

# AUTISM & ANTHROPOMORPHISM

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<https://socialembodycognition.wordpress.com>



# ROUTE PLAN

- What is anthropomorphism?
- What's it got to do with autism?
- Could anthropomorphism be an autistic ToM strength?
- Our research (6 studies)
- Big picture, Future work and Applications
- Questions

anthropos - human being

morphe - shape or form

# ANTHROPOMORPHISM:

process of attributing human characteristics, behaviour, or mental states to non human agents, often termed as seeing the human in the non human.



PLAY WITH YARN, NO ONE NOTICES

PLAY WITH THE HAMSTER, EVERYONE LOSES THEIR MINDS!

makeameme.

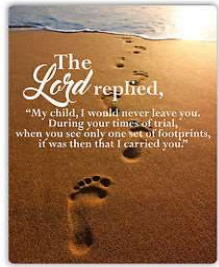
AND HUMAN

WHAT DID WE LEARN

Happiness is...

Human slaves





# AUTISM AND ANTHROPOMORPHISM

Social Motivation theory of autism (Chavellier, 2007)

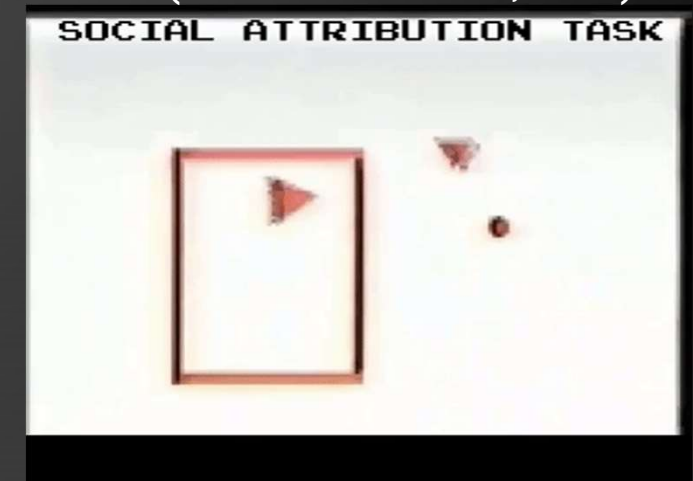
Anthropomorphism is a desire for social contact (Epley et al., 2007)

Autistic people thought to 'lack' ToM

(Baron-Cohen et al., 1985)

Anthro as an extension ToM (Epley et al., 2007)

(Heider & Simmel, 1944)



(Klin, 2000)

So we should expect to see less anthropomorphizing in autistic individuals

## What am I thinking? Perspective-taking from the perspective of adolescents with autism

[Gray Atherton](#)  , [Ben Lummis](#), [L...](#), and [Liam Cross](#)  [View all authors and affiliations](#)
[Volume 23, Issue 5](#) | <https://doi.org/10.1177/1362361318793409>


- Qualitative inquiry into theory of mind (ToM) in adolescents with autism
- Interpretive Phenomenological Analysis revealed 4 overarching themes concerned with how autistic people engage with ToM processes
  - Honesty
  - Humor
  - Visualization
  - **Anthropomorphism**



*Story Type: Lie*

One day, while she is playing in the house, Anna accidentally knocks over and breaks her mother's favorite crystal vase. Oh dear, when mother finds out she will be very cross! So when Anna's mother comes home and sees the broken vase and asks Anna what happened, Anna says, "The dog knocked it over, it wasn't my fault!"

Was it true, what Anna told her mother?

Why did she say this?

Anthropomorphism		
Anthropomorphic entity	11	25
Pets	9	15
Anthropomorphic religious figures	8	12
Happiness with animals	8	10
Animal appearances reflects internal features	5	6
Anthropomorphic as innocent	5	5
Animal values	5	5
Connecting to the self through anthropomorphism	4	9
Seeing anthropomorphic agent as self	4	9
Animal instincts	4	4

Frequency of interviews refers to how many interviews out of 12 were recorded as possessing this subtheme. Frequency of subtheme refers to the number of times this subtheme was coded within the total data.

My dog found this hilarious or something; she was like going crazy.

I'm like a dog, basically. I call it a sixth sense. Because I can sense feelings basically.

I'm always like, what would MLP do? So MLP stands for My Little Pony. I'm like, what would the character MLP do? Right before I get pissed. I'm like OK, step back, breathe, think.





REVIEW article

Front. Psychol., 17 April 2018  
Sec. Cognitive Science  
Volume 9 - 2018 |  
<https://doi.org/10.3389/fpsyg.2018.00528>

This article is part of the Research Topic  
The Cognitive Underpinnings of  
Anthropomorphism  
[View all 10 Articles >](#)

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# Seeing More Than Human: Autism and Anthropomorphic Theory of Mind



30,909

total views



View Article Impact

Gray Atherton<sup>1,2\*</sup> and Liam Cross<sup>2,3</sup>



## Preference



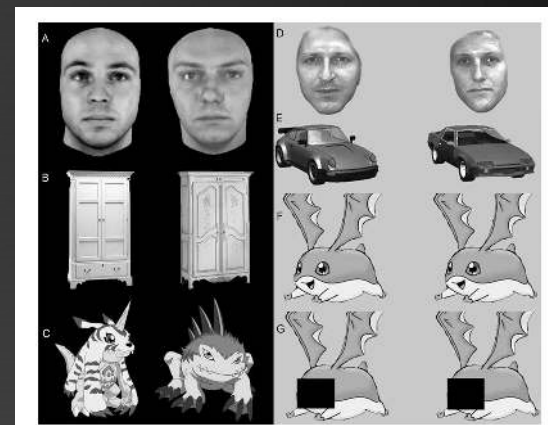
Silva et al., 2016

## Advantage

Human static	Animated static

Brosnan et al., 2015

## Interest / Processing



Grelotti et al., 2005

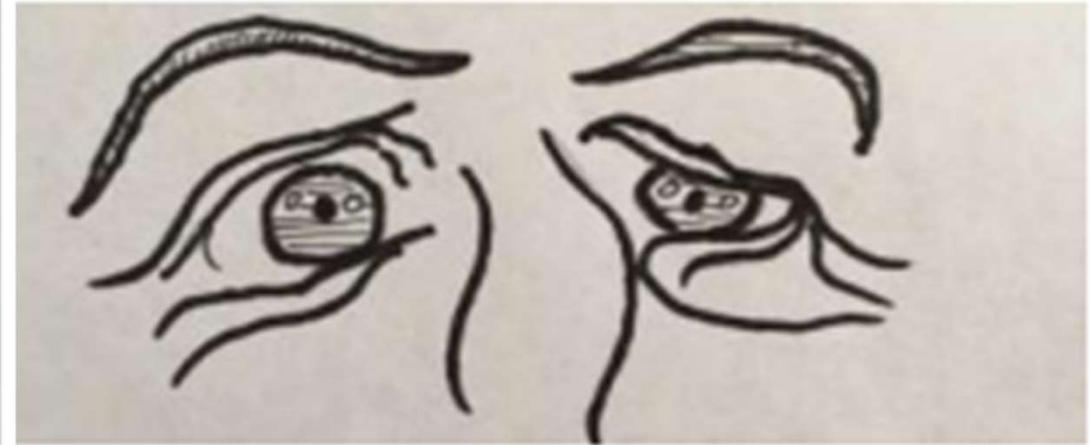


# Reading the mind in cartoon eyes: Comparing human versus cartoon emotion recognition in those with high and low levels of autistic traits

Gray Atherton , Liam Cross

First Published March 9, 2021 | Research Article | [Find in PubMed](#) | 

[Article information](#) ▾



Panicked Jealous Arrogant Hateful

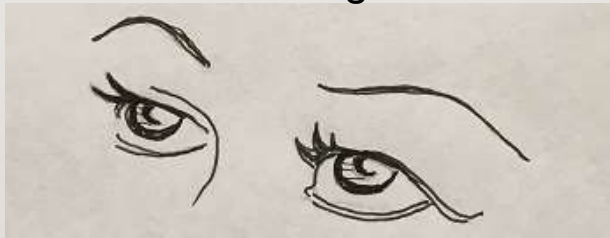


Piloted online in the UK, in line with Baron-Cohen 2001 procedure

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Fantasizing



Despondent



Distrustful



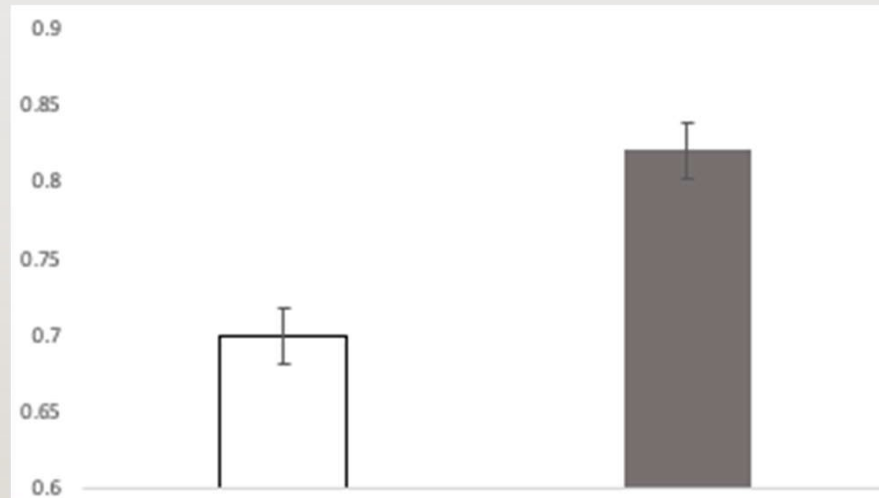
## STUDY 1 (RME)

388 American UGs, given CRME & AQ

## STUDY 2 (CARTOON RME)

396 new students, RME & AQ

High and low AQ groups (cutoff of 26)





SHORT REPORT |  Open Access |  

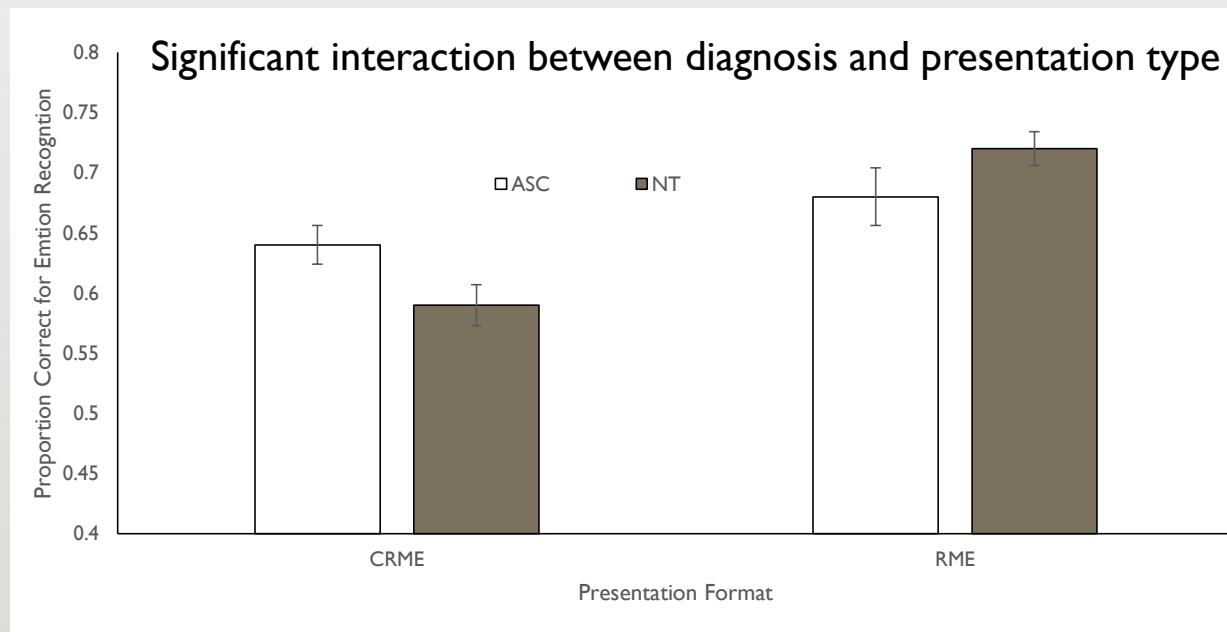
## Autistic people outperform neurotypicals in a cartoon version of the Reading the Mind in the Eyes

Liam Cross, Andrea Piovesan, Gray Atherton 

First published: 20 July 2022 | <https://doi.org/10.1002/aur.2782> | Citations: 1



196 participants worldwide, 1/2 ASC, 1/2 NT



Original Paper | [Open Access](#) | [Published: 26 August 2019](#)

# The Animal in Me: Enhancing Emotion Recognition in Adolescents with Autism Using Animal Filters

[Liam Cross](#), [Myles Farha](#) & [Gray Atherton](#) 

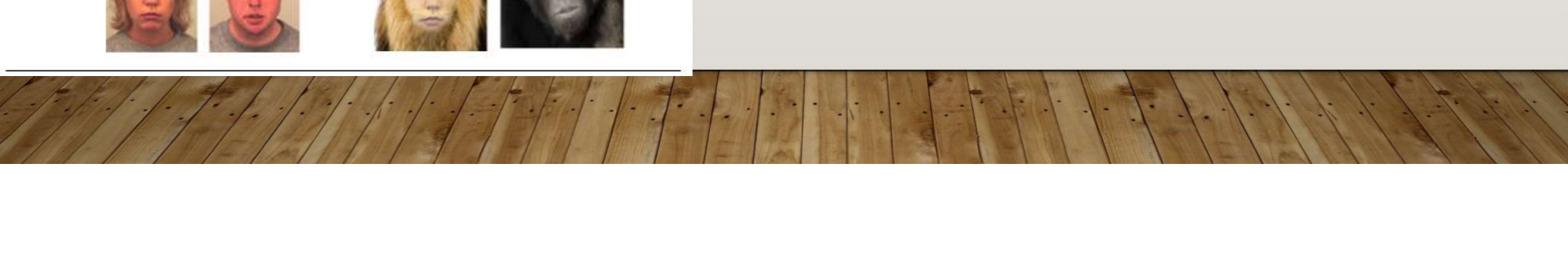
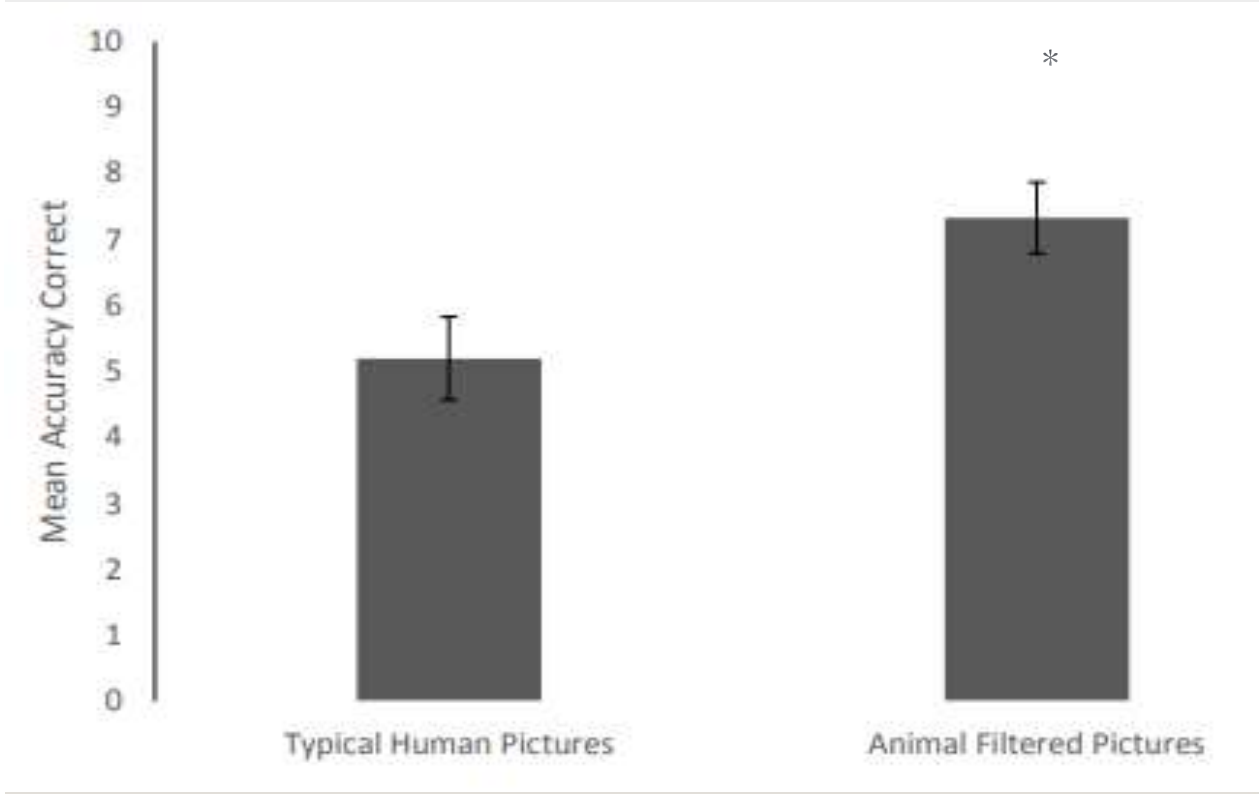
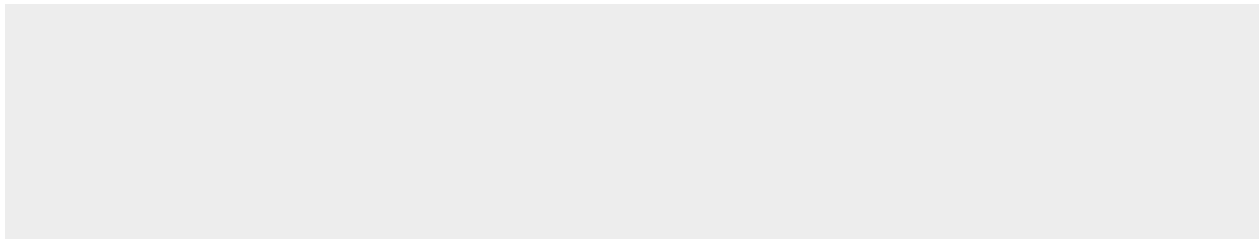
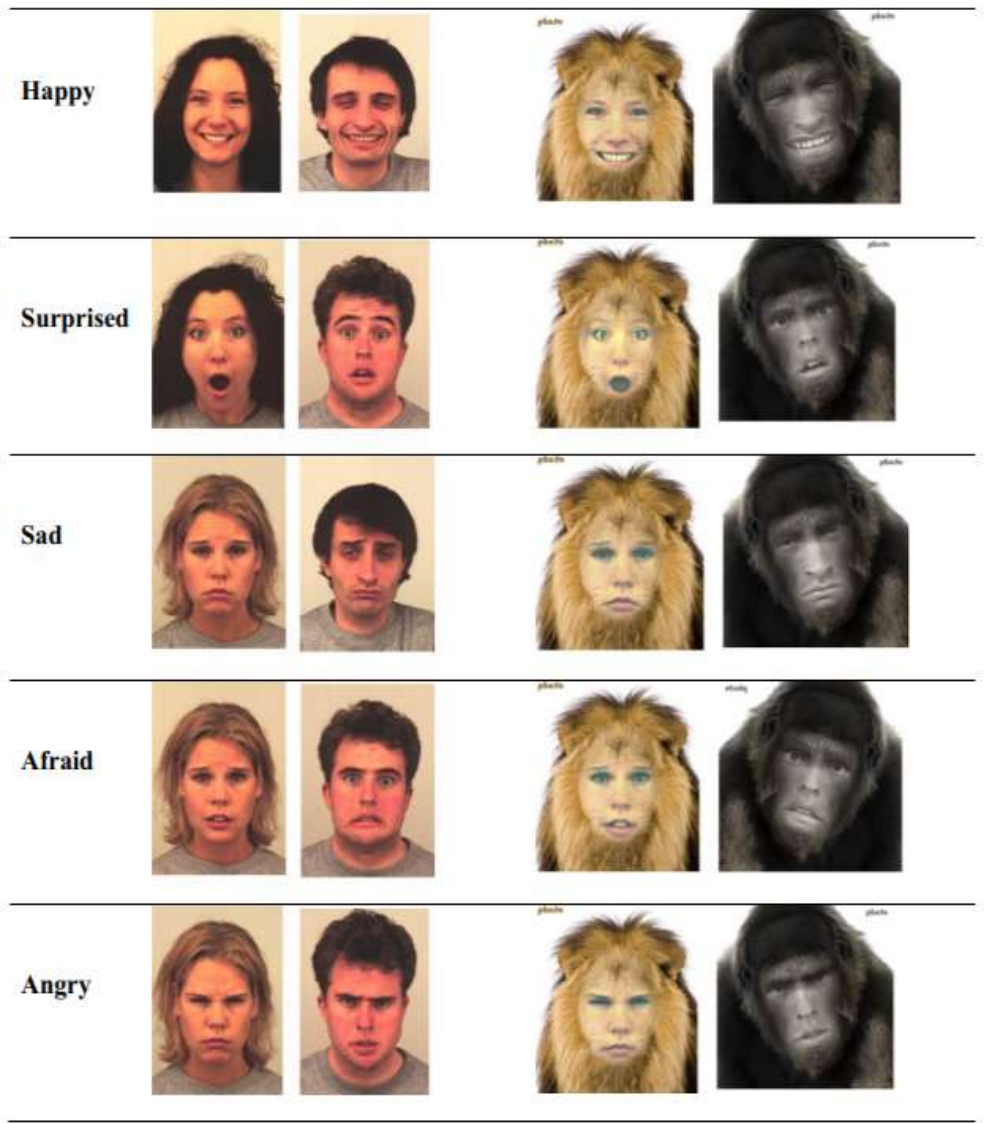
*Journal of Autism and Developmental Disorders* **49**, 4482–4487 (2019) | [Cite this article](#)

**5056** Accesses | **10** Citations | **134** Altmetric | [Metrics](#)



KDEF  
Happy  
Sad  
Afraid  
Anger  
Surprised








Original Article

# Animal Faux Pas: Two Legs Good Four Legs Bad for Theory of Mind, but Not in the Broad Autism Spectrum

Gray Atherton  & Liam Cross

Pages 81-95 | Received 04 Nov 2018, Accepted 06 Mar 2019, Published online: 16 May 2019

 Download citation  <https://doi.org/10.1080/00221325.2019.1593100>

 Check for updates



Mike had just started at a new school. He was in one of the stalls in the bathroom at school. Joe and Peter, two of his classmates, came in and were standing at the sinks talking. Joe said, "You know that new guy in the class? His name's Mike. Doesn't he look weird? And he's so short!" Mike came out of the stall and Joe and Peter saw him. Peter said, "Oh hi, Mike! Are you going out to play football now?"

## Did someone say something awkward?

Bronco had just started racing at a new track. He was in one of the stalls in the barn of the track. Mare and Stallion, two of the other racehorse, trotted in and stood by the feeders talking. Mare said, "You know that new horse at the track? His name's Bronco. Doesn't he look weird? And he's so short!" Bronco came out of the stall and Mare and Stallion saw him. Stallion said, "Oh hi, Bronco! Are you going out to race now?"

# STUDY 1 (FPT)

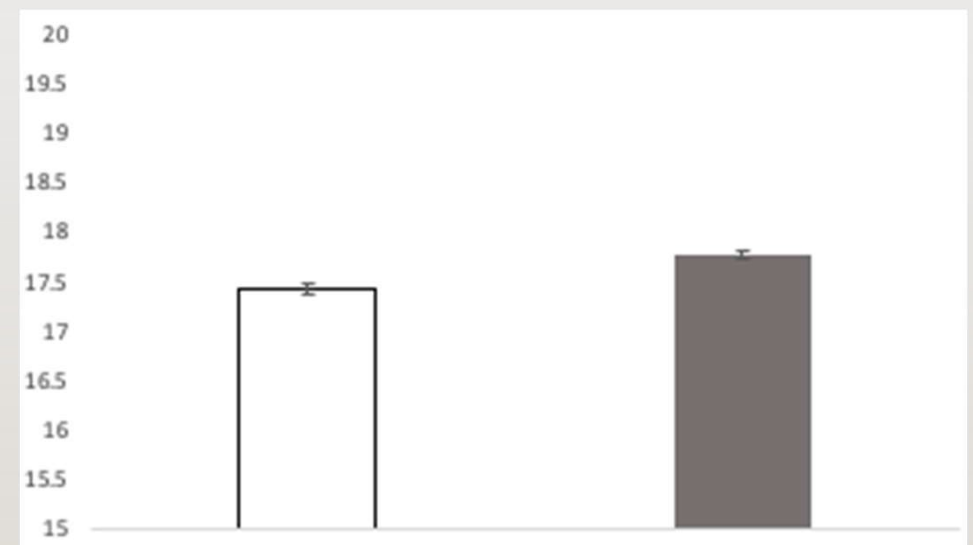
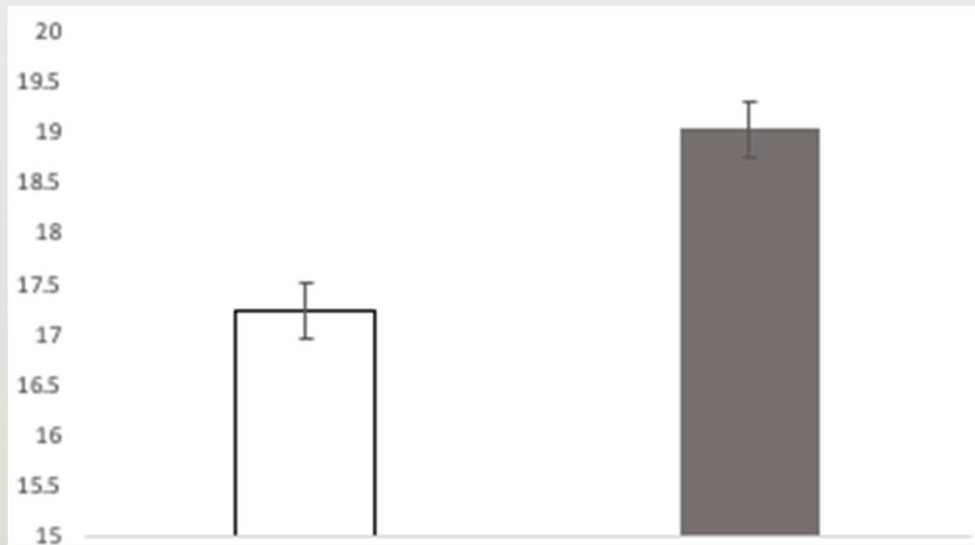
345 people FPTA, AQ

# STUDY 2 (FPT-ANIMAL)

330 people FPT,AQ

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High and low AQ groups



Original Paper | [Open Access](#) | [Published: 09 June 2022](#)

## ‘They ask no questions and pass no criticism’: A mixed-methods study exploring pet ownership in autism

[Gray Atherton](#) , [Emma Edisbury](#), [Andrea Piovesan](#) & [Liam Cross](#)

[Journal of Autism and Developmental Disorders](#) (2022) | [Cite this article](#)

5065 Accesses | 2 Citations | 57 Altmetric | [Metrics](#)



- Study 1
- A total of 326 individuals diagnosed with autism (ASC group) and 409 individuals who reported as neurotypical (NT group) completed the online survey.
  - ASC equally attached to their pets & anthropomorphised their pets to the same degree as NTs
    - AQ correlates with anthropomorphism
- People with ASD more likely to substitute pets for people, which was mediated by social avoidance.



## Study 2

Pets with  
Benefits

Social  
Alternative

Interpretive Phenomenological  
Analysis

Interviewed  
16 autistic pet owners

Social  
Lubricant

Barriers and  
Breakthroughs

- I help with cat behaviour and psychology, I help people with some cat issues ... Because obviously it's never the cat, the cat's just trying to tell them something and they don't speak cat. So, I just try to find out what the cat's trying to say and explain how to fix it.*
- With an animal, you don't need to wear a mask, they don't know the social rules you're breaking. There's something about the fact that they are not the same species which is helpful. An animal is not going 'doesn't she know that you have to hold eye contact?' A cat doesn't like eye contact. So, they're not watching you trip over the social rules.*

- 
- I basically realised that all cats are autistic, and I can't describe how much I relate to them. They're very hypersensitive to certain senses and hyposensitive to others. They're happy to be completely solitary animals but can get very close to specific people that they trust and are very, very loyal to them. They absolutely thrive off routine and don't like their environment changing. They're very quiet generally. And also I think most people misunderstand them and don't communicate well with them because they communicate and show love in a very different way.

# RECAP

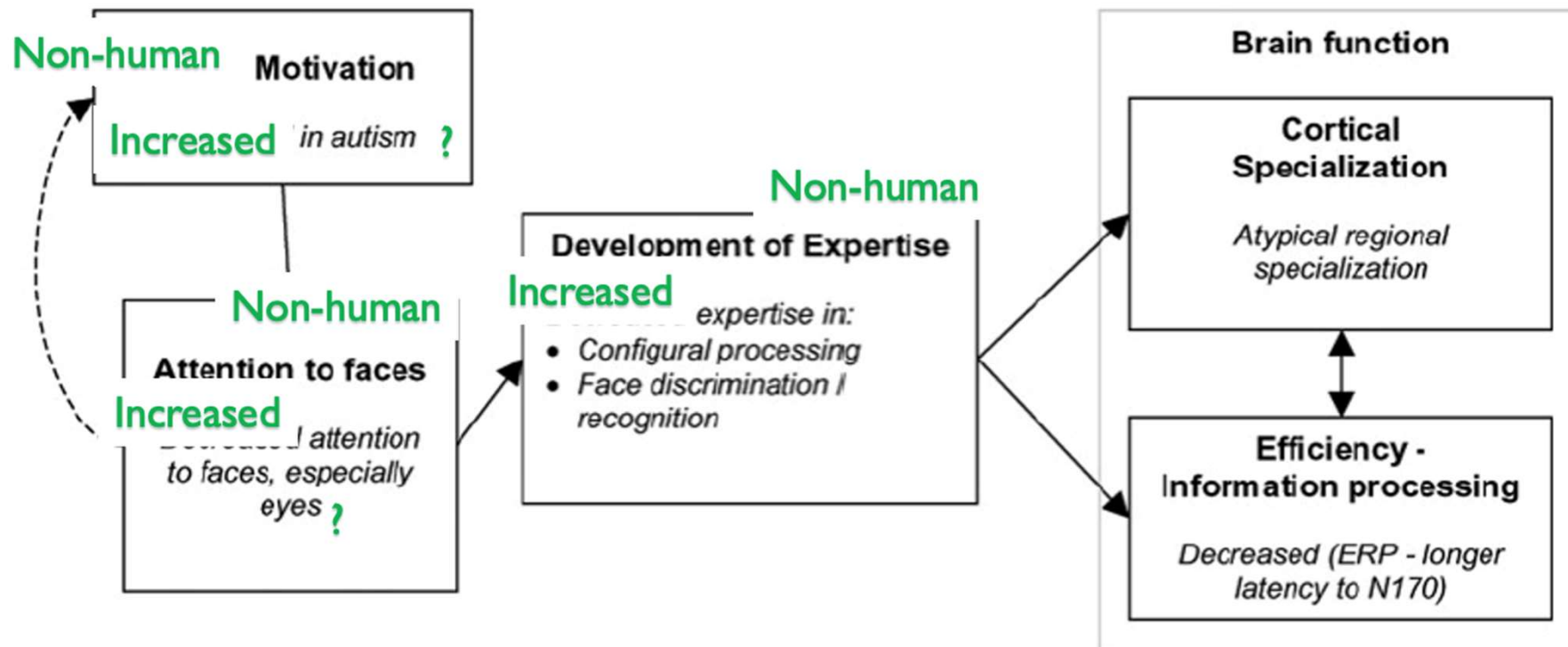
- ~~• Some evidence that autistic people do anthropomorphize at least to the same degree as NTs (perhaps even more so)~~
- Some evidence that anthropomorphism may play a role in the way autistic people conceptualize or engage in ToM and perspective taking.
  - What happens when autistic people take the perspective of non human agents?  
(A task in which autistic people usually don't do as well as NTs when the agent of evaluation is human)





**BIG PICTURE**

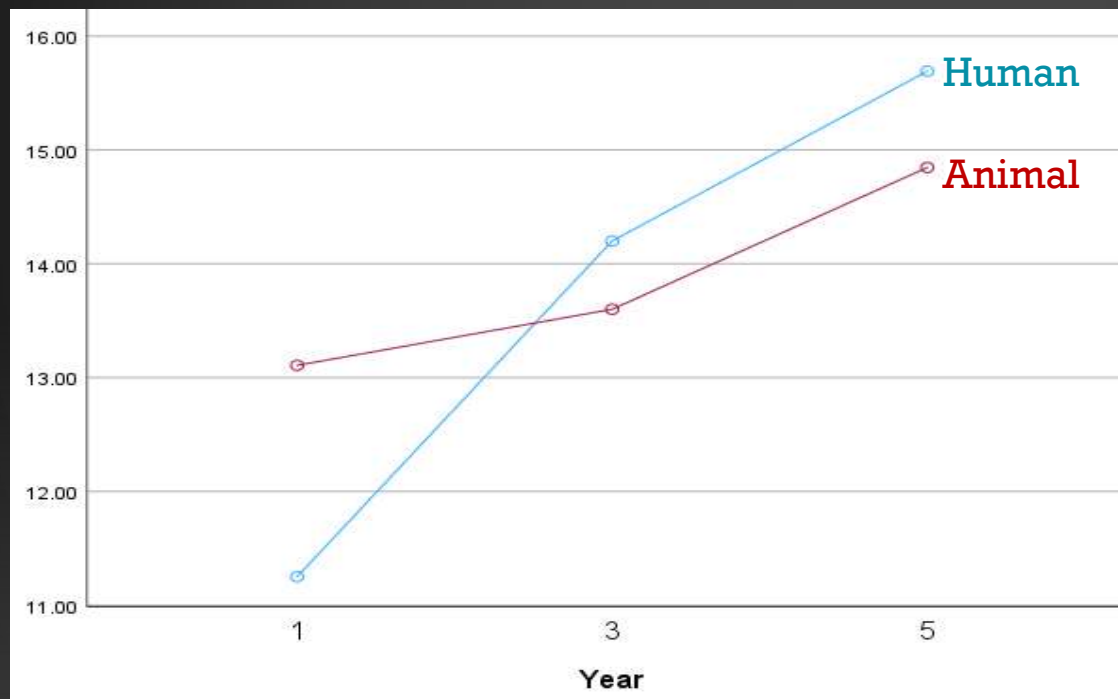




*Impairments in autism noted in italics*

# AGE RELATED EFFECTS OF ANTHRO

110 children, Years 1 (aged 5-6), 3 (aged 7-8) & 5 (aged 9-10)  
Did child version of FPT / (a), two weeks apart (order counterbalanced)



## Story 4:

Kim helped her Mum make an apple pie for her uncle when he came to visit. She carried it out of the kitchen. "I made it just for you", said Kim. "Mmm", replied Uncle Tom, "That looks lovely. I love pies, except for apple, of course!"



Sally the shark helped her Mum make a shrimp cake for her uncle when he came to visit. She carried it out of the kitchen. "I made it just for you", said Sally the shark. "Mmm", replied Uncle Stanley, "That looks lovely. I love cake, except for shrimp, of course!"





# HOLOLENS APPLICATION





## PARTICIPANTS NEEDED

- Real life experiences with anthropomorphism in autistic people
  - Fandom (Comics, Videogame/Media Characters)
  - Cartoons/Animation
  - Animals
  - Stuffed animals/toys
  - Furrries
  - Dungeons and Dragons
  - RPG
  - Wide range!

IF INTERESTED PLEASE EMAIL:  
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THE END 😊  
QUESTIONS?

