Online Resources

Online Resource 1. Questionnaire Measures

Pre-interaction Measures

About You

What is your name?	
How old are you?	
Are you a… *(Please circle answer)*	Boy Girl Prefer not to say Other ….
Do you like animals? *(Please circle answer)*	Yes No I don't know
Do you like dogs? *(Please circle answer)*	Yes No I don't know
Do you like robots? *(Please circle answer)*	Yes No I don't know

Pets at Home

Do you have a pet at home?	Yes No
If you have a pet at home, what pet(s) do you have? *(Please tick all the pets you have. If you do not have any pets, please skip this question.)*	o Dog o Cat o Rabbit o Guinea Pig o Hamster o Rat/Mouse o Fish o Bird o Horse o Reptile

Robotic Pets at Home

Does you have a robotic pet at home?	Yes No
	o Tamagotchi o Furby

If you have a robotic pet, what is it? *(Please tick all the pets you have. If you do not have any pets, please skip this question.)*	o Walking pet o Other ….

How are you feeling?

This scale consists of a number of words that describe different feelings and emotions. Read each item and then tick any words that describe how you are feeling at the moment.

Please tick all that apply: (Order randomised)

- o Confident
- o Irritated
- o Cheerful
- o Lonely
- o Calm
- o Loved
- o Encouraged
- o Bored

- o Annoyed
- o Upset
- o Aggressive
- o Cross
- o Important
- o Brave
- o Accepted
- o Lucky

- o Disappointed
- o Enthusiastic
- o Interested
- o Embarrassed
- o Helpless
- o Tense
- o Clever
- o Comfortable

BAM - Dogs

Please read each statement and tick the number that best fits your view.

1 = I am sure not. 2 = No, probably not. 3 = I don't know. 4 = Yes, probably. 5 = Yes, I am sure.

1. Dogs are unaware of what is happening to them.	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure
2. Dogs are capable of experiencing a range of feelings and emotions (e.g. pain, fear, happiness, love)	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure
3. Dogs are able to think to solve problems and make decisions about what to do.	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure
4. Dogs are more like computer programs. They react to their feelings without knowing what they are doing.	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure

OR

BAM - Robots

Please read each statement and tick the number that best fits your view.

1 = I am sure not. 2 = No, probably not. 3 = I don't know. 4 = Yes, probably. 5 = Yes, I am sure.

1. Robots are unaware of what is happening to them.	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure
2. Robots are capable of experiencing a range of feelings and emotions (e.g. pain, fear, happiness, love)	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure
3. Robots are able to think to solve problems and make decisions about what to do.	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure
4. Robots are more like computer programs. They react to their feelings without knowing what they are doing.	1 No, I am sure not	2	3 Don't know	4	5 Yes, I am sure

Trait Animacy - Dogs

Please read the statement and circle the answer that best fits the statement.

1	2	3	4	5
No, I am sure not		Don't know		Yes, I am sure

1. Is the dog alive?
2. Can the dog die?
3. Would you call the dog a "he" or "she", or an "it"? *(Responses selected between "He" or "she", "it" or I don't know)*
4. Is the dog a real dog?
5. Does the dog have a stomach?
6. Would the dog eat a biscuit?
7. Does the dog grow bigger?
8. Does the dog pee and poo?
9. Does the dog breathe?
10. Can the dog have babies?
11. Would the dog try to get a toy I put on the floor?
12. Can the dog feel happy?
13. Do you think the dog could hear me if I called?
14. If I hid a ball, would the dog look for it?
15. Do you like the dog?
16. Do you think the dog likes you?
17. Do you think the dog likes to sit in your lap?
18. Can the dog be your friend?
19. Can you be a friend to the dog?
20. If you were sad, would you want to spend time with the dog?
21. Do you think it would be okay for me to hit the dog?

22. Do you think the dog feels pain?
23. Let's say you are going on holiday for a week with your family. Do you think it is okay for me to leave the dog at home alone?
24. If you decide you don't like the dog anymore, is it okay for me to throw the dog in the rubbish bin?
25. If the dog knocks over a glass of water and spills it all over the floor, should the dog be punished?

<div align="center">**OR**</div>

Trait Animacy - Robots

Please read the statement and circle the answer that best fits the statement.

1	2	3	4	5
No, I am sure not		Don't know		Yes, I am sure

1. Is the robot alive?
2. Can the robot die?
3. Would you call the robot a "he" or "she", or an "it"? *(Responses selected between "He" or "she", "it" or I don't know)*
4. Is the robot a real dog?
5. Does the robot have a stomach?
6. Would the robot eat a biscuit?
7. Does the robot grow bigger?
8. Does the robot pee and poo?
9. Does the robot breathe?
10. Can the robot have babies?
11. Would the robot try to get a toy I put on the floor?
12. Can the robot feel happy?
13. Do you think the robot could hear me if I called?
14. If I hid a ball, would the robot look for it?
15. Do you like the robot?
16. Do you think the robot likes you?
17. Do you think the robot likes to sit in your lap?
18. Can the robot be your friend?
19. Can you be a friend to the robot?
20. If you were sad, would you want to spend time with the robot?
21. Do you think it would be okay for me to hit the robot?
22. Do you think the robot feels pain?
23. Let's say you are going on holiday for a week with your family. Do you think it is okay for me to leave the robot at home alone?
24. If you decide you don't like the robot anymore, is it okay for me to throw the robot in the rubbish bin?
25. If the robot knocks over a glass of water and spills it all over the floor, should the robot be punished?

Post-interaction Measures

Please read the statement and then select which answer best fits your experience.

1. "I enjoyed interacting with the pet."	o Strongly disagree o Slightly disagree o Neither agree/disagree o Slightly agree o Strongly agree

Can you tell us why you gave your answer to the above question?	
2. "The pet enjoyed interacting with me."	o Strongly disagree o Slightly disagree o Neither agree/disagree o Slightly agree o Strongly agree
Can you tell us why you gave your answer to the above question?	
3. "I feel that I have made friends with the pet."	o Strongly disagree o Slightly disagree o Neither agree/disagree o Slightly agree o Strongly agree
Can you tell us why you gave your answer to the above question?	

How are you feeling?

This scale consists of a number of words that describe different feelings and emotions. Read each item and then tick any words that describe how you are feeling at the moment.

Please tick all that apply: (Order randomised)

- o Confident
- o Irritated
- o Cheerful
- o Lonely
- o Calm
- o Loved
- o Encouraged
- o Bored

- o Annoyed
- o Upset
- o Aggressive
- o Cross
- o Important
- o Brave
- o Accepted
- o Lucky

- o Disappointed
- o Enthusiastic
- o Interested
- o Embarrassed
- o Helpless
- o Tense
- o Clever
- o Comfortable

Perceived Attributes of Non-Humans

Please rate the pet on these scales. Circle the number on the scale between the two descriptions that best fits your impression of the pet you have just seen.

Machinelike	1	2	3	4	5	Humanlike
Unconscious	1	2	3	4	5	Conscious
Artificial	1	2	3	4	5	Lifelike
Moves rigidly	1	2	3	4	5	Move smoothly
Lifeless	1	2	3	4	5	Alive
Not interactive	1	2	3	4	5	Interactive
Unresponsive	1	2	3	4	5	Responsive
Unlikeable	1	2	3	4	5	Likeable
Unfriendly	1	2	3	4	5	Friendly
Unkind	1	2	3	4	5	Kind
Ignorant	1	2	3	4	5	Clever
Silly	1	2	3	4	5	Responsible

Unintelligent	1	2	3	4	5	Intelligent
Anxious	1	2	3	4	5	Relaxed
Agitated	1	2	3	4	5	Calm

Online Resource 2. Coding Scheme for Behavioural Observations

Online Resource Table 2a. Behavioural coding scheme for the child

Action	Definition
Initiation Behaviours	
Approach	Total time spent moving whole body to a location closer to the TD/TR during the session.
Gives treat	Total time spent offering a treat to the TD/TR during the session.
Makes noise to attract	Total time spent making a non-verbal noise to attract the attention of the TD/TR during the session. Examples include clicking, tapping the floor, or clapping hands. [1]
Offers toy	Total time spent inviting the TD/TR to play with a toy during the session. This could include moving the toy in front of the TD/TR, moving it along the floor, squeaking/rattling toy. [1]
Positive Social Touch	Total time spent engaging in different types of positive social touch, including stroking, patting, petting, gentle scratching during the session. [2]
Vocalisation to TAaR	Total time spent attempting to communicate with the TD/TR by talking to it during the session. [2] This includes commands to encourage TD/TR to perform specific movements (e.g. sit, roll over, 'high five'). [3]
Vocalisation to handler	Total time spent talking to the handler during the session. [1] (N.B. Conversations with handler will not contribute to total interaction time.)
Total Interaction Time	Total amount of time spent initiating interactions with the TD/TR during the session. Calculated by summing the total amount of time spent engaged in one or more initiation behaviours outlined above (excluding vocalising to handler).

Reaction Behaviours

All behaviours below to be coded as response behaviours only if they are exhibited within 1 second of an initiation behaviour from the TD/TR.

Positive Response Behaviours

Approach	Total time spent moving whole body to a location closer to the TD/TR during the session.
Positive Social Touch	Total time spent engaging in different types of positive social touch, including stroking, patting, petting, gentle scratching during the session. [2]
Positive-affect vocalisations	Total time spent producing vocalisations that indicate positive emotion during the session. These include laughter, encouragement of TD/TR, repetition, using 'petese' (pet-directed Motherese). [3] If speech used, content indicates pleasure.
Positive emotional displays	Total time spent producing facial and body language displays associated with positive emotion during the session. These include non-erect upper body language, high movement activity, expansive movement, high movement dynamics showing happiness, interest or relaxation. [3]
Total Positive Response Time	Total amount of time spent producing positive response behaviours during the session. Calculated by summing the total amount of time spent engaged in one or more positive behaviours outlined above.

No Response: No change to behaviour/body position in response to TD/TR's initiations. If child does not exhibit any behaviours categorised as 'positive' or 'negative' in response to TD/TR's initiations after 1 second, child's behaviour is coded as 'no response'. Duration of 'no response' ends when child or TR/TD starts next initiation behaviour.

Negative Response Behaviours

Avoidance of touching TA/TR	Total time spent avoiding touching the TD/TR during the session by recoiling body posture and remaining in the same location.
Moves away	Total time spent moving whole body away from TD/TR to a new location during the session.
Negative-affect vocalisations	Total time spent producing vocalisations that indicate negative emotion during the session. These include shrieks, groans, or shouts [3]. If speech used, content indicates displeasure.
Negative emotional displays	Total time spent producing facial and body language displays associated with negative emotion during the session. These include shoulders raised, head lowered showing anger, anxiety, boredom or sadness. [4]
Total Negative Response Time	Total amount of time spent producing negative response behaviours during the session. Calculated by summing the total amount of time spent engaged in one or more negative behaviours outlined above.

Action	Definition
Initiation Behaviours	
Movement towards	Total time spent moving whole body to a location closer to the child during the session.
Offers paw	Total time foreleg lifted and paw extended during the session. Paw may touch child.
Performs trick	Total time TD performs trained 'trick' behaviours during the session. Examples of these included a sit, roll over, or 'high five'.
Play initiation	Total time initiating play during the session. This could include displaying 'play bow', (where TD has bottom raised, front of body lowered, tail raised and wagging), picking up toy in mouth to encourage child to play, or nudging child with snout.
Sniffs/licks child	Total time investigating or touching any part of child's body with nose or tongue during the session.
Total Interaction Time	Total amount of time spent initiating interactions with the child during the session. Calculated by summing the total amount of time spent engaged in one or more initiation behaviours outlined above.

Reaction Behaviours

All behaviours below to be coded as response behaviours only if they are exhibited within 1 second of an initiation behaviour from the child.

Positive Response Behaviours

Approach	Total time spent moving whole body to a location closer to the child during the session.
Engaging with toy	Total time spent joining in play with toy and child during the session. TD may engage with the toy by fetching toy when thrown by child or taking toy in mouth whilst child is holding for 'tug of war' game. [3]
Eye gaze towards target	Total time eye gaze directed toward the child (or toy when directed) during the session.
Leaning against	Total time leaning body or head against child during the session.
Licking/sniffing child	Total time spent investigating or touching any part of child's body with nose or tongue during the session.
Offers paw	Total time foreleg lifted and paw extended during the session. Paw may touch child.
Performing command	Total time spent performing a trick commanded by the child or approaching the child when called during the session.
Pushing snout/seeking touch	Total time spent pushing or eliciting contact with snout on any part of child's body during the session.
Raising ears	Total time ears raised or perked up during the session.
Rolling over	Total time rolling over on back exposing the abdomen for pleasant social touches, during the session.
Tail wag	Total time of tail moving repeatedly side to side or up and down during the session.
Total Positive Response Time	Total amount of time spent producing positive response behaviours during the session. Calculated by summing the total amount of time spent engaged in one or more positive behaviours outlined above.

No Response: No change to behaviour/body position in response to child's initiations. If TD does not exhibit any behaviours categorised as 'positive' or 'negative' in response to child's initiations after 1 second, TD's behaviour is coded as 'no response'. Duration of 'no response' ends when child or TD starts next initiation behaviour.

Negative Response Behaviours

Avoidance of touching child	Total time spent avoiding touching the child during the session, by recoiling body posture and remaining in the same location.
Moves away	Total time spent moving whole body away from child to a new location during the session.
Body shake-off	Total time shaking body shaking off as if wet or dirty during the session.
Grooming	Total time TD interrupts interaction with child to chew, scratch, or lick themselves during the session.
Lip licking/yawning	Total time spent performing species-specific oral behaviours indicating stress during the session. Examples of this includes licking of snout or mouth-open yawning.
"Look away"	Total time TD's head is turned away from child or child's touch during the session.
Panting	Total time spent breathing strongly and in laboured manner during the session. Audible excessive breathing will be heard, and visual signs may include TD's abdomen noticeably moving up and down and tongue extended out of mouth.
Restlessness	Total time spent frequently changing body position or location, such as by pacing, while seeming physically uncomfortable or stressed during the session.
Total Negative Response Time	Total amount of time spent producing negative response behaviours during the session. Calculated by summing the total amount of time spent engaged in one or more negative behaviours outlined above.

Action	Definition
Initiation Behaviours	
Approach	Total time spent moving whole body to a location closer to the child during the session.
Leans against	Total time leaning or resting body or head against child during the session.
Total Interaction Time	Total amount of time spent initiating interactions with the child during the session. Calculated by summing the total amount of time spent engaged in one or more initiation behaviours outlined above.

Reaction Behaviours	

All behaviours below to be coded as response behaviours only if they are exhibited within 1 second of an initiation behaviour from the child.

Positive Response Behaviours

Approach	Total time spent moving whole body to a location closer to the child during the session.
Engaging with toy	Total time spent following toy with eye gaze or movement of body during the session.
Eye gaze towards target	Total time eye gaze directed toward the child (or toy when directed) during the session.
Green light on	Total time green light shows on the side of the abdomen during the session.
Leaning against	Total time leaning body or head against child during the session.
Pushing snout	Total time spent pushing snout on any part of child's body during the session.
Raising ears	Total time ears raised or during the session.
Tail wag	Total time of tail moving repeatedly side to side during the session.
Total Positive Response Time	Total amount of time spent producing positive response behaviours during the session. Calculated by summing the total amount of time spend engaged in one or more positive behaviours outlined above.

No response: No change to behaviour/body position in response to child's initiations. If TR does not exhibit any behaviours categorised as 'positive' or 'negative' in response to child's initiations after 1 second, TR's behaviour is coded as 'no response'. Duration of 'no response' ends when child or TR starts next initiation behaviour.

Negative Response Behaviours

Escape	Total time spent moving whole body away from child to a new location during the session.
"Look away"	Total time TR's head is turned away from child or child's touch during the session.
Red light on	Total time red light is showing on the side of the abdomen during the session.
Total Negative Response Time	Total amount of time spent producing negative response behaviours during the session. Calculated by summing the total amount of time spent engaged in one or more negative behaviours outlined above.

Online Resource 3. TD Comparisons

Table 3. Comparisons between the two TDs on questionnaire and behavioural measures.

	U	p
Questionnaire Measures		
Enjoyment Q1	87.50	.47
Enjoyment Q2	80.50	.98
Enjoyment Q3	74.00	.35
BAM	74.50	.76
TASc	72.50	.69
PAN-H	55.00	.22
Behavioural Measures		
TD Initiations	55.00	.22
Child Initiations	72.00	.67
Social Interaction	57.00	.26

Online Resource 4. Thematic Analysis

The responses to the three open questions, asking participants about their preference, enjoyment and perceived TD/TR's enjoyment and the extent to which they felt they had made friends with the TD/TR, are presented below. The thematic analysis was performed on these combined responses.

Online Resource Table 4. Themes and subthemes identified from the open text answers to questions regarding preference, enjoyment, TD/TRs' enjoyment, and perceived friendship. Total number of mentions, both from a positive and negative perspective, for TD and TR conditions, are shown.

Themes	TD		TR	
	Positive	Negative	Positive	Negative
Emotional benefits for the human participant				
Relaxation	14	-	1	-
Fun/Enjoyment	7	-	9	-
Enjoyment described as TAaR enjoyment	3	-	2	-
TD/TR emotions				
Body language	5	1	6	1
Other TAaR emotions	14	2	7	1
Sleep/relaxation	7	1	6	1
TD/TR behaviour	41	4	17	8
TD/TR appearance	18	-	4	2
Social status of TD/TR				

Capacity for social status	6	1	4	4
Prior experience	5	-	6	-
Verbal communication	3	-	1	-
Lifelike behaviour	3	-	2	3

Emotional Benefits for human participant. Fourteen participants explicitly mentioned the relaxing effect of spending time with the TD (e.g. "very calm and relaxing" – TD, Participant 5). The calming effect of interaction with therapy dogs has been recognised in a vast range of previous literature, e.g. [5–7], yet did not emerge as a salient emotion in written feedback after the TR. Participants also mentioned the fun and enjoyment they experienced when interacting with both the TR ($N = 7$) and the TD ($N = 9$). A small number (TR $N = 3$; TD $N = 2$) of participants explained their view that the TAaR had enjoyed the sessions by describing that *they*, the participant, had enjoyed it (labelled as "Enjoyment described as TAaR enjoyment").

Intriguingly, the numerous mentions of "calm" for the TD and singular mention for the TR and *vice versa* for "fun" contradicted the results of the emotion word selection. In the emotion selection task, more participants selected that they felt calm after the TR ($N = 22$) than the TD ($N = 13$). From this, it would be predicted that participants would use "calm" in their written answer more frequently for the TR than the TD. However, "calm" was used more frequently for the TD and "fun" emerged more prominently for the TR. This result suggested that different measurement tools yielded different results: a finding that future research into AAA/RAA should bear in mind.

TR/TD emotions. Fourteen references were made by participants about the emotions of the dog without providing an explanation of tangible behavioural or postural markers of the TAaRs' enjoyment, (labelled as "other TAaR emotions" e.g. "[TD] seemed as if she was having a good time" – Participant 14). Other TAaR emotions mentioned was them being calm and relaxed, and interpreted sleeping as indicating that the TAaR was experiencing these emotions, although some participants thought this was a negative feature of the TAaR as they were not reacting (TR positive $N = 7$, negative $N = 1$; TD positive $N = 6$, negative $N = 1$). Far fewer ($N = 5$) discussed features of the dogs' body language, such as that the dog "laid down and relaxed" (Participant 1) and "wagged her tail" (Participant 15). A similar number of mentions ($N = 6$) were made about the TR's body language, despite the students having been informed in the pre-test introduction session that the TR's wagging tail and green light indicating happiness. Overt signs of dog emotion are often misunderstood by children and adults alike [8], reinforcing the assertion that the therapy dog handler needs to be knowledgeable of the body language displayed by their dog to promote the welfare of all participants [9].

TR/TD behaviour. The behaviour of the TAaR was frequently reported as a positive feature by participants, including both general statements of interactivity and specific actions, such as playing or doing tricks (TD $N = 41$, TR $N = 17$), and often referred to the dyadic interaction between themselves and the TR/TD, describing the initiation they performed and the TR/TD's reaction ("I stroked her and she kept looking at me" TD, Participant 21, and "interesting to see how the robotic dog responded" TR, Participant 26). The fewer mentions for the TR may be because it of its more limited programmed behavioural repertoire or because it did not always respond to the child's initiations (e.g. "it just sat

there so I got bored" Participant 8; "I felt like you couldn't really "play" with it" Participant 15). A lack of interactivity was the main reason cited for participants disagreeing to the evaluation statements ("dog was a bit tired and not really happy" Participant 24). Frequently, the participants made direct comparisons between the interactivity of the TAaR (e.g. the dog was "more interactive and more lively" - Participant 21).

Social status of TR/TD. Participant responses about the whether the TD/TR had the capacity to be afforded social status were mixed. Six participants indicated that they believed that the TD could be a friend (e.g. "I feel like I have a new friend" Participant 12), as did four participants about the TR, showing a speed and immediacy to the formation of a relationship with either TAaR. Like the physical interaction, some participants reported the importance of verbal communication with the TR/TD (TD $N = 3$, e.g. "dog listens to me" Participant 2, TR $N = 1$, e.g. "followed me when I told it to", Participant 5). MiRo has been designed to respond to noises and will often approach if called and dog are skilful at listening and responding to human vocalisations [10]. However, a different four participants doubted that the TR could be given the social status of a "friend" ("I do not know if it can be a friend" Participant 21).

Five participants expressed an existing love of dogs ("I love playing with dogs" Participant 7 and "I love dogs in general" Participant 29) and as a familiarity with animals has been suggested as a factor that increases liking [11]. This prior experience of dogs may have informed their view of the social status of the TD. Conversely, the participants were unfamiliar with the TR and it was described as not being lifelike by three participants (e.g. "I didn't know how to act with the robot" Participant 2), possibly contributing to perceived problems with the social standing of the TR as it was not conceptualised as a social entity by some [12]. However, reports about the TR such as "very unique robot and I've never seen one before" (Participant 16) suggested that the novelty of the interaction was enjoyable.

TR/TD appearance. The physical appearance of the TD seemed an important factor to many participants (TD $N = 18$, e.g. "[it's] the cutest thing ever" Participant 24 and "She is a very beautiful dog" Participant 11). In contrast, fewer participants (TR $N = 4$) described the TR's appearance positively (e.g. "so cute" Participant 6) and two participants did not like the appearance of the TR (e.g. the MiRo was "weird because there was no fur" – Participant 17). The smooth surface of social robots is often marketed as an advantage over living dogs, as the robots can be cleaned between users [13] and as one participant perceptively suggested, "people wouldn't be allergic to it" (Participant 7, TR).

Evaluation of experience

Participants' perceptions of TR/TD sessions were tested with four evaluation questions, asking about (1) their enjoyment, (2) their evaluations of the TR/TDs' enjoyment, (3) whether they felt they made friends with the TR/TD, (4) their preference of TD versus TR. Models were created to identify predictors of participant evaluation responses.

1. Participant enjoyment.

Two top models were selected from the GLMM models to determine which factors best explained participant enjoyment in the sessions (the model with the lowest AIC score and a second model existing within the threshold ≤ 2.0 ΔAIC score of the best fitting model; Online Resource Table 5). Trait Animacy and Belief in Animal Mind scores were key predictors and featured in both of the top models $F(1, 68) = 31.28$, $p < .001$. Higher scores for these scales were associated with higher enjoyment ratings. The top model accounted for 39.2% of the variance in the model and provided a significantly better fit than the intercept-only model, $\Delta\chi^2 (2) = 16.20$, $p < 0.001$. In the second-best fitting model, TR/TD condition was also included as a predictor ($F(1, 68) = 6.79$, $p = .01$). This indicated that the type of TR/TD impacted enjoyment ratings. TR/TD condition accounted for 7.14% of the total variance in enjoyment scores, higher than the 5% indicating small but significant group effects in this model [14]. This model accounted for 40.1% of the variance in the model.

Online Resource Table 5a. Intercept only model and top models by AIC for participant enjoyment.

	Log Likelihood	AIC			β		
		Value	Improvement from intercept	ΔAIC	Estimate	p	95% CI
Trait Animacy + Belief in Animal Mind	159.15	167.15	12.20	-	2.63	< 0.001	1.69, 3.57
TR/TD Condition + Trait Animacy + Belief in Animal Mind	158.12	168.12	11.23	0.97	2.09	0.004	0.69, 3.50
Intercept only	175.35	179.35	-	12.20	4.59	< 0.001	4.38, 4.80

Table 5b. Changes in model fit when predictors of TR/TD Condition, Joint Engagement, TR/TDs at Home, Robot at home, Trait Animacy, Belief in Animal Minds added to model.

	-2LL	AIC	AIC improvement
Null model: TR/TD Condition	168.72	176.72	
1. TR/TD Condition, Joint Eng	168.58	178.58	-1.86
2. TR/TD Condition, TR/TD at Home, Robot at Home	167.65	179.65	-2.93
3. TR/TD Condition, Trait Animacy	160.75	170.75	5.97
4. Trait Animacy, Belief in Animal Minds	159.08	169.08	7.64

2. Perceived TR/TD enjoyment.

One model was selected from the GLMM models as best fitting of the data as no other models had a ΔAIC score of ≤ 2.0 to this model (Online Resource Table 6). This model consisted of the parameters Trait Animacy and Belief in Animal Mind ($F(1, 68) = 14.75$, $p < .001$). Higher scores for these scales were associated with higher rating of TR/TD enjoyment. 16.16% of the variance in the model was explained by these parameters, leaving a large amount of variance in participant ratings of TR/TDs' enjoyment unexplained by any of the factors in the present study. Nevertheless, this model provided a significantly better fit than the null model ($\Delta\chi^2(2) = 13.20$, $p = 0.001$) and the AIC and deviance describing the discrepancy to model fit had decreased.

Online Resource Table 6a. Intercept only model and top models by AIC for participant enjoyment.

	Log Likelihood	AIC			β		
		Value	Improvement from intercept	ΔAIC	Estimate	p	95% CI
Trait Animacy + Belief in Animal Mind	180.99	188.99	9.20	-	2.12	< 0.001	1.02, 3.22
Intercept only	194.19	198.19	-	9.20	4.16	< 0.001	3.92, 4.41

Table 6b. Changes in model fit when predictors of TR/TD Condition, Joint Engagement, TR/TD Engagement, TR/TDs at Home, Robot at Home, Trait Animacy, Belief in Animal Minds added to model.

	-2LL	AIC	AIC improvement
Null Model: TR/TD Condition (as fixed)	184.85	192.852	
1. Joint Engagement	185.9	195.9	-3.048
2. TR/TD Engagement	186.04	196.04	-3.188
3. TR/TDs at Home, Robot at Home	187.00	193.00	-0.148
4. Trait Animacy	180.81	188.81	4.042
5. Trait Animacy, Belief in Animal Minds	173.21	183.21	9.642
6. Belief in Animal Minds	173.21	181.21	11.642

3. TR/TD friendship.

One model from candidate GLMM models was selected as the best fitting as it had the lowest AIC score (Online Resource Table 7). No other models existed within the threshold of ≤ 2.0 ΔAIC score of the best fitting model. In this model, Belief in Animal Mind scores was the only predictor retained ($F(1, 68) = 18.55$, $p < .001$). This result suggested that participants with a higher level of Belief in Animal Mind would provide higher ratings for TR/TD friendship. However, this model only approached significance in providing a better fit than the intercept-only model, $\Delta\chi^2(2) = 5.65$, $p = 0.06$. Therefore, whilst the Belief in Animal Mind variable may provide some explanatory power, the effect would be small and an unmeasured factor(s) may better predict whether participants made friends with the TR/TD.

Online Resource Table 7a. Intercept only model and top model by AIC for participant ratings of friendship.

	Log Likelihood	AIC			β		
	Value	Improvement from intercept	ΔAIC	Estimate	p	95% CI
Belief in Animal Mind	198.33	204.33	3.65	-	2.56	< 0.001	1.37, 3.74
Intercept only	203.98	207.98	-	3.65	3.97	< 0.001	3.71, 4.23

Online Resource Table 7b. Changes in model fit when predictors of Joint Engagement, TR/TD Engagement, TR/TDs at Home, Robot at Home, Trait Animacy, and Belief in Animal Minds added to model.

	-2LL	AIC	AIC Improvement
Null Model: TR/TD Condition (as fixed)	202.97	210.97	
1. Joint Engagement	203.21	213.15	-2.18
2. TR/TD Engagement	202.68	212.68	-1.71
3. TR/TD at Home, Robot at Home	203.2	213.2	-2.23
4. Trait Animacy	201.67	209.67	1.3
5. Belief in Animal Minds	198.25	206.25	4.72

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