SE
Intuition	Stranger	4.77	.15	4.85	.17

	Uniform	5.30	.15	4.27	.17
Rational	Stranger	4.65	.17	4.87	.17
	Uniform	5.18	.17	4.10	.19

Hypothesis 5: The influence will be stronger if the participant is vegan or vegetarian

To answer the hypothesis, whether vegans/vegetarians take the dog more into consideration than non-vegans/vegetarians, a repeated measure analysis was again conducted; no significant results were found (Table 23).

Table 23

RM-ANOVA: Main effect of Dietary Preference

	F	Sig.	Partial η^2
Vegan/Vegetarian	.17	.69	.00

Exploratory Analysis

Preliminary analysis

Before the analysis started, assumption checks were made for all the dependent variables. For “Judgment Justification” the Levene's Test was computed, which was not violated. However, the Shapiro-Wilk Test indicated that normality was not met. To assess how the participants feel towards the dog, “Dog_Happy and Dog_Angry” were looked at. The Shapiro-Wilk test was significant for all of them; therefore, normality was violated. Levene's Test for all of them was insignificant. Homogeneity was met for both Empathy subscales, e.g., “Understanding” and “Sharing”; however, normality was violated for both. See Appendix A for Tables 24-37.

Empathy scales (Cognitive and Affective Empathy)

Both scales individually were significant with the dog's reaction, and a significant effect was found for affective empathy/sharing the feelings of the dog and the strange

condition (Table 38). However, nonsignificant results were found for Framing. The means show that for understanding (cognitive empathy), the positive reaction was always more influential, whereas for sharing the feeling of the dog (affective empathy), the negative reaction was (Table 39). A t-test showed that there is a significant difference between the two and that understanding the feelings was overall higher than sharing the feelings of the dog (Table 40).

Table 38

RM-ANOVA: Main and Interaction Effects for the Cognitive and Affective Empathy Scales

	F	Sig.	Partial η^2
Cognitive Empathy* Dog Reaction	10.18	.00	.06
Affective Empathy* Dog Reaction	11.23	.00	.06
Affective Empathy* Stranger Type	6.25	.01	.04

Table 39

Means: Cognitive Empathy and Affective Empathy x Stranger Type

Stranger Type	Dog Reaction	Cognitive Empathy		Affective Empathy	
		M	SE	M	SE
Stranger	Positive	3.72	.16	2.50	.15
	Negative	3.52	.17	3.33	.16
Uniform	Positive	4.17	.18	2.79	.16
	Negative	3.48	.19	2.91	.18

Table 40

Paired Samples Test: Understanding vs Sharing

Pair	Mean	Std. Deviation	Std. Error Mean	t	Sig.
FI_Understand - FI_Share	.820	1.146	.089	9.249	< .001

Justifying

Additionally, it was investigated whether the participants justified the dog's behavior differently depending on the conditions. The positive reaction turns out to be significantly more effective on judgment than the negative one (Table 41). A marginal effect was found for the interaction with Stranger Type and the Framing turned out to be significant, with the mean for Intuition being much higher (Tables 41 and 42).

Table 41

RM-ANOVA: Main and Interaction Effects for the Justification Scales

	F	Sig	Partial η^2
Justified Reaction	11.98	.00	.07
Justified Reaction* Stranger Type	3.55	.06	.02
Framing Conditions	6.23	.01	.04

Table 42

Means for the Framing Condition

Framing Conditions	Mean	Std. Error
Intuition	4.01	.13
Rational	3.54	.14

Emotions towards the Dog

When looking at how people felt towards the dog across the different conditions, one can see that both "Happy" and "Angry" were significant (Tables 43 and 45). The participants

felt angrier towards the dog in the negative reaction scenario. There is a marginal effect for the interaction between the dog's reaction, the priming, and the clothing. The participants were angrier with the dog if it had a negative reaction to a stranger with a uniform in the rational condition. The participants were the happiest with the dog if it had a positive reaction. Furthermore, there was a significant interaction effect between reaction and clothing, and clothing in itself had a significant effect. In the means, one can see that people were the happiest with the dog if it had a positive reaction with uniformed people (Table 48).

Table 43

RM-ANOVA: Main and Interaction Effects for Angry Emotion Towards Dog

	F	Sig.	Partial η^2
Angry	34.36	.00	.17
Angry * Framing * Stranger Type	3.58	.06	.02
Framing* Stranger Type	3.81	.05	.02

Table 44

Means for Angry Emotion Towards the Dog x Framing x Stranger Type x Dog Reaction

Framing	Stranger Type	Angry	Mean	Std. Error
Intuition	Stranger	Positive	1.27	0.09
		Negative	1.87	0.19
	Uniform	Positive	1.20	0.09
		Negative	1.66	0.19
Rational	Stranger	Postive	1.42	0.12
		Negative	1.53	0.19
	Uniform	Positive	1.24	0.11
		Negative	2.18	0.22

Table 45

RM-ANOVA: Main and Interaction Effect for Happiness Towards the Dog

	F	p.	Partial η^2
Happy	129.83	.00	.44

Stranger Type	4.74	.03	.03
Happy* Stranger Type	3.56	.06	.02

Table 46

Means for Stranger Type x Dog reaction for Happiness Towards the Dog

Stranger Type	M	SE	Positive Reaction		Negative Reaction	
			M	SE	M	SE
Stranger	3.41	.13	4.14	.15	2.67	.18
Uniform	3.82	.14	4.85	.17	2.78	.19

Discussion

The purpose of this study was to investigate how human-dog relationships are affected by shared identity and whether this underlies social influence by the dog. We hypothesized that intuitive framing—rather than rational framing—would lead to a greater impact (H1). Additionally, we expected that an ambiguous scenario would be more influential than a clear one (H2) and that a dog's negative reaction would have a stronger influence than a positive reaction (H3). Additionally, we proposed that these variables would interact with one another, potentially producing a novel effect through the combination of their main effects (H4). Finally, vegans take the dog's reaction more into consideration (H5). The results and their implications for each individual hypothesis will be discussed in the section that follows.

H1: Framing Effect

The expected main effect across the framing conditions was not found; hence, H1 was not supported. So, it did not matter whether people read the intuitive framing at the beginning or the rational one. This was most likely due to the overall failed manipulation, as indicated by the manipulation checks. Nonetheless, one should be careful not to solely rely on the failed manipulation checks, since those could be flawed as well.

The purpose of the manipulation was to activate a shared identity by highlighting similarities between dogs and humans in terms of relying on instinct when making decisions. Since the manipulation most likely failed, it is understandable that there was overall no significant difference across the conditions. Although the analysis showed that the manipulation worked, at least in the right direction. The framing at the beginning might have been too difficult or did not make the reader think about themselves. Indeed, they might have disregarded the first section completely, as they were told at the beginning of the study

that the first and second halves of the study were unrelated. A different framing might yield different results.

Nonetheless, when people were asked to justify the behavior of the dog then the priming did turn out to be significant. It is plausible that, by justifying the dog's behavior, they put themselves in the dog's shoes—and that this led to a shared identity. When this shared identity was triggered, the framing seemed to be effective and provided overall support for the first hypothesis.

H2: Ambiguous vs. Clear Situations

In the second hypothesis, it was claimed that the ambiguous situation would create more uncertainty, making it easier for participants to relate to the dog and thereby increasing the influence of the dog's reaction. This was unfortunately not supported by our data.

However, a two-way interaction between the dog's reaction and the uniform was found. The results show that in the ambiguous (complete stranger) scenario, the participants take both reactions of the dog seriously, the negative reaction even slightly more, since the dog might detect potential threat signals the human is missing. This is in line with our hypothesis.

However, in the clear situation (uniformed stranger), people consider the positive reaction of the dog even more than in the ambiguous scenario and discount the negative reaction of the dog.

This is plausible since in the positive reaction, the stranger was a postman, and often people have positive associations with postmen, so what might have happened is that we are observing a form of confirmation bias (Lord et al., 1979). That is, participants may have already formed an initial opinion—such as perceiving the mailman positively—and the dog's matching reaction reinforces this pre-existing view, thus strengthening our opinion/impression further. Whereas, with the negative reaction towards a police officer, the participants have more information than the dog and disregard his negative reaction since it

most likely does not align with the schemas of safety, etc., participants associate with police officers. These results do support our basic idea. However, future research should continue investigating this but from a different perspective and set up a different baseline to investigate this further.

H3: Positive vs. Negative Reaction

Regarding the third hypothesis, the expected effect was not found. In fact, the opposite pattern emerged. Overall, the dog's positive reaction led participants to perceive the stranger more positively than the dog's negative reaction led them to perceive the stranger negatively. The assumption behind the stronger negative reaction was that people pay more attention to it since it is a possible threat indicator. A potential explanation for the flipped results is that the scenario was not threatening or not threatening enough, and therefore, people saw no general use in the negative reaction. Unfortunately, this explanation cannot be tested since there were no measurements included to assess the threat. So, potentially, unless a situation is very threatening, people care more about who they can possibly befriend than about who they need to be careful with. It would be useful to explore this further. One should keep in mind that in this research, the dog did not exhibit a neutral reaction when meeting the stranger, but this observation may be important for future studies.

Furthermore, the emotional responses towards the dog were looked at, and a significant main effect was found for the priming and the reaction of the dog for Anger. So, people who received the rational framing felt angrier at the dog for his negative reaction towards a stranger than when they received the intuitive framing. This effect was further strengthened if the scenario was clear, e.g., the stranger was wearing a uniform. Which is reasonable, since most of the participants were situated in the Netherlands, where police brutality is not such a big problem (Dutch News, 2025). Hence, it's most likely that participants have positive active schemas about police officers, so for them it is not

understandable that the dog experiences them as some sort of a threat if there is no obvious faulty behavior coming from them. The participants' feeling anger towards the dog for their negative reaction further supports the theory that in clear situations, a shared identity is not established because of the knowledge difference, and if one is upset with someone for thinking differently, this means most likely that one will not listen to them. Nevertheless, it would be intriguing for future research to examine whether a shared identity can still influence humans, even when they are upset with the person for the way they are reacting.

H4: Interaction Effect

Answering the fourth hypothesis is a bit more difficult. There was no interaction effect found between all three variables. However, this is most likely due to the failed framing manipulation. The found two-way interaction between the stranger's condition and the dog's reaction supports the rationale behind the three-way interaction and should therefore not be disregarded. Furthermore, was a marginal effect found between Stranger Type, the reaction of the dog, and the Framing for feeling angry towards the dog. This shows that there are variables where the three-way interaction is functioning. Future research should investigate the three-way interaction effect further, but with an improved or different framing.

H5: Vegans/Vegetarians vs. Non-Vegans/Vegetarians

Lastly, the hypothesis for a main effect depending on vegans/vegetarians versus non-vegans/vegetarians was not supported. In future work, one should include a framing at the beginning where one stimulates moral thinking, since the entire hypothesis of vegans/vegetarians being more influenced is based on their adhering to a moral code that no living being should be harmed and that all creatures are capable of feeling emotions and pain, which in turn may activate the shared identity. Then one could compare whether there is a difference in the effect of the dog and add extra questions to measure moral motives.

Exploratory Analysis

Overall, participants reported a higher understanding of the dog's reaction than a sharing of his feelings. This is another indication of the failed framing manipulation and that a general shared identity was not present, since it demonstrates that rationality was mostly dominating, which leads to participants perceiving themselves as dissimilar to dogs. Hence, establishing a shared identity is much harder. Nonetheless, the feelings of the dogs were more shared in the intuitive, complete stranger, and negative reaction scenario. This supports all of our hypotheses, and it could mean that in our experiment, the activation of sharing identity failed, but the actual hypotheses are still valid if one succeeds at activating a shared identity.

Limitations

However, this study is not without limitations; the sample size, for one, is quite small, and it would be much better to redo this study with more participants. Furthermore, did a lot of people take multiple rounds till they passed the weak manipulation check after the framing, meaning they didn't read it thoroughly, possibly explaining why the overall manipulation of the framing failed. Furthermore, was there no comparison group with no dog present. This made it more difficult to measure the true influence of the dog and should be done differently in any future studies. Additionally, half of the participant pool were students who had to participate in studies for credits, which might explain a certain disengagement with the study. When a small test analysis was run with just friends and family members, the result looked much more promising; however, that was a very small sample.

Future directions

This study faced some difficulties with inducing and measuring shared identity. Therefore, future work should include more varied items measuring shared identity.

Furthermore, could it be that people need an emotional connection to establish a shared identity with animals. This is also something one could investigate by letting people spend time with an imaginary dog or showing them videos of the supposed dog before conducting the interview or turning this into a real-life experiment. This might help with activating shared identity and inducing more threat to retest the influence of the positive versus negative reaction. However, a real-life experiment could create a lot of confounds and might be difficult to execute. To strengthen the framing manipulation, one might play a video where actors acted out the different problem-solving styles or play a game with the participants before they fill out the questionnaire, where for one group, thinking and contemplating is the strategy to win, and for the other group, it is about intuition.

Furthermore, it would be interesting to check whether there is a gender difference when it comes to the effect of the negative and positive reactions of the dog, since one could imagine that women might feel more easily threatened by being alone with a male stranger.

Conclusion

Animals are important to humans as companions and as a resource to improve our well-being and mental health. Understanding how we are affected by them, more specifically, how they impact impression formation, is something that should not be overlooked. Overall, did the study provide evidence that dog behavior, particularly positive reactions, influences how we form impressions based on the principles of shared identity. So, if humans and dogs are perceived as similar, e.g., shared identity is activated, then the participants include their feedback in their impression formation. For example, the two-way interaction demonstrates that, depending on the knowledge difference, humans are more or less suggestible to the dog's reaction. This further supports the rationale behind the framing and therefore the three-way interaction. This paper is of significant value, since it contributes to an underresearched field, namely shared identity between humans and non-humans.

However, it also demonstrates that more research needs to be done on this topic to enhance the overall understanding of shared identity.

Word count: 6.162

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Acknowledgments

Declaration of AI use:

Hereby I declare the use of AI, more specifically Chat GPT:

Chat GPT was used in the following ways. For prompts, see Appendix C

1. It converted screenshots of the SPSS Output to actual tables in Word. However, I had to change to APA 7 standards, which was done by myself. Furthermore, I deleted unnecessary information and fused tables.
2. It helped with finding sources. But these were again controlled by me and checked up on.
3. It helped with the general Structure, e.g., what should all be included in an Introduction, the actual structure of the paper was done by me. Additionally, I not only did what Chat GPT told me I also looked at the descriptions of what belongs in certain sections, which are available on Brightspace.
4. And it helped with grammar and flow. Here, Grammarly was also often used. Very long and complicated sentences written by me were asked to be shortened or made clearer. Often, I continued making smaller changes afterwards. However, ChatGPT was never asked to create content or ideas and was just used as a way to make my ideas more easily understood.

Appendix A

Demographics

Table 1

Gender Distribution of Participants

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	126	75.4	75.4	75.4
Male	40	24.0	24.0	99.4
Prefer not to say	1	0.6	0.6	100.0
Total	167	100.0		

Note. Distribution of participants by gender.

Table 2

Group Statistics by Dietary Preference

Vegetarian	N	Mean	Std. Deviation	Std. Error Mean
Ne_Ju - No	135	4.548	1.208	0.104
Ne_Ju - Yes	32	4.589	0.881	0.558
Po_Ju - No	135	4.982	1.044	0.090
Po_Ju - Yes	32	4.865	0.948	0.168

Table 3

Crosstabulation of Priming Condition and Clothes Condition

Priming Condition	Stranger	Uniform	Total
Intuition	45	44	89
Rational	45	33	78
Total	90	77	167

Note. Cross-tabulation of priming and clothes condition.

Table 4

Means of Judgment and Judgment Justified

	N	Mean	SE
Ne_Ju	167	4,56	1,15
Po_Ju	167	4,96	1,02
P_Judgment_Justified	167	4,02	1,46
N_Judgment_Justified	167	3,57	1,53

Reliability

Table 6

Item-Total Statistics for the Positive Judgement Scale

Item	Scale Mean if Item Delete d	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
P_Judgement_Trust	25.892	26.904	.620	.614	.830
P_Judgement_Liking	25.856	28.859	.487	.560	.854
P_Judgement_Suspicious_rev	24.311	25.300	.696	.530	.815
P_Judgement_ThreatPerc_rev	23.808	26.903	.754	.695	.808
P_Judgement_Distance_r	25.036	26.541	.631	.478	.828
P_Judgement_Afraid_rev	23.868	27.513	.657	.659	.824

Table 7

Item-Total Statistics for the Negative Judgment Scale

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
N_Judgement_Suspicious	23.09	31.661	.685	.480	.842
N_Judgement_ThreatPerc	23.964	32.770	.707	.667	.837
N_Judgement_Distance	22.587	32.569	.749	.581	.829
N_Judgement_Afraid	24.000	31.554	.757	.718	.827
N_Judgement_Trust_rev	21.473	36.347	.613	.497	.853
N_Judgement_Liking_rev	21.563	38.850	.482	.401	.872

Assumption checks

Table 8

Tests of Normality for Framing for Influence

Condition	Shapiro-Wilk (Statistic)	df	Sig.
Ne_Ju Intuition	,984	89	,339

	Rational	,984	78	,421
Po_Ju	Intuition	,939	89	<.001
	Rational	,943	78	,002

Note. Lilliefors Significance Correction was applied.

Table 9

Tests of Normality for Stranger Type for Influence

Conditio n		Shapiro- Wilk (Statistic)	df	Sig.
Ne_Ju	Stranger	,976	90	,087
	Uniform	,981	77	,289
Po_Ju	Stranger	,965	90	,015
	Uniform	,918	77	<.001

Table 10

Levene's Test of Equality of Error Variances for Influence

Group	Statistic Type	Levene Statistic	df1	df2	Sig.
Po_Ju	Based on Mean	2.711	3	163	.047
	Based on Median	2,282	3	163	.081
Ne_Ju	Based on Mean	1.046	3	163	.374
	Based on Median	1.018	3	163	.386

Manipulation Checks

Table 13

Paired Samples Statistics between Positive and Negative Emotion

Pair	Variable	Mean	N	SE
1	P_DStranger_Happy	5.18	167	1.099

2	N_DStranger_Happy	1.17	167	0.665
	P_DStranger_Angry	1.29	167	0.737
3	N_DStranger_Angry	4.31	167	1.675
	P_DStranger_Fearful	1.48	167	0.950
4	N_DStranger_Fearful	5.44	167	1.180
	P_DStranger_Positive	5.35	167	1.242
5	N_DStranger_Positive	1.20	167	0.642
	P_DStranger_Negative	1.39	167	0.924
6	N_DStranger_Negative	5.75	167	1.220
	P_DStranger_Friendly	5.50	167	1.187
	N_DStranger_Friendly	1.23	167	0.658

Table 14

Paired Samples Test between Positive and Negative Emotions

Paired Differences	Mean	Std. Deviation	SE	t	df	Sig.
1 P_DStranger_Happy - N_DStranger_Happy	4.012	1.358	0.105	38.188	166	< .001
2 P_DStranger_Angry - N_DStranger_Angry	-3.024	1.746	0.135	-22.385	166	< .001
3 P_DStranger_Fearful - N_DStranger_Fearful	-3.964	1.532	0.119	-33.430	166	< .001
4 P_DStranger_Positive - N_DStranger_Positive	4.156	1.468	0.114	36.572	166	< .001
5 P_DStranger_Negative - N_DStranger_Negative	-4.365	1.637	0.127	-34.465	166	< .001
6 P_DStranger_Friendly - N_DStranger_Friendly	4.269	1.450	0.112	38.058	166	< .001

Shared identity

Table 16

Estimates for Shared Identity Ratings by Framing

Framing Condition	Mean	SE
Intuition	4.48	.14
Rational	4.53	.15

Main Analysis

Table 18*Estimates for the Framing Condition on Influence*

Framing Condition	Mean	SE
Intuition	4.80	.07
Rational	4.70	.07

Explanatory Analysis**Assumption Checks***Empathy Scales***Table 24***Levene's Test of Equality of Error Variances – Understanding the Reaction*

	Levene Statistic	df1	df2	Sig.
P_Understand (Mean)	1.234	3	163	.299
P_Understand (Median)	1.081	3	163	.359
N_Understand (Mean)	0.677	3	163	.567
N_Understand (Median)	0.530	3	163	.662

Table 25*Levene's Test of Equality of Error Variances – Sharing the Feeling*

	Levene Statistic	df1	df2	Sig.
P_Share (Mean)	0.553	3	163	.647
P_Share (Median)	0.368	3	163	.776
N_Share (Mean)	1.944	3	163	.125
N_Share (Median)	1.455	3	163	.229

Table 26*Tests of Normality – Understanding the Reaction by Framing*

	Framing	Shapiro-Wilk (Statistic)	df	Sig.
P_Understand	Intuition	0.924	89	<.001
	Rational	0.937	78	<.001
N_Understand	Intuition	0.929	89	<.001
	Rational	0.939	78	.001

Table 27

Tests of Normality – Sharing the Feelings by Framing

Framing	Shapiro-Wilk Statistic	df	Sig.
P_Share - Intuition	.893	89	< .001
P_Share - Rational	.879	78	< .001
N_Share - Intuition	.925	89	< .001
N_Share - Rational	.916	78	< .001

Table 28

Tests of Normality by Stranger Type for Sharing the Feelings

Stranger Type	Shapiro-Wilk Statistic	df	Sig.
P_Share - Stranger	.886	90	< .001
P_Share - Uniform	.883	77	< .001
N_Share - Stranger	.931	90	< .001
N_Share - Uniform	.907	77	< .001

Justification

Table 29

Levene's Test of Equality of Error Variances for Justified Reaction

Variable	Method	Levene Statistic	df1	df2	Sig.
P_Judgement_Justified	Based on Mean	.788	3	163	.502
P_Judgement_Justified	Based on Median	.803	3	163	.494
N_Judgement_Justified	Based on Mean	.055	3	163	.983
N_Judgement_Justified	Based on Median	.035	3	163	.991

Table 30*Tests of Normality by Framing (Justified Reaction)*

Variable	Framing	Shapiro- Wilk Statistic	df	Sig.
P_Judgement_Justified	Intuition	.938	89	< .001
	Rational	.927	78	< .001
N_Judgement_Justified	Intuition	.947	89	.001
	Rational	.943	78	.002

Table 31*Tests of Normality by Stranger Type (Justified Reaction)*

Variable	Stranger Type	Statistic	df	Sig.
P_Judgement_Justified	Stranger	.946	90	< .001
P_Judgement_Justified	Uniform	.911	77	< .001
N_Judgement_Justified	Stranger	.945	90	< .001
N_Judgement_Justified	Uniform	.944	77	.002

*Emotion towards the Dog***Table 32***Tests of Normality by Framing (Dog Emotions)*

Variable	Framing	Statistic	df	Sig.
P_Dog_Happy	Intuition	.905	89	< .001
P_Dog_Happy	Rational	.936	78	< .001
P_Dog_Angry	Intuition	.398	89	< .001
P_Dog_Angry	Rational	.418	78	< .001

Table 33*Tests of Normality for P_Dog Variables by Stranger Type*

Variable	Stranger Type	Shapiro-Wilk Statistic	Sig.
P_Dog_Happy	Stranger	.931	<.001
	Uniform	.897	<.001
P_Dog_Angry	Stranger	.420	<.001
	Uniform	.404	<.001

Table 34*Tests of Normality for N_Dog Variables by Framing*

Variable	Framing	Shapiro-Wilk Statistic	Sig.
N_Dog_Happy	Intuition	.882	<.001
	Rational	.832	<.001
N_Dog_Angry	Intuition	.661	<.001
	Rational	.657	<.001

Table 35*Tests of Normality for N_Dog Variables by Stranger Type*

Variable	Stranger Type	Shapiro-Wilk Statistic	Sig.
N_Dog_Happy	Stranger	.850	<.001
	Uniform	.876	<.001
N_Dog_Angry	Stranger	.658	<.001
	Uniform	.669	<.001

Table 36*Levene's Test of Equality of Error Variances – Happy Dog Condition*

Condition	Test Type	Levene Statistic	df1	df2	Sig.
P_Dog_Happy	Based on Mean	,103	3	163	,958
	Based on Median	,199	3	163	,897

N_Dog_Happy	Based on Mean	1,812	3	163	,147
	Based on Median	1,141	3	163	,334

Table 37*Levene's Test of Equality of Error Variances*

Variable	Test Type	Levene Statistic	df1, df2	Sig.
P_Dog_Angry	Based on Mean	,409	3, 163	,746
	Based on Median	,111	3, 163	,953
N_Dog_Angry	Based on Mean	2.244	3, 163	,085
	Based on Median	1.984	3, 163	,118

*Emotions towards Dog***Table 47***Means for Happy Dog*

happy_dog	Mean	Std. Error
Positive	4,50	.113
Negative	2,73	.131

Table 48*Means – Framing– Happy Dog*

Framing	Mean	Std. Error
Intuition	3.749	.128
Rational	3.473	.138

Table 49*Means – Stranger Type– Happy Dog*

Stranger Type	Mean	Std. Error
Stranger	3.406	.127
Uniform	3.816	.139

Table 50*Means for Happy Emotion Towards Dog across Framing and Stranger Type*

Framing	Stranger Type	Level	Mean	Std. Error
Intuition	Stranger	Positi ve	4.200	.215
		Negati ve	2.956	.250
	Uniform	Positi ve	5.00	.218
		Negati ve	2.804	.251
Rational	Stranger	Postiv e	4.089	.215
		Negati ve	2.378	.250
	Uniform	Postiv e	4.697	.251
		Negati ve	2.727	.292

Appendix B

Questionnaire

Informed Consent & Research Information

Information and Informed Consent for the Study:

"A walk on the Wild Side? How We Judge Strangers"

Research Code: PSY-2425-S-0277

You received this information because you are invited to participate in a research study investigating people's understanding of their pet's behavior and how that behavior may shape our perceptions. For this study, it is recommended that you use a desktop computer or a laptop, as those devices ensure that the contents will be appropriately displayed, but it is also possible to participate via a mobile phone.

Researchers and Contact:

Emma Boye e.l.boy@student.rug.nl

Sherida van Leeuwen s.van.leeuwen.7@student.rug.nl

Anne Mae Brand l.a.brand.1@student.rug.nl

Daniela Longo d.d.longo@student.rug.nl

Guus van Dijken g.a.van.dijken.1@student.rug.nl

Maria Begall m.c.begall@student.rug.nl

Prof. Dr. Russell Spears

Affiliation of all researchers: University of Groningen, The Netherlands

Aim of the study:

The study aims to better understand impression formation.

Procedure:

First, you will be provided with information on impression formation. After that you will be presented with two scenarios and answer a few questions about these situations (i.e. what you would feel in those situations). It is crucial to the successful completion of the study that you read the short descriptions of the situations completely and carefully. In the end you are asked to provide some demographic information (i.e. your gender).

You should complete this study in one go (without interruptions) when you are on your own. We kindly ask you to respond to all questions by providing the answer that best represents your opinion, thoughts, or feelings. There are no right or wrong answers.

This study takes approximately 25 minutes.

There are no risks associated with participating in this study.

Compensation:

You will receive 0.6 SONA Credits for participating in this study.

Participation is voluntary:

Participating in this study is completely voluntary. It is your choice whether to participate or not. You have the right to decline to participate and withdraw from the research at any time without having to provide any reasons. Withdrawing from this research does not entail any negative consequences.

Types of data collected:

This is a list of sensitive measures you will encounter in this survey. Note that you can always skip any question you do not feel comfortable answering or leave the study at any time.

Personal data:

Directly identifiable personal data:

- location data (i.e., IP addresses)

Indirectly identifiable personal data:

- SONA Number, Gender, Dog Ownership, Dietary Lifestyle

Your privacy and personal data:

The data that will be collected during this study will be treated confidentially. Data processing takes place for education/training purposes, to write a Bachelor thesis. The data will only be handled by the Researchers. Your SONA number will be recorded in this study to allow compensation. Information that could identify you as a person, such as your SONA number, will be removed after assigning you the credit and won't be shared with other researchers. Thus, only anonymized data might be disseminated such that your anonymity is guaranteed. This means that research data that may be published, for example in scientific journals, cannot identify you.

In sum: as soon as you have received your credit we will remove the SONA identifier so that your data are no longer practically traceable to you (i.e. as far as possible anonymous).

More information:

If you have any questions about this research, you can contact the researchers: Emma Boye (e.l.boy@student.rug.nl), Sherida van Leeuwen (s.van.leeuwen.7@student.rug.nl), Anne Mae Brand (l.a.brand.1@student.rug.nl), Daniela Longo (d.d.longo@student.rug.nl), Guus van Dijken (g.a.van.dijken.1@student.rug.nl), Maria Begall (m.c.begall@student.rug.nl). If you have any complaints about this research, you can contact the Ethics Committee of the Psychology department of the University of Groningen via ecp@rug.nl mentioning the research code PSY-2425-S-0277.

By participating in this research, you indicate that you are doing this on a voluntary basis. You also consent to the use of your data for the purposes that have been mentioned here.

If you have read the above and agree to participate in the study, please answer “Yes” to begin the study. If you do not consent or want to withdraw, you can quit the questionnaire without any consequences.

- Yes

Introduction

Dear participant,

Welcome to our research!

In this study, we aim to better understand how people form impressions of others. We live in a world surrounded by people, and our impressions of them shape our interactions and

influence our daily experiences. In order to best assess this, we are researching two different aspects of impression formation.

In the first part, you will receive a research background of how certain processes of impression formation work and then some questions to check your understanding of them. In the second part of the study, you will be required to read everyday situations, followed by questions about them.

For a meaningful contribution, we kindly ask you to **read all the information carefully** before answering the questions.

Thank you for your time and cooperation.

Assignment to Conditions Intuitive and Rational was randomly

Framing Conditions

Priming Intuition

Please read the following text in depth. Afterwards, we will ask you some questions about it.

For thousands of years, the ability to respond quickly to dangers was essential to human existence. Delays may have resulted in death for our forefathers, who did not have the luxury of time when they heard a rustle in the bushes. While those who paused to assess the situation frequently became prey, those who fought or bolted out of instinct had a much higher chance of surviving. Our decisions are still influenced by this deeply rooted impulse.

According to research in cognitive neuroscience (Kahneman & Klein, 2009), gut instincts are not random; rather, they are the consequence of the brain's quick processing of minute contextual information, frequently more quickly than conscious thought permits. Studies on high-stakes occupations like firefighters, soldiers, and doctors have demonstrated that in crucial situations, quick, instinctive decisions frequently beat lengthy, deliberate ones.

Similarly, research on thin slices of behavior (Ambady et al., 2000) shows that people form first impressions within seconds, based on subtle but telling cues such as body language and tone of voice. These brief excerpts of expressive behavior can reveal emotions, personality

traits, and social dynamics—often before we are consciously aware of them. Gut instincts allow us to make rapid and effective judgments about others, particularly in unpredictable or high-pressure situations. This way, gut instinct quickly helps us determine whom to trust, or whom to avoid.

As psychologist Daniel Kahneman once famously stated: “Hesitation is a relic of luxury. In moments of uncertainty, our instincts are often our most powerful and reliable guides.” Trusting one’s gut instinct has always been a vital survival skill, whether one is managing contemporary social relationships or evading predators in the wild.

- I have read the text thoroughly

Priming Rational

Please read the following text in depth. Afterwards, we will ask you some questions about it.

One of humanity’s best attributes is its ability for careful thought. Humans, in contrast to other animals, possess the valuable capacity to stop, think, and make thoughtful judgments. Cognitive psychology research continuously demonstrates that people who take the time to consider a problem make more accurate and trustworthy decisions than those who only follow their instincts.

According to research in cognitive neuroscience (Kahneman & Klein, 2009), gut instincts can help in decision-making, but their accuracy depends on the context. While they allow for quick judgments, they can be misleading in unpredictable situations or when individuals lack experience. This is particularly evident in research on thin slices of behavior (Ambady et al., 2000), which shows that first impressions, though often intuitive, are shaped by emotional biases, automatic associations, and incomplete information. As a result, relying solely on instinct can lead to quick but biased conclusions and stigmatisation of others. Whether in everyday interactions or high-stakes decisions, those who take the time to question their initial reactions and process additional information tend to make more well-reasoned and unbiased judgments.

As psychologist Daniel Kahneman once explained: “A split-second reaction can save your life—but a well-reasoned decision can change the world. The greatest minds in history weren’t the fastest thinkers, but the ones who questioned their first instincts.” By engaging in

deliberate reasoning, we can minimise errors in judgment and ensure that our decisions are not just quick—but correct.

- I have read the text thoroughly

After Framing Manipulation Check

<p>Manipulation Check Question 1</p>	<p>What did Kahnemann in his famous quote say:</p> <ul style="list-style-type: none"> • “A split-second decision can save your life, but a well-reasoned decision can change the world: (...)” • “Hesitation is a relic of luxury. In moments of uncertainty, our instincts are often our most powerful and reliable guides.” • "Decisions are nothing more than a reflection of the sun's position and the silent influence of the stars—a fleeting judgment written in the cosmos."
<p>Manipulation Check Question 2</p>	<p>According to the text, you just read research on thin slices of behaviour shows that...</p> <ul style="list-style-type: none"> • people form first impressions within seconds, based on subtle but telling cues which lead to accurate and effective judgments. • people form impressions of new people solely by measuring them against the familiar traits and behaviors of those we've encountered before. • people form first impressions, based on emotional biases and automatic associations, which lead to quick but inaccurate judgments.

Manipulation Check Question 3	<p>Research in cognitive neuroscience suggests that....</p> <ul style="list-style-type: none"> • quick judgments, can be misleading in unpredictable situations or when individuals lack experience. • gut instincts are not random; rather, they are the consequence of the brain's quick processing of contextual information. • quick judgments, are based solely on relying on rules and norms.
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were allowed to continue after got all three questions right

Assignment to conditions Stranger or Uniform was randomly

Conditions

For Intuitive or Rational Framing

Scenario 1: Stranger (Positive Valence)

Please read the following text in depth.

You are out for an early morning walk with your dog, following a narrow dirt trail through the woods. The sky is just beginning to lighten, and the surroundings are quiet. There are no people around—the city still seems to be asleep, and the woods feel empty.

As you walk along the narrow path, you notice a tall man approaching from the opposite direction. He is dressed casually in jeans and a jacket, walking at a relaxed pace.

As the man gets closer, your dog suddenly perks up. Its ears stand tall, its tail starts wagging, and it gently pulls forward on the leash, as if eager to greet him. As the man passes by, your

dog sniffs the air, wags its tail more enthusiastically, and even takes a small step toward him, showing clear signs of friendliness.

The man briefly glances down before continuing on his way. Your dog watches him for a moment before returning its focus to the walk, still appearing relaxed and content.

Scenario 2: Stranger (Negative Valence)

Please read the following text in depth.

You are outside with your dog, taking your usual walk in the park. It's early evening, and the sun is setting, there are no people in sight - it's getting quiet.

As you walk along a narrow path, you notice a tall man approaching from the opposite direction. He is dressed in casual Complete Stranger vs. Uniform Stranger, walking at an even pace towards you.

As the man gets closer, your dog suddenly stops in its tracks. Its ears flatten, and its tail tucks tightly between its legs. Its body stiffens, and a low growl rumbles in its chest. As he passes, your dog bares its teeth and lets out a sharp bark, pulling backward on the leash as if hesitant to continue forward.

The man briefly glances down, his expression neutral, his pace unchanged. But your dog remains tense, its eyes fixed on him until he disappears further down the path. Even after he's gone, your dog still seems on edge, looking back occasionally in the direction he went.

Scenario 3: Uniform (Positive Valence)

Please read the following text in depth.

You are out for an early morning walk with your dog, following a familiar route through an urban green space. The sky is just beginning to lighten, the surroundings are quiet. There are no people around- the city still seems to be asleep and empty.

As you walk along a path along a line of trees, you notice a uniformed postman a little way ahead with a bag slung over his shoulder. He walks towards you at a steady pace.

As the postman gets closer, your dog suddenly perks up. Its ears stand tall, its tail starts wagging, and it gently pulls forward on the leash, as if eager to greet him. As he passes by, your dog sniffs the air, wags its tail more enthusiastically, and even takes a small step toward him, showing clear signs of friendliness.

The postman briefly glances down before continuing on his way. Your dog watches him for a moment before returning its focus on the walk, still appearing relaxed and content.

Scenario 4: Uniform (Negative Valence)

Please read the following text in depth.

You are outside with your dog, taking your usual walk in the park. It's early evening, and the sun is setting, there are no people in sight - its getting quiet.

As you continue along a narrow path, you notice a uniformed police officer approaching from the opposite direction at a steady pace.

As the officer gets closer, your dog suddenly stops in its tracks. Its ears flatten, and its tail tucks tightly between its legs. Its body stiffens, and a low growl rumbles in its chest. As he passes, your dog bares its teeth and lets out a sharp bark, pulling backward on the leash as if hesitant to continue forward.

The police officer briefly glances down, his expression neutral, his pace unchanged. But your dog remains tense, its eyes fixed on him until he disappears further down the path. Even after he's gone, your dog still seems on edge, looking back occasionally in the direction he went.

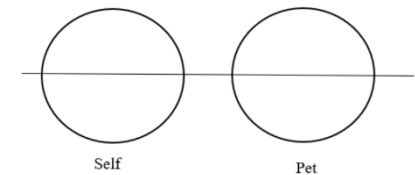
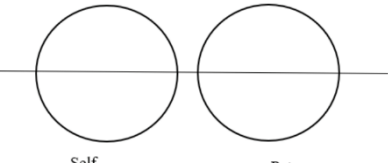
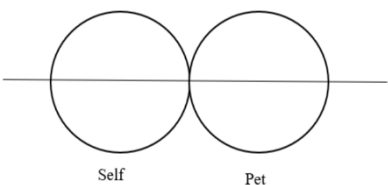
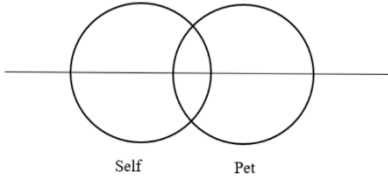
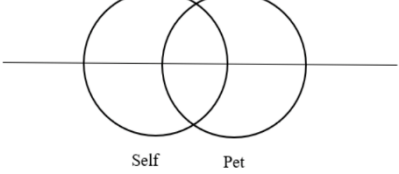
Questions After Each Scenario

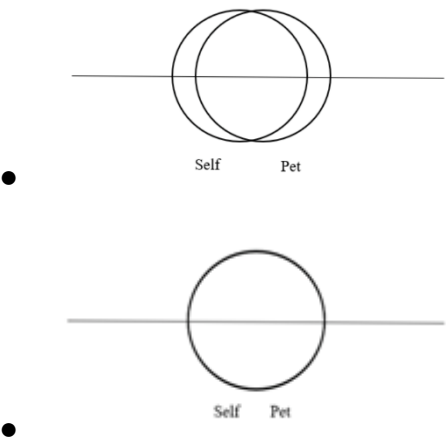
Judgement	<p>Please answer how you would feel towards the stranger in this situation. (7-point scale: not at all (1) to extremely (7))</p> <ul style="list-style-type: none"> • Would you trust the stranger? • Would you be suspicious of the stranger? • Would you perceive the stranger to be friendly? • Would you feel threatened by the stranger? • Would you be afraid of the stranger? • Would you keep your distance from the stranger? • Would you think your dog's reaction to the stranger is justified?
Perceived emotion of the dog towards the stranger	<p>How do you think your dog feels towards the stranger in this situation? (7-point scale: not at all (1) to extremely (7))</p> <ul style="list-style-type: none"> • Happy • Angry • Fearful • Positive • Negative

	<ul style="list-style-type: none"> • Friendly
Perceived emotion of the participant towards the dog	<p>How do you feel towards your dog in this situation? (7-point scale: not at all (1) to extremely (7))</p> <ul style="list-style-type: none"> • Happy • Disappointed • Worried • Curious • Surprised • Angry
Affective and cognitive empathy + Attention check	<p>Please answer the following questions regarding your dog's feelings. (7-point scale: not at all (1) to extremely (7))</p> <ul style="list-style-type: none"> • Do you understand the feelings of your dog? • Select "Somewhat" • Do you share the feelings of your dog?

Shared Identity

Shared Identity Text	<p>People who have a dog often develop a close bond with them. In this sense, they may see themselves and their pet as part of a shared social group (i.e., “me and my dog”). The images below represent different levels of closeness in a human-pet relationship, with greater overlap symbolising a stronger sense of closeness. Thinking about the dog in the scenarios – whether your actual dog or the hypothetical one – how would you best</p>
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	<p>describe your relationship? In other words, how strongly do you and your dog feel like a team?</p>
<p>Shared Identity Question 1</p>	<p>Please choose the image that best describes your relationship with your dog.</p> <div data-bbox="459 622 933 817"><p>• </p></div> <div data-bbox="459 880 906 1064"><p>• </p></div> <div data-bbox="459 1126 906 1332"><p>• </p></div> <div data-bbox="459 1395 906 1590"><p>• </p></div> <div data-bbox="459 1653 917 1836"><p>• </p></div>

	
Shared Identity Question 2	How aligned do you feel your own impressions of people are with your dog's reactions to them? (7-point scale: not at all (1) to extremely (7))
Shared Identity Question 3	To what extent do you trust your dog's judgment of new people? (7-point scale: not at all (1) to extremely (7))

Strong Manipulation Check

Strong Manipulation Check Question 1	<p>When you formed an impression of the two strangers in the previous scenarios which of the following best describes your approach?</p> <ul style="list-style-type: none"> • I relied mostly on my gut feeling. • I tried to take time to analyse the facts before deciding.
Strong Manipulation Check Question 2	<p>How did you answer the questions?</p> <ul style="list-style-type: none"> • Very quickly, it felt natural. • I had to think carefully before deciding.

Demographics

Gender	<p>Please indicate your gender.</p> <ul style="list-style-type: none"> • Female • Male • Non Binary/Third-Gender • Prefer not to say
Ownership	<p>Do you currently own a dog or have you owned a dog?</p> <ul style="list-style-type: none"> • No • Yes
	The following question refers to dog owners only
Reaction - Ownership Only	<p>If you have a dog, does it commonly react...</p> <p>(10-points slider, from “Negative to strangers -5” to “Positive to strangers 5”)</p>
Vegan/vegetarian	<p>Are you vegan/vegetarian?</p> <ul style="list-style-type: none"> • No • Yes

Attention checks

<p>Attention Check Question 1</p>	<p>Regarding the two scenarios you read please indicate whether you were alone with the stranger and your dog</p> <ul style="list-style-type: none"> • Yes • No
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Attention Check Question 2	<p>To protect the quality of our data, please answer whether you answered all the questions truthfully, there are no consequences if you answer no and you will still receive your SONA credits.</p> <ul style="list-style-type: none"> • Yes • No
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Debrief

Debrief Open Question	Please say what you think this study was about? (Tekst field)
Debrief Question 2	<p>Do you think this study is about impression formation influenced by dogs?</p> <ul style="list-style-type: none"> • Yes • No
Debrief Question 3	<p>Do you see a connection between the first and the second part of the study?</p> <ul style="list-style-type: none"> • Yes • No
	<p>This study explores whether and how dogs can influence human decision-making. Prior research shows that shared identity increases susceptibility to influence, and we propose this applies to dogs as well. Our hypothesis: “A shared identity between dogs and humans leads to dogs influencing human impression formation.” To create this shared identity, one group read about instinct-based similarities between humans and animals to make decisions and form (first) impressions, while a second group read about rational thinking (i.e. more exclusive to humans) as ideal</p>

	<p>for decision-making to highlight differences between humans and animals. We also examined whether the ambiguity of a situation moderates the dog's influence. A uniformed stranger, likely associated with a clear profession, represents an unambiguous or reassuring context, reducing reliance on the dog. A complete stranger, however, creates ambiguity and uncertainty, increasing the dog's influence.</p> <p>Thank you for your participation.</p>
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Appendix C

AI Prompts

1. For the table, prompts often looked like this.
 - a. *Convert the attached screenshots into tables and put them into a Word document according to APA standard..*
 - b. ChatGPT:
 Thanks for uploading your document! I'll now extract and convert all the tables from your file into APA 7 format and provide you with a Word document. (It says here it was APA 7 standard however it never was and I had to make all the changes)
2. For Sources
 - a. *Find me sources which talk about the effectiveness of Confirmation Bias*
 - b. ChatGPT:
 A landmark study that directly supports the idea that confirmation bias strengthens beliefs is:
 Lord, Ross & Lepper (1979)
 Title: Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence
 Journal: Journal of Personality and Social Psychology
 DOI: 10.1037/0022-3514.37.11.2098
3. Structure
 - a. *What all belongs into a Discussion section*
 - b. ChatGPT:
 In a scientific or academic paper, the Discussion section is where you interpret and contextualize your results. Here's what typically belongs in a well-structured Discussion section:
 Key Components of the Discussion Section
 Summary of Main Findings
 Briefly restate the most important results.
 Emphasize how they relate to the research question or hypothesis.
 Interpretation of Results
 Explain what the findings mean.
 Highlight whether they support or contradict your hypotheses or previous research.
 Discuss effect sizes, patterns, trends, or unexpected outcomes.
 Comparison with Previous Research
 Compare your results to findings from other studies.
 Address agreements, discrepancies, and possible reasons for differences.
 Theoretical or Practical Implications
 Explain the broader significance of the findings.
 How do they contribute to theory, policy, or practice?
 Strengths and Limitations

Acknowledge limitations in design, methodology, or analysis.

Point out strengths (e.g., novel approach, sample diversity, robust data).

Alternative Explanations

Consider other factors that could explain the results.

Show that you have thought critically and comprehensively about the findings.

Suggestions for Future Research

Identify gaps that remain.

Recommend specific questions or methods for further studies.

Conclusion (Optional or as a final paragraph)

Sum up the key message or takeaway.

Reaffirm why the study matters.

4. Grammar and Flow

- a. *Is this sentence grammatically correct “Regarding the first hypothesis the expected effect was not found. The opposite was found, overall led the positive reaction of the dog participants to perceive the stranger as more much more positive, than the negative reaction leads to a negative perception”*

b. ChatGPT:

The sentence you're trying to write has the right idea, but it's grammatically unclear and a bit confusing in structure. Here's a corrected and clearer version that keeps your original meaning:

Revised version:

Regarding the first hypothesis, the expected effect was not found. In fact, the opposite pattern emerged: overall, the dog's positive reaction led participants to perceive the stranger much more positively than the dog's negative reaction led them to perceive the stranger negatively.

Let me know if you'd like a more formal or more concise version as well

- c. *Does this make sense, stay as close to the original as possible “The framing at the beginning might have been too difficult or did not really make the reader think about themselves, they might have disregarded the first section completely as they were told in the beginning of the study that the first and second half of the study were unrelated. A different way of trying to activate an intuitive versus a rational way of thinking might show different results. However, the priming did seem to have an effect in the expected direction if people were only asked to justify the reaction of the dog. Maybe, when people are directly asked to explain the behavior this is where the framing becomes activated because one is actively forcing them to relate to the dog and creates a shared identity by doing so. If they actively share an identity the framing is working but if not then the framing was too subtle to actually influence direct behavior.”*

d. ChatGPT:

You're expressing a thoughtful and plausible argument, but the wording is a bit unclear and could be made smoother and more precise. Here's a revised version that sticks closely to your original meaning but improves clarity and flow:

Revised version:

The framing at the beginning of the study may have been too subtle or abstract, and might not have encouraged participants to reflect on themselves. It's also possible that participants disregarded the initial section altogether, since they were told that the first and second parts of the study were unrelated. A different method of activating intuitive versus rational thinking may yield different results. However, the priming did appear to have the expected effect when participants were specifically asked to justify the dog's reaction. It is possible that this direct question activated the framing, as it required participants to actively engage with the dog's behavior and, in doing so, encouraged them to identify with the dog. When this shared identity is triggered, the framing seems to work; but without such engagement, the framing may have been too weak to directly influence behavior.

- i. As one can see in the text this text was not used as whole but certain words or single sentences were adopted.