Virtual Agent Design for Social Skills Training Considering Autistic Traits

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EMBC 2021

2021/10/1   TAPAS SUPPORTED BY ANR-CREST

Automated social skills training

Social skills training by virtual agents [Tanaka+, IUI 2015] for autism spectrum [Tanaka+, Plos one 2017]

Training effects on self-efficacy [Tanaka+, OJEMB 2021]

Hello. I'm tapas. What is your name?
Hello, hundred's. How have you been recently?
Was that so, today we will learn speaking skills together.
Why do you think speaking skills are important?
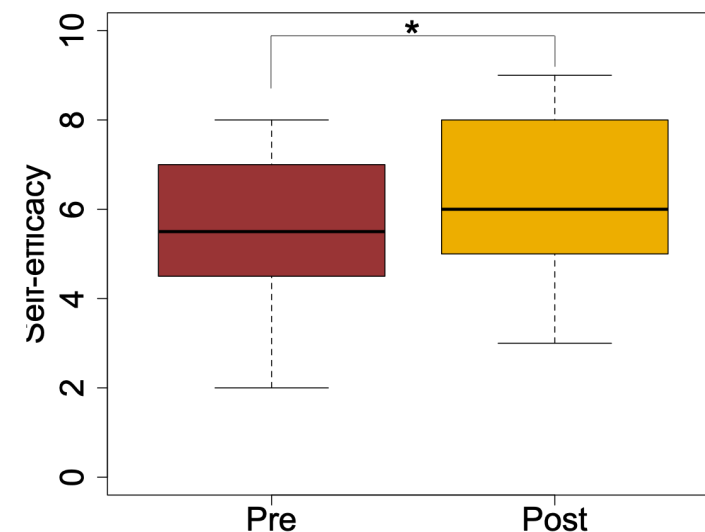...
Let's do role-playing.
Tell me your recent fun story. Then please.
Yes, this is all right. Thank you very much.
We will calculate the result, so please wait.
Now for feedback.

Background

For virtual agent design, **what kind of virtual agents are more favored or more accepted** has not been investigated
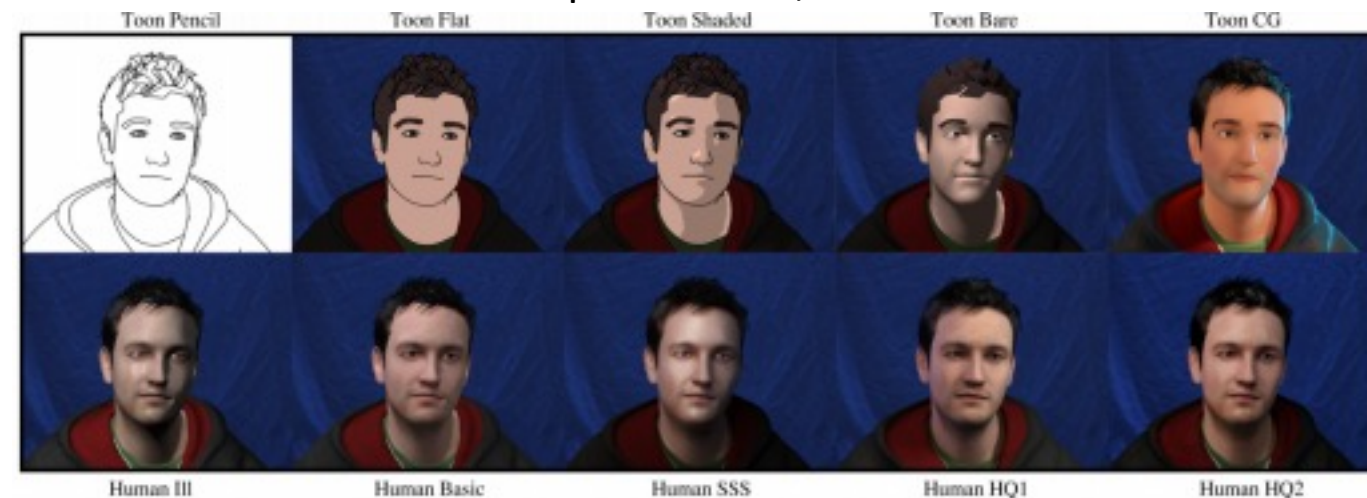
For automatic SST to be **adapted and accepted by the individual**, a detailed investigation is necessary
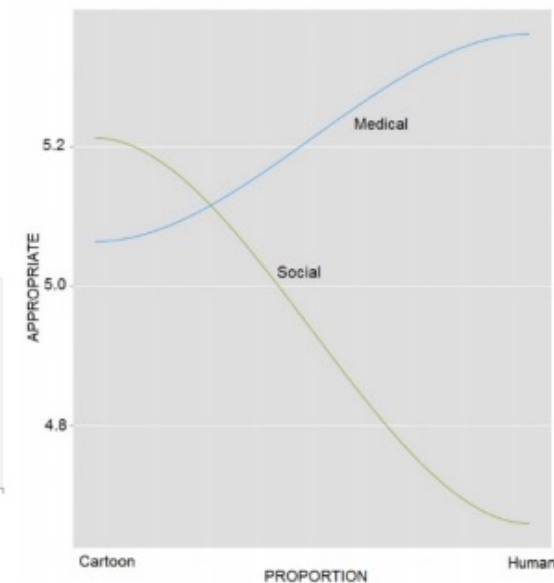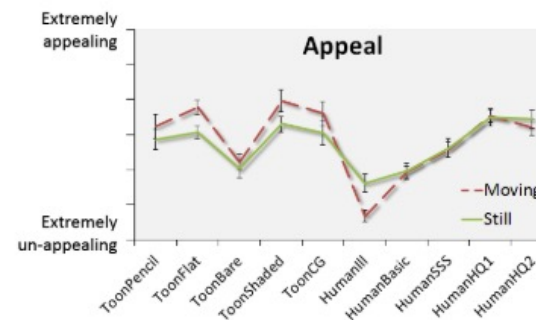
Prior studies: agents acceptability

Effects on appearance, behavior, realism, and task seriousness
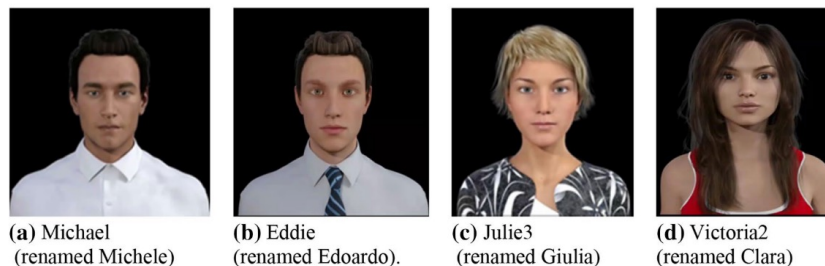
Esposito et al., 2019

McDonnell et al., 2012

Ring et al., 2014

The purpose of this research

1) To investigate virtual agent design in terms of automated SST

2) To investigate the relationship between likeability and an individual's characteristics (e.g., gender, age, autistic traits)

We prepared various virtual agent designs for training social skills and evaluated their acceptability, likeability, realism, familiarity, etc

Question items used in our study

Acceptability as a social skills trainer

Acceptability as a listener
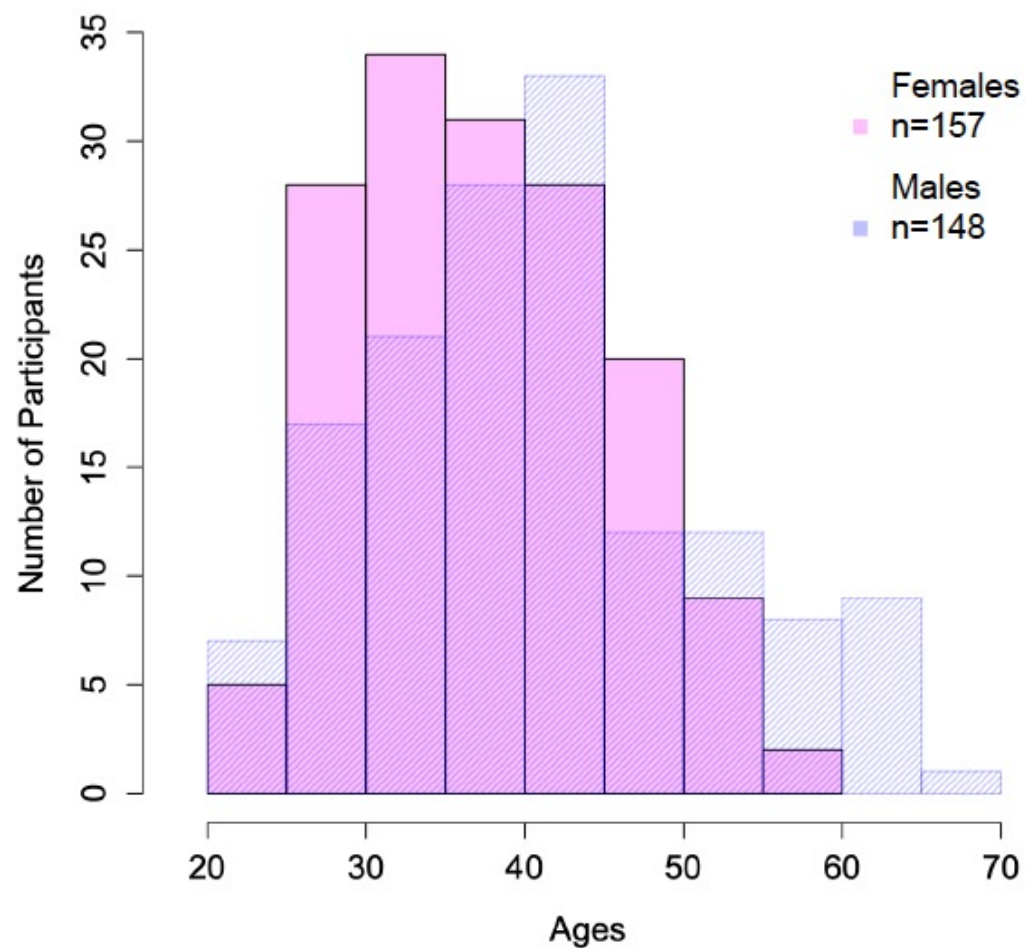
Realism

Familiarity

Trustworthiness

Eeriness

Likeability of the face, eyes, perceived ages, voice, clothes, and overall

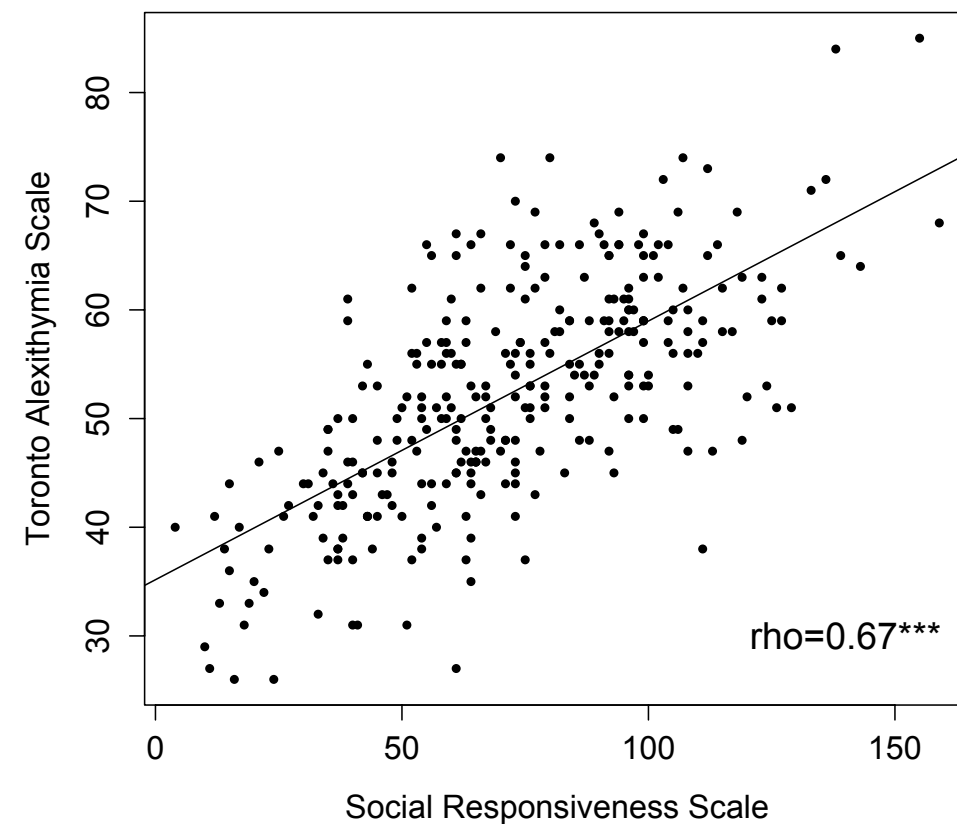Ratings by 5-point Likert scale (1: I don't think so at all, 5: I think so very much)

Compared by the Kruskal-Wallis test and the Wilcoxon signed-rank test

Participants profile

Crowd workers (total n=913、Crowdworkers)

Acceptability
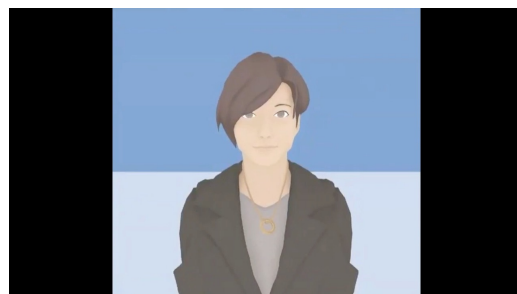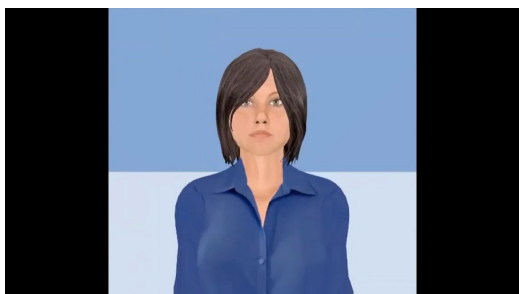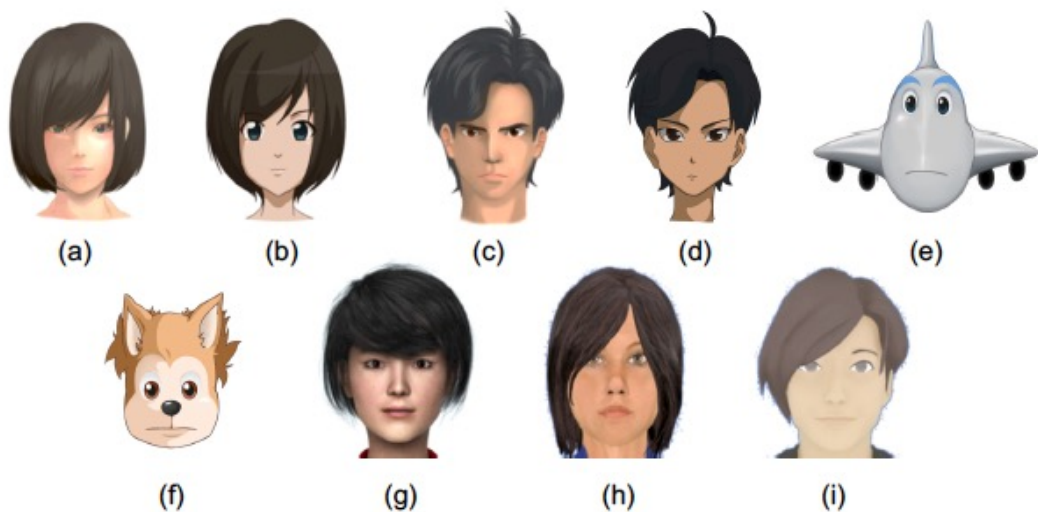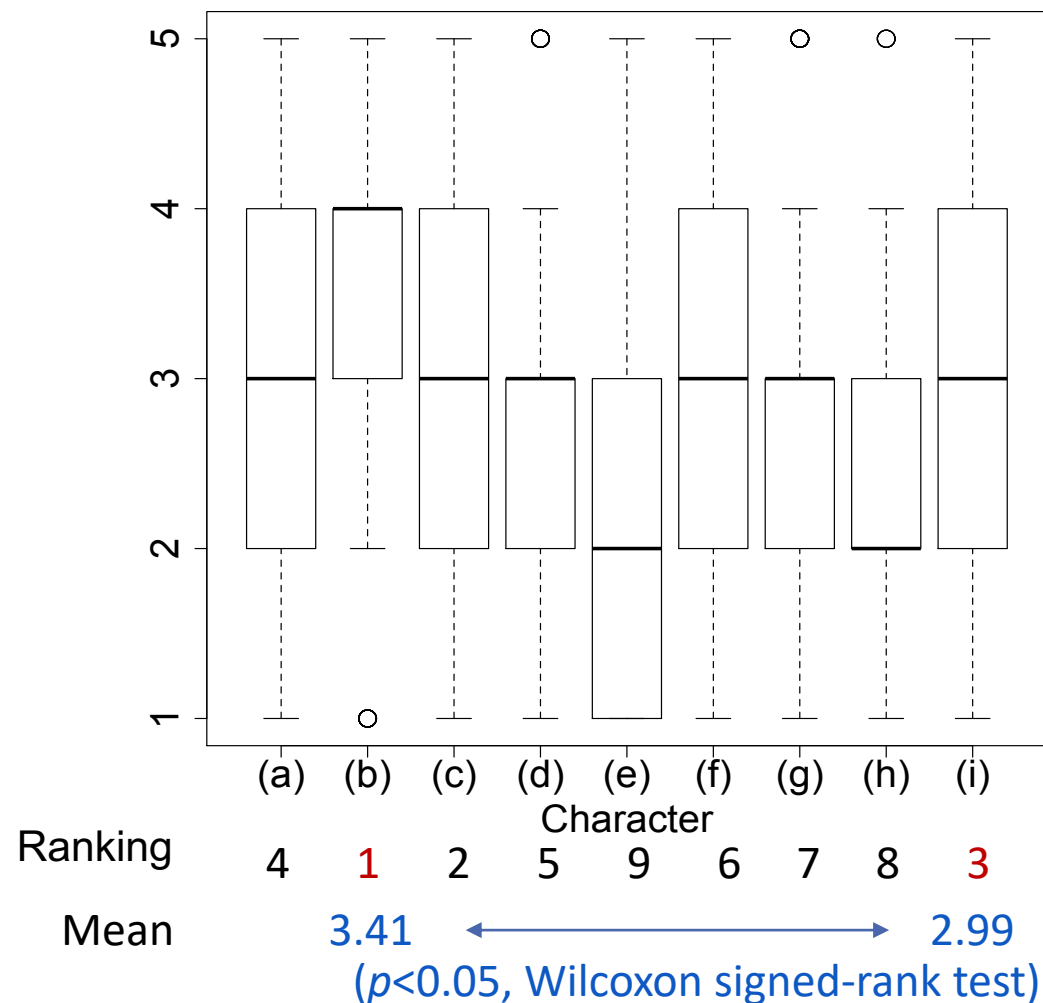
Utterance: "Hello, let's practice communication together"
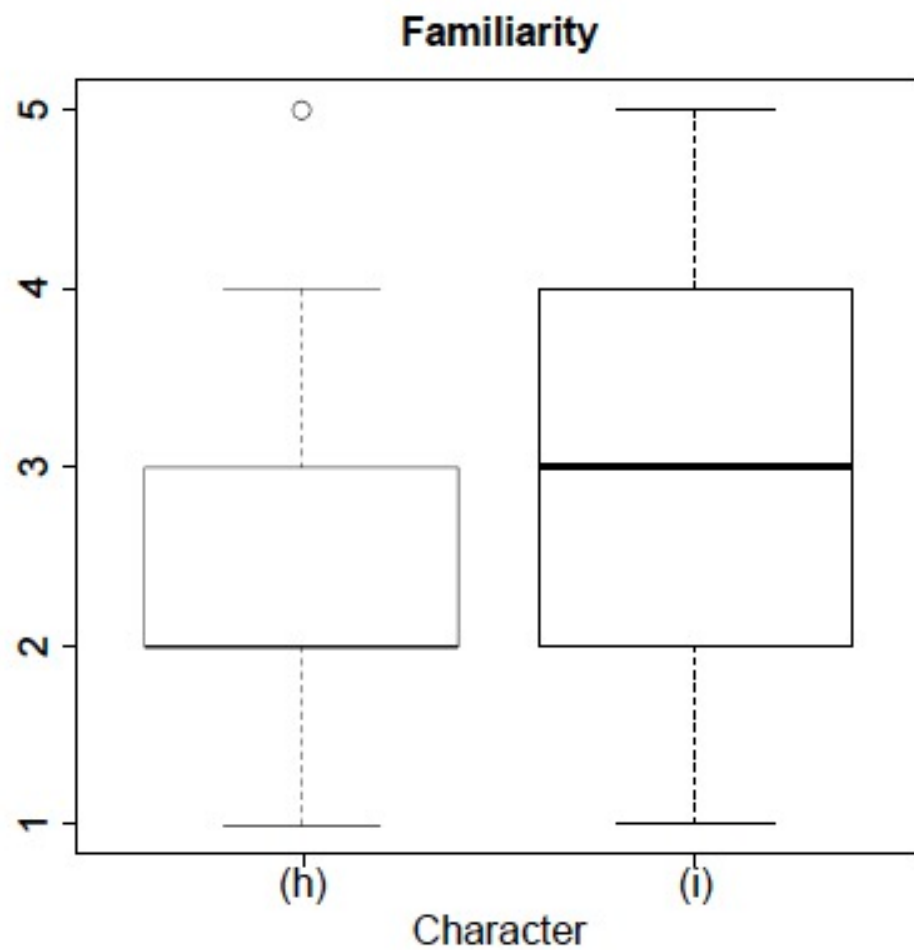

Acceptability as a Trainer

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Ranking	4	1	2	5	9	6	7	8	3

Mean   3.41 ←――――――――――→ 2.99
(*p*<0.05, Wilcoxon signed-rank test)

TAPAS

Training Adapted Personalised Affective
Social Skills with Cultural Virtual Agents

ANR AGENCE NATIONALE DE LA RECHERCHE

JST Japan Science and Technology Agency

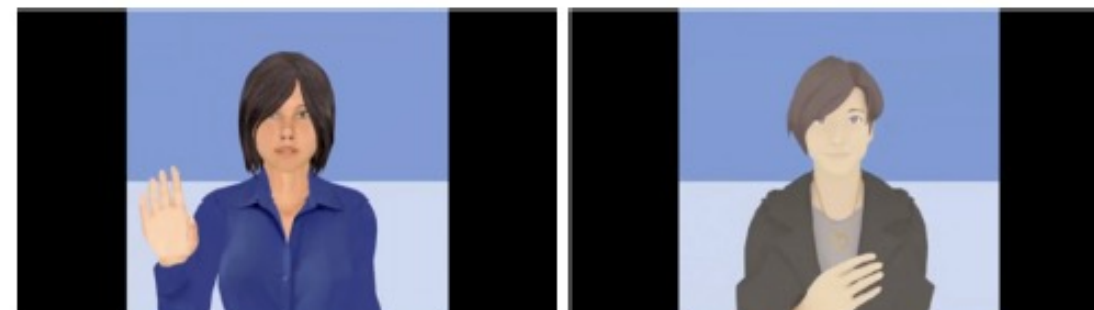CREST
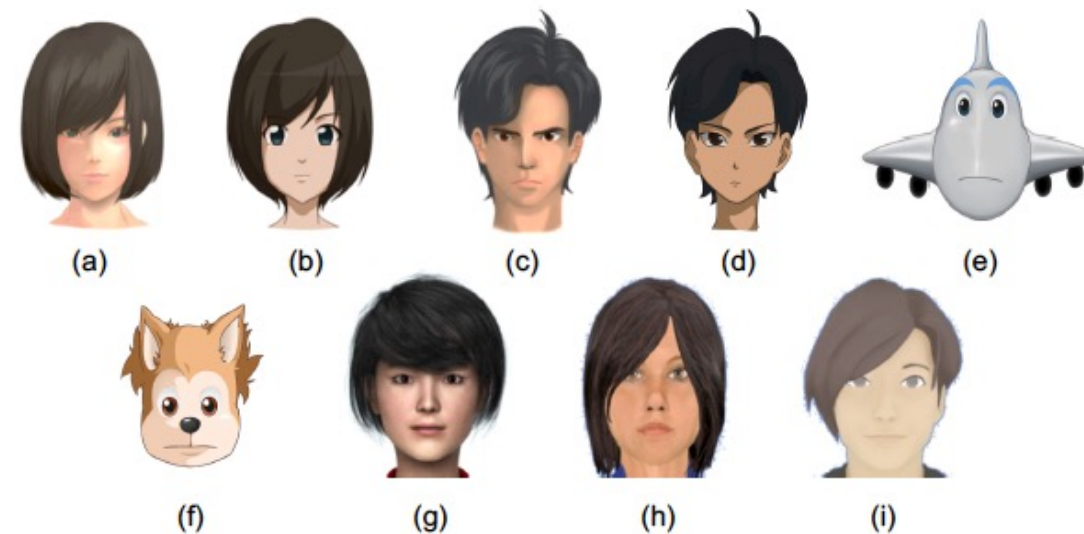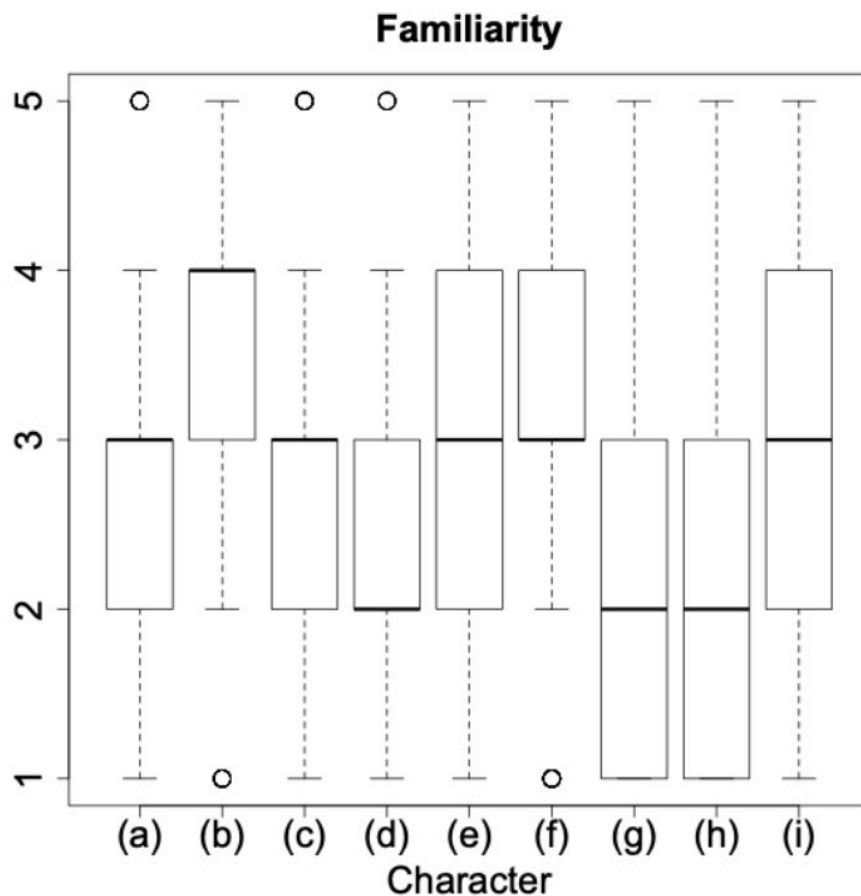
Ratings of images

p<0.05, comparison of all images
(Kruskal-Wallis test)

Ratings of movies

Familiarity

$p<0.05$

Autistic traits and likeability

Difference between the SRS levels (cut-off: 81) for character (g)

Likeability

High SRS   Low SRS

$p<0.05$
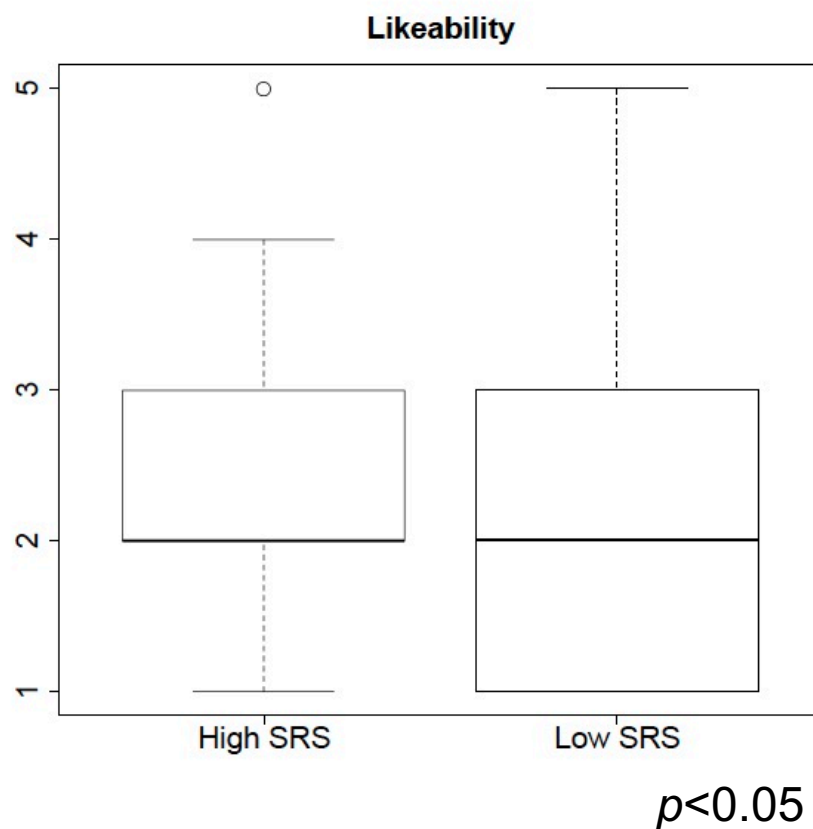
(g)

Summary

Our participants liked an anime-type female character

The group with a high autistic trait showed a high rating for realistic virtual agent

Future work includes:
- Cultural difference (eeriness)
- Applying to other domains such as cognitive behavioral therapy