Workgroup of Artificial Social Agent Evaluation Instrument

Study 7: Construct Validity: Convergent and Discriminant Validity analysis

13 July 2022

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This documents reports the final step of validation studies of a questionnaire for evaluating human interaction with an artificial social agent. After construct validity analysis, specifically convergent and discriminant validity of initial 131 instrument items that involved 532 crowd-workers who were asked to rate human interaction with 14 different artificial social agents (ASAs), the selection of 90 items was resulted for inclusion of the long version of the ASA questionnaire. In addition, a representative item of each construct or dimension was select to create a 24-item short version of the ASA questionnaire. Whereas the long version is suitable for a comprehensive evaluation of human-ASA interaction, the short version allows quick analysis and description of the interaction with the ASA. To support reporting ASA questionnaire results, we also put forward an ASA chart. The chart provides a quick overview of agent profile.

In the Artificial Social Agent Evaluation Instrument workgroup, scientists from the Intelligent Virtual Agent community are collaborating to create a validated community driven standardized questionnaire instrument for evaluating human interaction with artificial social agents. This instrument can help researchers to make claims about people's perceptions, attitudes, and beliefs towards their agent. It allows agents to be compared across user studies, and importantly, it helps in replicating our scientific findings. This is essential for the community if we want to make valid claims about the impact that our social agents can have in domains such as health, entertainment, and education.

Table of Content

Revision History

Date	Version	Description	Author
17 July 2021	1.0	Initial documentation	Siska Fitrianie
13 May 2022	1.1	Draft	Siska Fitrianie
13 July 2022	1.2	Finalization	Siska Fitrianie

Background

This study is conducted in the research into creating a validated standardized questionnaire instrument to evaluate human interaction with a social agent. The research is conducted within the Artificial Social Agent Evaluation Instrument workgroup involving researchers around the world. The evaluation instrument can help researchers to make claims about people's perceptions, attitude and beliefs towards their agent. Examples of this agent can be animated conversational characters, robots and conversational (chat) programs. The instrument will consist of measurements (= constructs) that allow agents to be compared across user studies, and importantly, they help in replicating scientific findings. Our previous study has resulted 131 expert-generated, content-validated and reliability analyzed questionnaire items that correspond to 29 measurement constructs/dimensions [1,2,3,4,5,6] (see Appendix A). The questionnaires items are statement with an accompanying rating scale. Note: no questionnaire items for 6.b. Agent's Personality Types, 18.2 Agent's Emotional Intelligence Type and 18.4 User's Emotion Type.

To ensure variability among observed items in the constructs and to gain more information about the interdependencies between these items, we will conduct validation studies. The present study, we determine the final item set by examining construct validity of the item set. Here we examine whether related items operate in a consistent manner (construct validity), specifically, if an item converge with the items of the same construct or dimension (convergent validity) and diverge from items of other constructs or dimensions (discriminate validity)[7]. For this examination, we performed factor analyses to explore the theoretical factor structure of the constructs and their dimensions by analyzing their internal consistency and the underlying relationships between these constructs (and dimensions) and between items. The analysis was based on data obtained from crowd-workers (n = 532); each rated one of fourteen different ASAs. The result of the analysis allowed us to select items that both converge and discriminate for the long version of the questionnaire, i.e. the Artificial-Social-Agent (ASA) Questionnaire. Based on this final set, we selected representative items of constructs or dimensions for a short version for a quick and simple evaluation of an ASA and depicted on a web chart for visualizing the evaluation.

Research Questions

Can we confirm the questionnaire items for evaluating human interaction with ASAs ?

This study is approved by the Human research Ethics Committee TU Delft date 18-12-2020[8] and registered at Open Science Framework[9].

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[1] Reported in Siska Fitrianie, Merijn Bruijnes, and Willem-Paul Brinkman. 2020. Technical Report: Study 2 - Define Construct, No. ASAEvalInst-TR#03, Date: 25-January-2020.

[2] Published in Siska Fitrianie, Merijn Bruijnes, Deborah Richards, Andrea Bönsch, and Willem-Paul Brinkman. 2020. The 19 Unifying Questionnaire Constructs of Artificial Social Agents: An IVA Community Analysis. In Proc. of IVA'20. ACM NY USA.

[3] Reported in Siska Fitrianie, Merijn Bruijnes, and Willem-Paul Brinkman. 2020. Technical Report: Study 3 - Collect Questionnaire Items, No. ASAEvalInst-TR#04, Date: 01-March-2020. (.pdf).

[4] Reported in Siska Fitrianie, Merijn Bruijnes, and Willem-Paul Brinkman. 2020.Technical Report: Study 4 - Towards Defining Questionnaire Items: A List of Potential Candidate Questionnaire Items, No. ASAEvalInst-TR#05 v1.01, Date: 03-July-2020. (.pdf).

[5] Reported in Siska Fitrianie, Merijn Bruijnes, and Willem-Paul Brinkman. 2021. Technical Report: Study 6 - Analyzing Reliability of Questionnaire Items, No.ASAEvalInst-TR#07, Date: 17-June-2021. (.pdf).

[6] Siska Fitrianie, Merijn Bruijnes, Fengxiang Li, and Willem-Paul Brinkman. 2021a. Questionnaire Items for Evaluating Artificial Social Agents - Expert Generated, Content Validated and Reliability Analysed. In Proceedings of the 21th ACM International Conference on Intelligent Virtual Agents (IVA '21). Association for Computing Machinery, New York, NY, USA, 84–86. DOI:https://doi.org/10.1145/3472306.3478341

[7] Neuman W. Lawrence. 2014. Social Research Methods: Qualitative and Quantitative Approaches (7 ed.). Pearson Education Limited, Harlow.

[8] Data Management Plan, Human Research Ethics Committee TU Delft's checklist and approval.

[9] Open-Ended Pre-registration

Method

Participants

We consider the rules-of-thumb for the number of participants for factor analysis, which vary from 4 to 10 subjects per variable[10] (resulting in it minimum of 524 participants). In addition, we conducted a simulation-run based on the theoretical model (of constructs) to see when it could converge. Based on analyses of simulation-runs with 131 items this results in a minimum of 406 participants (that complete the survey). However, to ensure equal distribution of participants over each of the agents, we aim for 532 participants (14 agents * 38 participants). Should the model not be able to converge, more participants might be recruited (as funds permit).

Table 1 Participants

#Pilot study submissions	**10**
#Submissions	567
#Rejected due to video check	33
Reason failed video check:	
• **The video is NOT displayed**	0
• **The video is displayed but it is not playing**	32
• **The video is displayed but there is no sound**	1
Check Score	M=14.83, SD=0.91, range [1 .. 15]
#Rejected due to attention check	2
#Accepted	532

We recruited 567 crowd-workers (see Table 1) from an online crowdsourcing platform and 532 (95.8%) were included in the analysis based on two criteria: (1) having a compatible internet browser with the video format used in the study; and (2) correctly answering at least 12 out of 15 attention check questions. 33 participants failed the video check, and only 2 participants failed the attention check (i.e., the number of correctly answered-attention-questions: M=14.83, SD=.91, range [1 .. 15]). Participants were paid for their time according to the crowd platform's regulations.

Materials

We decided to use videos of human-ASA interactions as stimuli material, which allowed us to collect data of interaction across a series of ASA. Essential for establishing the set of ASAs was that it would create an opportunity for the ratings across ASAs to be, to a degree, non-related on constructs and dimensions. We wanted to avoid a situation where, for example, very likeable ASAs always had a human-like appearance, thereby providing no opportunity to examine discriminant validity between items of the constructs agent's likeability and human-like appearance. Therefore, prior to the current study, nine experts were involved in collecting 56 (30-second) video clips corresponding to 56 different agents. The agents vary on types (e.g., robots, chatbots, voice assistants, virtual agents, and real animals), domains (e.g., education, healthcare, personal assistant, and entertainment), environments (i.e., reality, mixed reality, virtual reality, and augmented reality), and development stages (i.e., high or low fidelity agents, partial or full functionality of the system). Some videos show conversations between agents and users, while other videos show how users use agents to help them with some tasks. The videos and related documents (including discussion notes) are online available[11]

As we mentioned before, we set out to select a set of agents that more-or-less cover the range of the constructs we intend to measure, as we need variability among observed items in the constructs, while at the same time allow some degree of independence between the rating of items from different constructs and

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[10] de Vet H.C.W., Adèr H.J., Terwee C.B., and Pouwer F.. 2005.
Are factor analytical techniques used appropriately in the validation of health status questionnaires? A systematic review on the quality of factor analysis of the SF-36. Quality of Life Research. 14: 1203–1218. https://doi.org/10.1007/s11136-004-5742-3

[11] Siska Fitrianie, Merijn Bruijnes, and Willem-Paul Brinkman. 2020. Technical Report: Study 5 - Collecting Prototypical Artificial Social Agents, No.ASAEvalInst-TR#06, Date: 11-December-2020.

dimensions. Therefore, we included agents that ranged relatively from the highest to the lowest score on the different constructs. To determine this, three experts predicted the ratings of each agent on each construct (high, medium, or low) and used the result to calculate the correlation between agents. We selected a set of agents (*n*=14, 13 ASAs: DeepBlue, Siri, Sim Sensei, Sarah (Soul Machines), Chappie, iCAT, Marcus (Terminator), POPPY, AIBO, HAL 9000, NAO, Amy, and Furby, and one dog) that had the least correlation with each other and across the constructs to ensure diversity agent-rates across the constructs.

Instructions
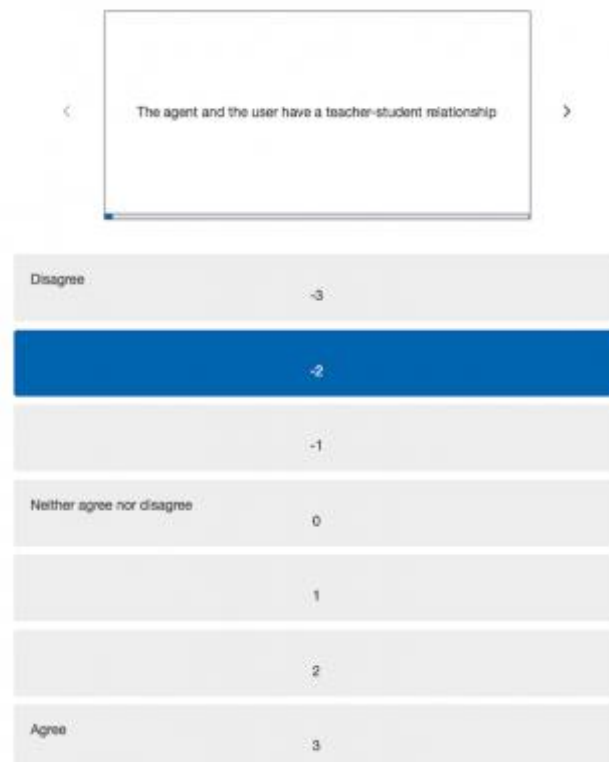
In this study, you will rate an interaction between an "artificial social agent" and its human users, which is displayed in a 30 second video clip. First, you will be asked to watch the movie until it is completed. Then, you will be given a list of statements about the interaction between the agent and its users.

Prior to the real experiment, we will test the compatibility of your internet browser with our video. If you are able to watch the given check-movie, then you can start the experiment and the real movie will be displayed automatically.

There are 146 statements in total. Please read each one and indicate to what extent you agree or disagree with each statement based on what you have seen in the video. To refresh your memory, you can always re-watch the video at the top of the page.

There are 15 attention check questions included. If you fail multiple attention checks, your submission might be rejected and you might not get paid (in accordance with the Prolific rules). Don't worry, if you read carefully you will be fine!

The picture below shows an example of how to indicate your response:

The agent and the user have a teacher-student relationship

Disagree
-3

-2

-1

Neither agree nor disagree
0

1

2

Agree
3

→

Figure 1 Instruction for the participants. Note: the statement in this figure is not part of the real questionnaire.

To gather the data, we used Qualtrics and the online crowd sourcing platform Prolific Academic. Further, data processing and analysis was conducted using R (v4.0.4) with factor analysis libraries from the package pscyh (v2.1.3) and lavaan (v0.6-8). Analyses scripts and data are online available[12].

The ASA questionnaire items have a 7-point scale on an interval between 'disagree' (value of -3) to 'agree' (value of 3) with the middle point (value of 0) for 'neither agree nor disagree'. Figure 1 shows how the questionnaire items are presented to the participants. They are formulated as a singular statement in such a way they can easily be setup so that they can be answered by a person who interacted with an agent (i.e., first person point of view) and by someone who observed an interaction with an agent (i.e., third point of view).

Study Design and Procedure

We asked a participant to rate (a video of) an interaction between a human user and an ASA using the questionnaire. The human-ASA interaction was displayed in a 30-second video clip, which was randomly selected from the fourteen videos of the fourteen selected agents. All participants received the same 131 questionnaire items plus 15 attention check questions in random order. Particularly, the items were setup to the third point of view, e.g., "The user likes <the agent>" instead of "I like <the agent>", where <the agent> was replaced with the name of the agent that the participant viewed. Appendix B Initial Questionnaire Items column 'Q 3rd POV' presents the 131 questionnaire items used in this study.

All participants had to determine the compatibility of their internet browser with the video format (Appendix C Video Check and Attention Check Questions shows the instruction for the video compatibility check). Only participants who met this criteria could continue to the study. Participants read the instructions (Figure 1) and gave their online informed consent. Then, after watching the video they rated the interaction based on what they have seen in the video. The first viewing of the video was enforced by preventing participants to advance to the next page for the duration of the video, and they could re-watch the video at any time during the remainder of the experiment. Participants had to answer all the 131 items and fifteen attention check questions before they could submit their answers. Appendix C Video Check and Attention Check Questions presents the 15 questions used for the attention check.

Data Preparation and Analysis Plan

A goal of the analyses was to:
  (i)   lessen the number of items that correlate with other constructs/dimensions;
  (ii)   balance the coverage within each construct/dimension and the discriminatory power between constructs/dimensions.

Prior to the analysis, the observed data was standardized to allow us to compare the ratings between different ASAs. For this, we calculated the mean and the standard deviation per item per ASA (see the R script in A). Then, for each observed value of an item, we subtracted the mean and divided by the standard deviation based on its corresponding ASA.

In the following sections, we describe how we determined the final item set and the short version of the ASA questionnaire, and we suggest how to present the insights in an ASA chart.

The Final Questionnaire Items

Running an admissible (i.e., no negative variances are found and no a non-positive definite matrix returned) second-order analysis based on one theoretically grounded conceptual model proved impossible due to the model complexity[13]. To solve this problem, we broke up the theoretical model into smaller models. We first created models containing overlapping (with strong co-linearity) constructs/dimensions to create `worst-case scenarios' (i.e., if a smaller model is able to resolve these closely related constructs, the full model is likely also able to resolve them). To do this, we took two sequential analyses (ovals in Figure 2):

[12] Siska Fitrianie, Merijn Bruijnes, Fengxiang Li, Amal Abdulrahman, Willem-Paul Brinkman. 2022. Data and analysis underlying the research into the Artificial-Social-Agent Questionnaire: Establishing the long and short questionnaire versions. http:// https://doi.org/10.4121/19758436 4TU.ResearchData.

[13] Niels J. Blunch. 2013. Introduction to Structural Equation Modeling using IBM SPSS Statistics and AMOS (2nd eds. ed.). SAGE, City Road, London. https: //doi.org/10.4135/9781526402257

1. Convergent validity analysis.
   In this step, we analyze individual constructs' convergence. A Confirmatory Factor Analysis (CFA) was carried out for each construct in isolation to verify the internal consistency of the construct and, for those that have more than one dimensions, to reduce the co-linearity between dimensions.
2. Discriminant validity analysis:
   In this step, we analyze constructs in groups. The constructs (and their dimensions) were grouped into smaller models based on grouping established with an Exploratory Factor Analysis (EFA) on the construct and dimensions scores (i.e. the predicted latent scores derived from the CFA analysis of individual constructs in the convergent validity analysis). Then, these models were analyzed with a CFA. Here, we removed items that had a low discriminatory power between constructs. The remaining items are the final item set of the questionnaire. However, note that discriminant validity is relevant from a statistical point of view, yet due to the expert perspective in our previous work, content validity took precedent. In other words, we optimized for discriminant validity but accepted correlations between constructs[14]: experts are interested in constructs that `apparently' overlap.
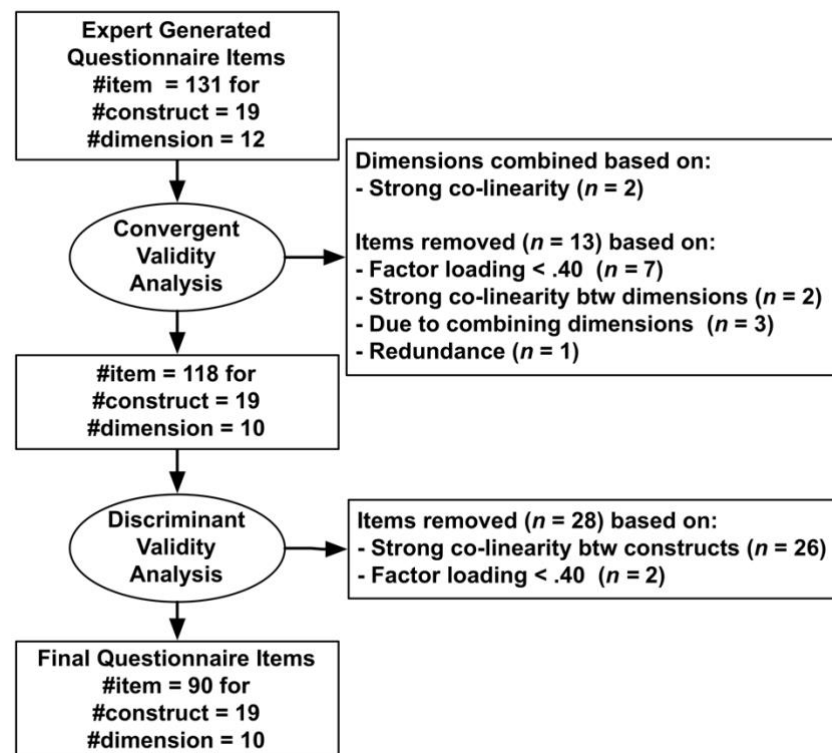
Figure 2 Analysis flow

We carried out all factor analyses via the maximum likelihood method and the Promax rotation method, which allows factors to be correlated. Note that here, all dimensions are treated as separate constructs, as dimensions often strongly correlate with other dimensions of their construct. We observed the model's Comparative Fit Index (CFI) value as an indicator of good model fit. The CFI has a range of 0 to 1 and values closer to 1 are a sign of a better fit[15].

In each analysis, we aimed to reduce the number of items in constructs (and dimensions), with a minimum of at least three remaining items. An item could be removed when it had:

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[14] Mikko Rönkkö and Eunseong Cho. 2022. An Updated Guideline for Assessing Discriminant Validity. Organizational Research Methods 25, 1 (2022), 6–14. https://doi.org/10.1177/1094428120968614

[15] Niels J. Blunch. 2013. Introduction to Structural Equation Modeling using IBM SPSS Statistics and AMOS (2nd eds. ed.). SAGE, City Road, London. https://doi.org/10.4135/9781526402257

- a low standardized factor load score. The items are expected to load highly on their intended construct (or dimension) and low on others (i.e., no cross-loading). A priori, a factor loading smaller than .40 was established[16] as unacceptable for this study; or
- a high modification index with other constructs/dimensions or with another item from another construct/dimension. Modification indices suggest that additional links in the model structure would improve the Chi-square of model fit[17]. In our case, a modification index higher than 3.841 (i.e., 0.05 critical value for Chi-square difference test with one degree of freedom[18] of an item associated with another construct/dimension indicates that the item has low discriminatory power for its intended construct (or dimension).

The model (where the item was removed) still had to achieve convergence and be admissible; and the removal of the item should result in a higher CFI score. Additionally, links between two items in the same construct/dimension based on modification indices were considered and added to the model for improving the model fit. These processes were repeated until:

(i)   all models achieved convergence, were admissible, and had a good fit (with CFI >= .95); and

(ii)   no overlapping constructs/dimensions in the models.

An item was removed according to these rules and according to the decision of four judges who examined whether or not it made theoretical sense to remove or retain the item. The judges' discussion continued until unanimous agreement was reached.

We aimed to select one representative item from each construct (and dimension) to create a short version of the ASA questionnaire. A representative item should:

a.   have a high standardized factor loading (preferably the highest), and

b.   be able to theoretically represent its intended construct/dimension.

To assess to what extent the short version could be a substitute for the long version, we analyzed the correlation and absolute mean difference between the long and short version of the questionnaire based on the raw observed data (n = 532). Here, for the long version, we used the mean of item scores of each construct/dimension. Finally, we compared whether EFAs of the short and long questionnaires would result in a similar grouping of constructs/dimensions.

ASA Chart

To present the results of the ASA questionnaire in a standardized and easy to view manner, we propose the ASA-(web) chart. In the web chart, each of the constructs/dimensions is displayed on a semi-circle radiating outward. We organized them on the chart in groups following the factorial groupings used in the discriminant validity analysis. Within each group, we used the correlation scores between constructs/dimensions as a reference to place them next to each other. The higher correlation score the closer they were set with each other.

Results

Data collected in this study is stored in result_all.cvs (see Table 2 for its columns' description). Appendix D Data Description presents the statistical description of the dataset.

Table 2 result_all.csv tables columns description

COLUMN	DESCRIPTION	VALUE
PRID	Participant ID	

[16] Eva Knekta, Christopher Runyon, and Sarah Eddy. 2019. One Size Doesn't Fit All: Using Factor Analysis to Gather Validity Evidence When Using Surveys in Your Research. CBE life sciences education 18, 1 (2019), rm1. https://doi.org/10. 1187/cbe.18- 04- 0064

[17] Yves Rosseel. 2012. Lavaan: An R Package for Structural Equation Modeling. JournalofStatisticalSoftware48,2(2012),1–36. http://www.jstatsoft.org/v48/i02/

[18] Niels J. Blunch. 2013. Introduction to Structural Equation Modeling using IBM SPSS Statistics and AMOS (2nd eds. ed.). SAGE, City Road, London. https: //doi.org/10.4135/9781526402257

COLUMN	DESCRIPTION	VALUE
STARTDATE	Datetime of the participant starting filling in the questionnaire	YYYY-MM-DD hh:mm:ss
ENDDATE	Datetime of the participant ending filling in the questionnaire	YYYY-MM-DD hh:mm:ss
RECORDDATE	Datetime of the questionnaire recording the participant's data	YYYY-MM-DD hh:mm:ss
GROUP	One of 14 group IDs of the participant	DeepBlue, Siri, Sim Sensei, Sarah, Chappie, Dog, iCAT, Marcus, POPPY, AIBO, HAL 9000, NAO, Amy, and Furby.
CHECKSCORE	The number of correct attention checks	[0..15]
C01D01Q?? .. C19D00Q??	The questionnaire items and the participant's answers Items with ID "R_C??D??Q??" denotes the reverse-scoring items	[-3 .. 3]

Analysis

Participants (*n* = 532) took on average 19.5 minutes (SD = 8) to complete the experiment (including reading the instruction, filling in their consent, and (re)watching the video if needed). The samples of 131 questionnaire items were then standardized, with on average 38 samples (SD = 1.24, range [36 .. 39]) for each of the 14 ASAs (Table 3). Appendix D Data Description presents the statistical description of each ASA's dataset. This section presents the results of the analyses. First, we describe the validation process, then we present the final questionnaire items, afterward the short version, and finally how to create the ASA chart.

Table 3 Samples per ASA

	ASA	N	M	SD	MIN	MAX
1.	AIBO	39	.79	1.94	-3	3
2.	AMY	39	.33	1.76	-3	3
3.	CHAPPIE	38	.75	1.69	-3	3
4.	DEEPBLUE	39	.25	2.14	-3	3
5.	DOG	39	1.19	1.81	-3	3
6.	FURBY	39	.54	2.03	-3	3
7.	HAL 9000	37	.56	1.93	-3	3
8.	iCAT	36	-.09	2.00	-3	3
9.	NAO	36	.91	1.78	-3	3
10.	POPPY	38	.54	1.83	-3	3
11.	SIM SENSEI	38	.65	1.71	-3	3
12.	SIRI	39	.50	2.01	-3	3
13.	SARAH (SOUL MACHINES)	39	.85	1.72	-3	3
14.	MARCUS (TERMINATOR)	36	.96	1.63	-3	3

Validity Analysis of Constructs/Dimensions

Preliminary convergent validity analysis of the individual constructs revealed that the dimensions, in three out of four constructs that have dimensions, might not necessarily form one construct (i.e., statistically non-admissible models). To address this, the judges discussed whether to combine such dimensions or to treat them as individual constructs during the analyses. Firstly, the judges decided to combine two dimensions in the construct Performance (i.e., Agent's Performance and User's Performance), because the performance of `the team' is dependent on the actions of both parties. Secondly, in the construct User-Agent Alliance, the judges agreed to combine the dimensions Task Alliance and Social Alliance, as performing a task in a social setting means both are relevant for the user-agent alliance. Thirdly, the judges decided to analyze two dimensions in the construct Emotional Experience (i.e User's Emotion Presence and Agent's Emotional

Intelligent Presence) as separate constructs because the agent's and user's emotion presence are independent. Finally, these (theoretically based) decisions allowed us to run the statistical models.

Convergent Validity Analysis

Analyzing individual constructs' convergence aiming for three items per construct, resulted in the removal of 13 (9.9%) out of 131 items. Appendix F The CFA Results of Convergent Validity Analysis shows the resulted CFAs for each individual construct in this convergent validity analysis including reasoning of the removal of items (i.e. resulted from discussion among the judges).
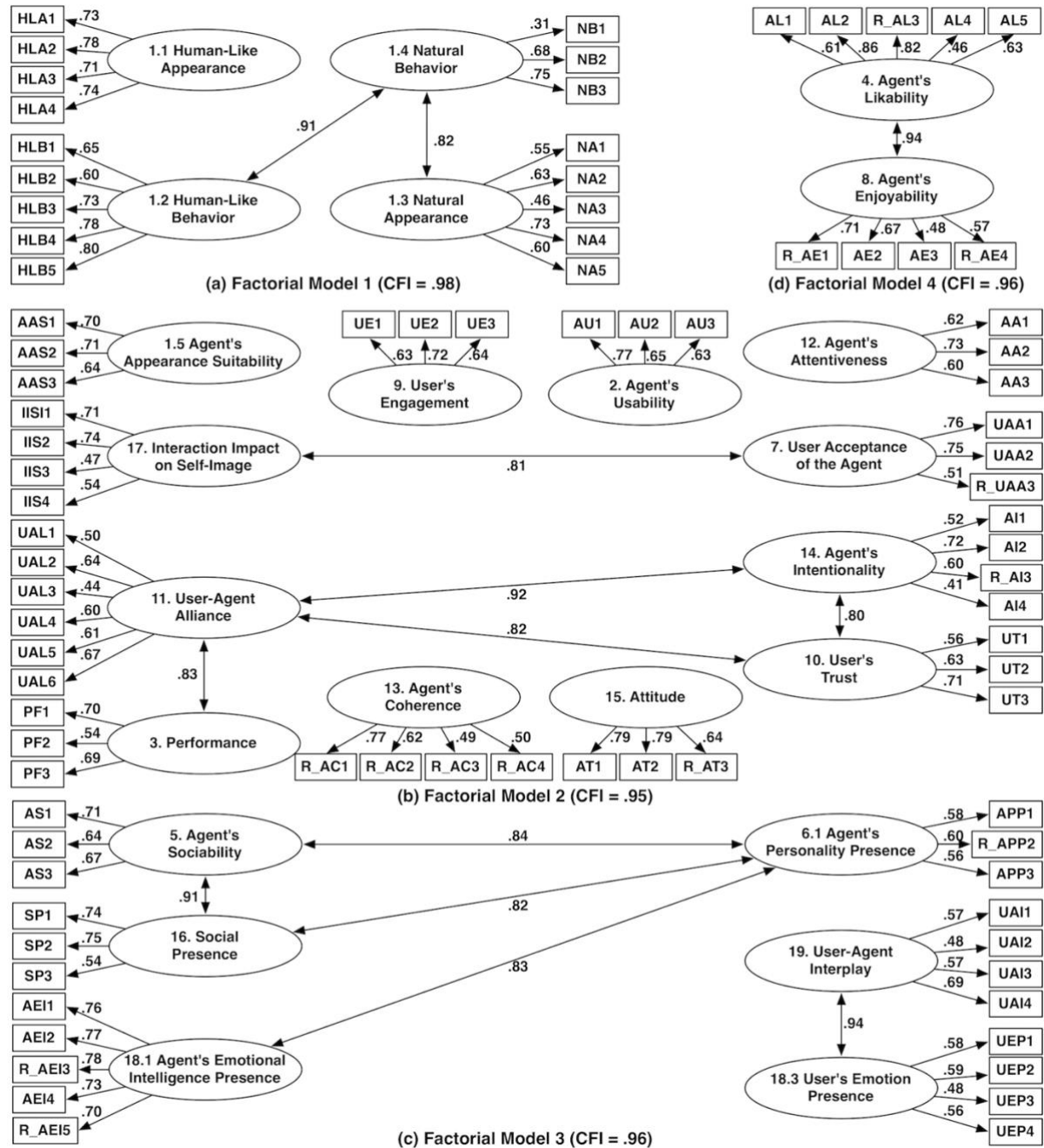
Figure 3 Confirmatory factor analysis diagrams. Links between constructs with correlation $\rho <= .8$ are shown. Note: The construct/dimension numbering: <construct no>.<dimension no> and the item reference IDs following Fitrianie et al. 2022[19].

[19] Siska Fitrianie, Merijn Bruijnes, Fengxiang Li, Amal Abdulrahman, and Willem-Paul Brinkman. 2022. Artificial Social Agent Questionnaire Instrument. https://doi.org/10.4121/19650846 4TU.ResearchData.

As illustrated in Figure 2, seven items were removed due to their low factor loading (β < .40). Two items were dropped due to a high correlation between dimensions. Further, the combination of two dimensions in the construct Performance led to the removal of three items that measured *only* the user's performance as ASA researchers might be interested predominantly in the ASA's performance. Finally, one item was taken out from the Construct Personality because of similarity. The judges agreed to remove the redundant item with the lowest factor loading. This resulted in 118 (90.1%) convergent validated items in 19 constructs (CFI M=.99, SD=.02, range [.96 .. 1]).

Discriminant Validity Analysis

The discriminate validity analysis was carried out based on 24 constructs/dimensions resulting from the convergent validity analysis, i.e., 5 dimensions from the construct Agent's Believability, 2 dimensions from the construct Emotional Experience, and 17 individual constructs. The EFA resulted in five factors of constructs/dimensions (with standardized factor load ranging [.41 .. .97], see (see Appendix G The EFA Result of Predicted Latent Scores). Additionally, three constructs/dimensions were loaded on more than one factor (i.e., Natural Behavior, Human-Like Behavior, and Agent's Enjoyability). As mentioned before, however, these factors are **not** intended to have meaning. The factorial grouping allows us to analyze the constructs/dimensions in five separated models, compared to one large (non-admissible) model.

Table 4 The number of items per each construct/dimension reduced during the analysis

No.	Construct/ Dimension	Initial #Items	After Convergent Validity Analysis #Items	After Determinant Validity Analysis #Items
1	C01D01	5	4	4
2	C01D02	5	5	5
3	C01D03	5	5	5
4	C01D04	5	3	3
5	C01D05	5	5	3
6	C02	5	4	3
7	C03*	10	6	3
8	C04	5	5	5
9	C05	5	5	3
10	C06D01	5	4	3
11	C07	5	5	3
12	C08	5	5	4
13	C09	6	4	3
14	C10	5	5	3
15	C11*	10	10	6
16	C12	5	4	3
17	C13	5	5	4
18	C14	5	5	4
19	C15	5	5	3
20	C16	5	5	3
21	C17	5	5	4
22	C18D01	5	5	5
23	C18D03	5	4	4
24	C19	5	5	4
	Total	131	118	90

The discriminant validity analysis aiming for three items per construct (see Appendix H The CFA Results of Discriminant Validity Analysis), resulted in the removal of 28 items, i.e. due to a very low factor load (β < .40; 2 items), or due to a poor discriminatory power for their intended construct (MI>3.84; 26 items). This resulted in 90 validated items (i.e. 76.3% out of 118 items, see table 4) in 19 constructs (on average 4 items per construct/dimension, see Figure 3. The factor loadings of the items range from .31 to .86 (M=.64, SD=.11, Table 5). One item (in the dimension Natural Behavior in the construct Agent's Believability) has a factor loading of β < .40. However, the judges decided to not remove the item as the dimension already has three

items only. Additionally, the internal consistency test of the constructs/dimensions shows an average reliability of Cronbach's α = .72 (SD=.07, ranging from .60 to .86) (see Appendix I CFA and Reliability Analysis Results of Individual Measurement).

Table 5 Classification of items based on their factor loading score

FACTOR (COMPONENT) THRESHOLD[20]	ABS(FACTOR LOAD SCORE)	#ITEM *N* = 90
EXCELLENT	0.71 – 1.00	32 (35.6%)
VERY GOOD	0.63 – 0.70	21 (23.3 %)
GOOD	0.55 – 0.62	20 (22.2 %)
FAIR	0.45 – 0.54	14 (15.6 %)
POOR	0.32 – 0.44	2 (.02 %)
	< .32	1 (.01 %)

We investigated whether the removal of the items impacted the factorial models. The EFA was re-run and showed that there were now four factorial models, without constructs overlapping into multiple factors (see CFA Results of Four EFA-based Models or Table 6, left side). The CFI scores of the models (CFI range = [.95 .. .98], M=.96, SD=.01, see Figure 3) show a very good fit. This implies that our a priori expectation, the items are grouped as manifestations of their underlying construct/dimensions, matches with the observed data. In Figure 3, we only show correlations between constructs that are of marginal and moderate concern (ρ >= .8)[21]. The 90 items constitute the full/long ASA questionnaire[22].

Table 6 The grouping of 24 constructs/dimensions and 24 representative items into 4 factors

FACTOR	BASED ON 24 CONSTRUCTS	BASED ON 24 ITEMS
1	4 constructs: C01D01, C01D02, C01D03 and C01D04	6 constructs: C01D01, C01D02, C01D03 and C01D04, **C05**, **C11**, **C16**
2	12 constructs: C01D05, C02, C03, C07, C09, C10, **C11**, C12, C13, C14, C15 and C17	11 constructs: C01D05, C02, C03, C07, C09, C10, C12, C13, C14, C15 and C17
3	6 constructs: **C05**, C06D01, **C16**, C18D01, C18D03 and C19	4 constructs: C06D01, C18D01, C18D03 and C19
4	2 constructs: C04 and C08	2 constructs: C04 and C08

The Long Version of the ASA Questionnaire
Note:
- [R] refers to reverse-scoring questionnaire item
- ITEMREF follows the item reference id in Fitrianie et al., 2022[21]

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C01 Agent's Believability

Definition: The extent to which a user believes that the artefact is a social agent

C01D01 Human-Like Appearance

Definition: The extent to which a user believes that the social agent appears like a human

No.	ITEMID	ITEMREF	ITEMQ
1.	C01D01Q3	HLA1	[The agent]'s appearance is human
2.	C01D01Q10	HLA2	[The agent] has the appearance of a human
3.	C01D01Q13	HLA3	[The agent] has a human-like outside
4.	C01D01Q15	HLA4	[The agent]'s appearance makes me think of a human

C01D02 Human-Like Behavior

Definition: The extent to which a user believes that the social agent behaves like a human

No.	ITEMID	ITEMREF	ITEMQ
1.	C01D02Q7	HLB1	A human would behave like [the agent]
2.	C01D02Q10	HLB2	[The agent]'s manners is consistent with that of people
3.	C01D02Q0	HLB3	[The agent] behavior makes me think of human behavior
4.	C01D02Q1	HLB4	[The agent] behaves like a real person
5.	C01D02Q9	HLB5	[The agent] has a human-like manner

C01D03 Natural Appearance

Definition: The extent to which a user believes that the social agent's appearance could exist in or be derived from nature

No.	ITEMID	ITEMREF	ITEMQ
1.	C01D03Q7	NA1	[The agent] appears like something that could exist in nature
2.	C01D03Q9	NA2	[The agent] has a natural physique
3.	C01D03Q10	NA3	[The agent]'s resemblance has an organic origin
4.	C01D03Q11	NA4	[The agent] seems natural from its outward appearance
5.	C01D03Q12	NA5	How [the agent] is represented is realistic

C01D04 Natural Behavior

Definition: The extent to which a user believes that the social agent's behaviour could exist in or be derived from nature

No.	ITEMID	ITEMREF	ITEMQ
1.	C01D04Q0	NB1	[The agent] is alive
2.	C01D04Q13	NB2	[The agent] acts naturally
3.	C01D04Q15	NB3	[The agent] reacts like a living organism

C01D05 Agent's Appearance Suitability

Definition: The extent to which the agent's appearance is suitable for its role

No.	ITEMID	ITEMREF	ITEMQ
1.	C01D05Q2	AAS1	[The agent]'s appearance is appropriate
2.	C01D05Q9	AAS2	[The agent]'s physique is suitable for its role
3.	C01D05Q0	AAS3	[The agent]'s appearance was suitable

C02 Agent's Usability

Definition: The extent to which a user believes that using an agent will be free from effort (future process)

No.	ITEMID	ITEMREF	ITEMQ
1.	C02D00Q1	AU1	[The agent] is easy to use

| 2. | C02D00Q2 | AU2 | Learning to work with [the agent] is easy |
| 3. | C02D00Q8 | AU3 | Learning how to communicate with [the agent] is quick |

C03 Performance
Definition: The extent to which a task was well performed (past performance)

No.	ITEMID	ITEMREF	ITEMQ
1.	C03D01Q7	PF1	[The agent] does its task well
2.	C03D01Q12	PF2	[The agent] does not hinder [me / the user]
3.	C03D02Q10	PF3	[I am / The user is] capable of succeeding with [the agent]

C04 Agent's Likeability
Definition: The agent's qualities that bring about a favourable regard

No.	ITEMID	ITEMREF	ITEMQ
1.	C04D00Q1	AL1	[The agent]'s appearance is pleasing
2.	C04D00Q10	AL2	I like [the agent]
3.	C04D00Q11	AL3	[R] I dislike [the agent]
4.	C04D00Q4	AL4	[The agent] is cooperative
5.	C04D00Q12	AL5	I want to hang out with [the agent]

C05 Agent's Sociability
Definition: The agent's quality or state of being sociable

No.	ITEMID	ITEMREF	ITEMQ
1.	C05D00Q6	AS1	[The agent] can easily mix socially
2.	C05D00Q7	AS2	It is easy to mingle with [the agent]
3.	C05D00Q1	AS3	[The agent] interacts socially with [me / the user]

C06 Agent's Personality
Definition: The combination of characteristics or qualities that form an individual's distinctive character

C06D01 Agent's Personality Presence
Definition: To what extent the user believes that the agent has a personality

No.	ITEMID	ITEMREF	ITEMQ
1.	C06D01Q1	APP1	[The agent] has a distinctive character
2.	C06D01Q6	APP2	[R] [The agent] is characterless
3.	C06D01Q11	APP3	[The agent] is an individual

C07 User Acceptance of the Agent
Definition: The willingness of the user to interact with the agent

No.	ITEMID	ITEMREF	ITEMQ
1.	C07D00Q0	UAA1	[I / The user] will use [the agent] again in the future
2.	C07D00Q11	UAA2	[I / The user] can see [myself / themselves] using [the agent] in the future
3.	C07D00Q15	UAA3	[R] [I oppose / The user opposes] further interaction with [the agent]

C08 Agent's Enjoyability
Definition: The extent to which a user finds interacting with the agent enjoyable

No.	ITEMID	ITEMREF	ITEMQ
1.	C08D00Q3	AE1	[R] [The agent] is boring
2.	C08D00Q4	AE2	It is interesting to interact with [the agent]

No.	ITEMID	ITEMREF	ITEMQ
3.	C08D00Q0	AE3	[I enjoy / The user enjoys] interacting with [the agent]
4.	C08D00Q9	AE4	[R] [The agent] is unpleasant to deal with

C09 User's Engagement

Definition: The extent to which the user feels involved in the interaction with the agent

No.	ITEMID	ITEMREF	ITEMQ
1.	C09D00Q4	UE1	[I / The user] was concentrated during the interaction with [the agent]
2.	C09D00Q10	UE2	The interaction captured [my / the user's] attention
3.	C09D00Q1	UE3	[I / The user] was alert during the interaction with [the agent]

C10 User's Trust

Definition: The extent to which a user believes in the reliability, truthfulness, and ability of the agent (for future interactions)

No.	ITEMID	ITEMREF	ITEMQ
1.	C10D00Q6	UT1	[The agent] always gives good advice
2.	C10D00Q16	UT2	[The agent] acts truthfully
3.	C10D00Q18	UT3	[I / The user] can rely on [the agent]

C11 User-Agent Alliance

Definition: The extent to which a beneficial association is formed

No.	ITEMID	ITEMREF	ITEMQ
1.	C11D01Q9	UAL1	[The agent] and [I / the user] have a strategic alliance
2.	C11D01Q10	UAL2	Collaborating with [the agent] is like a joint venture
3.	C11D01Q11	UAL3	[The agent] joins [me / the user] for mutual benefit
4.	C11D01Q14	UAL4	[The agent] can collaborate in a productive way
5.	C11D02Q4	UAL5	[The agent] and [I / the user] are in sync with each other
6.	C11D02Q7	UAL6	[The agent] understands [me / the user]

C12 Agent's Attentiveness

Definition: The extent to which the user believes that the agent is aware of and has attention for the user

No.	ITEMID	ITEMREF	ITEMQ
1.	C12D00Q0	AA1	[The agent] remains focused on [me / the user] throughout the interaction
2.	C12D00Q13	AA2	[The agent] is attentive
3.	C12D00Q1	AA3	[I / The user] receives [the agent]'s full attention throughout the interaction

C13 Agent's Coherence

Definition: The extent to which the agent is perceived as being logical and consistent

No.	ITEMID	ITEMREF	ITEMQ
1.	C13D00Q3	AC1	[R] [The agent]'s behavior does not make sense
2.	C13D00Q11	AC2	[R] [The agent]'s behavior is irrational
3.	C13D00Q6	AC3	[R] [The agent] is inconsistent
4.	C13D00Q15	AC4	[R] [The agent] appears confused

C14 Agent's Intentionality

Definition: The extent to which the agent is perceived as being deliberate and has deliberations

No.	ITEMID	ITEMREF	ITEMQ
1.	C14D00Q0	AI1	[The agent] acts intentionally

No.	ITEMID	ITEMREF	ITEMQ
2.	C14D00Q10	AI2	[The agent] knows what it is doing
3.	C14D00Q13	AI3	[R] [The agent] has no clue of what it is doing
4.	C14D00Q16	AI4	[The agent] can make its own decision

C15 Attitude

Definition: A favourable or unfavourable evaluation toward the interaction with the agent

No.	ITEMID	ITEMREF	ITEMQ
1.	C15D00Q10	AT1	[I see / The user sees] the interaction with [the agent] as something positive
2.	C15D00Q11	AT2	[I view / The user views] the interaction as something favorable
3.	C15D00Q15	AT3	[R] [I think / The user thinks] negatively of the interaction with [the agent]

C16 Social Presence

Definition: The degree to which the user perceives the presence of a social entity in the interaction

No.	ITEMID	ITEMREF	ITEMQ
1.	C16D00Q12	SP1	[The agent] has a social presence
2.	C16D00Q13	SP2	[The agent] is a social entity
3.	C16D00Q17	SP3	[I have / The user has] the same social presence as [the agent]

C17 Interaction Impact on Self-Image

Definition: How the user believes others perceive the user because of the interaction with the agent

No.	ITEMID	ITEMREF	ITEMQ
1.	C17D00Q2	IIS1	[My / The user's] friends would recommend [me / them] to use [the agent]
2.	C17D00Q3	IIS2	Others would encourage [me / the user] to use [the agent]
3.	C17D00Q9	IIS3	[The agent] makes [me / the user] look good
4.	C17D00Q10	IIS4	People would look favorably at [me / the user] because of [my / their] interaction with [the agent]

C18 Emotional Experience

Definition: A self-contained phenomenal experience. They are subjective, evaluative, and independent of the sensations, thoughts, or images evoking them

C18D01 Agent's Emotional Intelligence Presence

Definition: To what extent the user believes that the agent has an emotional experience and can convey its emotions

No.	ITEMID	ITEMREF	ITEMQ
1.	C18D01Q2	AEI1	[The agent] is emotional
2.	C18D01Q3	AEI2	[The agent] experiences emotions
3.	C18D01Q5	AEI3	[R] [The agent] is emotionless
4.	C18D01Q8	AEI4	[The agent] can express its feelings
5.	C18D01Q14	AEI5	[R] [The agent] cannot experience emotions

C18D03 User's Emotion Presence

Definition: To what extent the user believes that his/her emotional state is caused by the interaction or the agent

No.	ITEMID	ITEMREF	ITEMQ
1.	C18D03Q0	UEP1	[The agent]'s attitudes influences how [I feel / the user feels]
2.	C18D03Q1	UEP2	[I am / The user is] influenced by [the agent]'s moods

No.	ITEMID	ITEMREF	ITEMQ
3.	C18D03Q2	UEP3	The emotions [I feel / the user feels] during the interaction are caused by [the agent]
4.	C18D03Q12	UEP4	[My / The user's] interaction with [the agent] gives [me / them] an emotional sensation

C19 User-Agent Interplay

Definition: The extent to which the user and the agent have an effect on each other

No.	ITEMID	ITEMREF	ITEMQ
1.	C19D00Q7	UAI1	[My / The user's] emotions influence the mood of the interaction
2.	C19D00Q14	UAI2	[The agent] reciprocates [my / the user's] actions
3.	C19D00Q26	UAI3	[The agent]'s and [my / the user's] behaviors are in direct response to each other's behavior
4.	C19D00Q28	UAI4	[The agent]'s and [my / the user's] emotions change to what [we / they] do to each other

The Short Version of the ASA Questionnaire

The short version includes one representative item for each construct/dimension. Each representation item was determined based on the factor loading and the theoretical representation, which was decided by the four judges. Appendix J Four Judges Decision on the Highest Loading Items shows the selection process including the reasoning. These 24 representative items serve as the short version of the ASA questionnaire, see Table 7.

To cite:

Siska Fitrianie, Merijn Bruijnes, Fengxiang Li, Amal Abdulrahman, and Willem-Paul Brinkman. 2022b. The Artificial-Social-Agent Questionnaire: Establishing the long and short questionnaire versions. In ACM International Conference on Intelligent Virtual Agents (IVA'22), September, 2022, Faro, Portugal. ACM, New York, NY, USA. https://doi.org/10.1145/3514197.3549612

Siska Fitrianie, Merijn Bruijnes, Fengxiang Li, Amal Abdulrahman, and Willem-Paul Brinkman. 2022. Artificial Social Agent Questionnaire Instrument. https://doi.org/10.4121/19650846 4TU.ResearchData.

Table 7 The short version of the ASA Questionnaire

No.	ITEMID	ITEMREF	ITEMQ
1.	C01D01Q10	HLA2	[The agent] has the appearance of a human
2.	C01D02Q9	HLB5	[The agent] has a human-like manner
3.	C01D03Q11	NA4	[The agent] seems natural from its outward appearance
4.	C01D04Q15	NB3	[The agent] reacts like a living organism
5.	C01D05Q2	AAS1	[The agent]'s appearance is appropriate
6.	C02D00Q1	AU1	[The agent] is easy to use
7.	C03D01Q7	PF1	[The agent] does its task well
8.	C04D00Q10	AL2	I like [the agent]
9.	C05D00Q6	AS1	[The agent] can easily mix socially
10.	C06D01Q1	APP1	[The agent] has a distinctive character
11.	C07D00Q0	UAA1	[I / The user] will use [the agent] again in the future
12.	C08D00Q3	AE1	[R] [The agent] is boring
13.	C09D00Q10	UE2	The interaction captured [my / the user's] attention
14.	C10D00Q18	UT3	[I / The user] can rely on [the agent]
15.	C11D01Q9	UAL1	[The agent] and [I / the user] have a strategic alliance
16.	C12D00Q13	AA2	[The agent] is attentive
17.	C13D00Q3	AC1	[R] [The agent]'s behavior does not make sense
18.	C14D00Q13	AI3	[R] [The agent] has no clue of what it is doing

19.	C15D00Q10	AT1	[I see / The user sees] the interaction with [the agent] as something positive
20.	C16D00Q13	SP2	[The agent] is a social entity
21.	C17D00Q3	IIS2	Others would encourage [me / the user] to use [the agent]
22.	C18D01Q5	AEI3	[R] [The agent] is emotionless
23.	C18D03Q2	UEP3	The emotions [I feel / the user feels] during the interaction are caused by [the agent]
24.	C19D00Q28	UAI4	[The agent]'s and [my / the user's] emotions change to what [we / they] do to each other

Table 8 shows the correlation and the absolute mean different between the long and short versions of the ASA Questionnaire. The short and long version of the ASA questionnaire were highly correlated (M=.82, SD=.05). The absolute mean difference between any construct's or dimension's mean on the one hand, and its representative item on the other, was small (M=.20, SD=.18). Running an EFA on the representative items (Appendix K Correlation and EFA Result based on 24 Highest Loading Items) showed a similar grouping of the constructs/dimensions as in the Discriminant Validity Analysis, see Table 5 - right side. Only three constructs (in bold) were grouped differently. This indicates that the short ASA questionnaire is a good representation of the full ASA questionnaire.

Table 8 Correlation and absolute mean difference between the long version (90 items) and the short version (24 items). Note: the mean of each construct/dimension is used to calculate its correlation and absolute mean different with its corresponding item in the short version of the ASA Questionnaire.

NO.	CONSTRUCT/DIMENSION	CORRELATION	ABSOLUTE MEAN DIFFERENT
1	C01D01	.93	0.03
2	C01D02	.87	0.15
3	C01D03	.83	0.09
4	C01D04	.84	0.61
5	C01D05	.83	0.08
6	C02	.84	0.11
7	C03*	.80	0.13
8	C04	.88	0.10
9	C05	.85	0.53
10	C06D01	.77	0.39
11	C07	.81	0.05
12	C08	.79	0.48
13	C09	.82	0.07
14	C10	.82	0.09
15	C11*	.71	0.43
16	C12	.78	0.19
17	C13	.76	0.01
18	C14	.77	0.25
19	C15	.89	0.00
20	C16	.85	0.07
21	C17	.79	0.24
22	C18D01	.86	0.38
23	C18D03	.74	0.07
24	C19	.77	0.36

ASA Chart

An ASA chart is an informative visual tool to display the scores of an ASA on the 24 constructs/dimensions on a two-dimensional plane. The scores are normalized to a 7-point scale with an interval between -3 to 3 and 0 as the middle point. Each score of a construct/dimension is depicted on an axis that emerges from a common central point. We arranged the constructs/dimensions on the ASA chart based on their distance in the factor analyses and theoretical similarities (see and Table 5). The total score, rounded up, of all the

constructs/dimensions is displayed in the middle of the chart which is called the *ASA-score*. The scripts for generating ASA charts are online available[23].

Appendix L WEB-ASA of 14 ASAs used in the Study shows the ASA charts of all 14 ASAs used in the study. Here, the chart represents values based on the mean of the 90 questionnaire items calculated from the corresponding agents' raw observed data.

Appendix A Constructs and their Dimensions

Note: ConID = Construct ID, ConName = Construct Name, ConDef = Construct Definition, DimID = Dimension ID, DimName = Dimension Name, DimDef = Dimension Definition

NO.	CONID	CONNAME	CONDEF	DIMID	DIMNAME	DIMDEF
1	C01	Agent's Believability	The extent to which a user believes that the artifact is a social agent	C01D01	Human-Like Appearance	The extent to which a user believes that the social agent appears like a human
2	C01	Agent's Believability	The extent to which a user believes that the artifact is a social agent	C01D02	Human-Like Behavior	The extent to which a user believes that the social agent behaves like a human
3	C01	Agent's Believability	The extent to which a user believes that the artifact is a social agent	C01D03	Natural Appearance	The extent to which a user believes that the social agent's appearance could exist in or be derived from nature
4	C01	Agent's Believability	The extent to which a user believes that the artifact is a social agent	C01D04	Natural Behavior	The extent to which a user believes that the social agent's behavior could exist in or be derived from nature
5	C01	Agent's Believability	The extent to which a user believes that the artifact is a social agent	C01D05	Agent's Appearance Suitability	The extent to which the agent's appearance is suitable for its role
6	C02	Agent's Usability	The extent to which a user believes that using an agent will be free from effort (future process)			
7	C03	Performance	The extent to which a task was well performed (past performance)	C03D01	Agent's Performance	How well an agent does a task
8	C03	Performance	The extent to which a task was well performed (past performance)	C03D02	User's Performance	How well the user does a task

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NO.	CONID	CONNAME	CONDEF	DIMID	DIMNAME	DIMDEF
9	C04	Agent's Likeability	The agent's qualities that bring about a favorable regard			
10	C05	Agent's Sociability	The agent's quality or state of being sociable			
11	C06	Agent's Personality	The combination of characteristics or qualities that form an individual's distinctive character	C06D01	Agent's Personality Presence	To what extent the user believes that the agent has a personality
12	C07	User Acceptance of the Agent	The willingness of the user to interact with the agent			
13	C08	Agent's Enjoyability	The extent to which a user finds interacting with the agent enjoyable			
14	C09	User's Engagement	The extent to which the user feels involved in the interaction with the agent			
15	C10	User's Trust	The extent to which a user believes in the reliability, truthfulness, and ability of the agent (for future interactions)			
16	C11	User-Agent Alliance	The extent to which a beneficial association is formed	C11D01	Task Alliance	The extent to which an association is formed for performing a common goal
17	C11	User-Agent Alliance	The extent to which a beneficial association is formed	C11D02	Social Alliance	The extent to which a close and harmonious association is formed in which both understand each other's feelings and ideas
18	C12	Agent's Attentiveness	The extent to which the user believes that the agent is aware of and has attention for the user			
19	C13	Agent's Coherence	The extent to which the agent is perceived as being logical and consistent			
20	C14	Agent's Intentionality	The extent to which the agent is perceived as being deliberate and has deliberations			
21	C15	Attitude	A favorable or unfavorable evaluation toward the interaction with the agent			

NO.	CONID	CONNAME	CONDEF	DIMID	DIMNAME	DIMDEF
22	C16	Social Presence	The degree to which the user perceives the presence of a social entity in the interaction			
23	C17	Interaction impact on self-image	How the user believes others perceive the user because of the interaction with the agent			
24	C18	Emotional Experience	A self-contained phenomenal experience. They are subjective, evaluative, and independent of the sensations, thoughts, or images evoking them	C18D01	Agent's Emotional Intelligence Presence	To what extent the user believes that the agent has an emotional experience and can conveys its emotions
25	C18	Emotional Experience	A self-contained phenomenal experience. They are subjective, evaluative, and independent of the sensations, thoughts, or images evoking them	C18D03	User's Emotion Presence	To what extent the user believes that his/her emotional state caused by the interaction or the agent
26	C19	User-Agent Interplay	The extent to which the user and the agent have an effect on each other			

Appendix B Initial Questionnaire Items

Note:

- ConID = Construct ID, DimID = Dimension ID, ItemID = Questionnaire Item ID, Q Original = Initial Questionnaire Items, Q 1st POV = Questionnaire Items adapted to First Person Point of View, Q 3rd POV = Questionnaire Items adapted to Third Person Point of View.
- <the agent> is setup on the fly to the name of the corresponding agent

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C01	C01D01	C01D01Q3	[The agent]'s appearance is human	<THE AGENT>'s appearance is human	<THE AGENT>'s appearance is human
C01	C01D01	C01D01Q10	[The agent] has the appearance of a human	<THE AGENT> has the appearance of a human	<THE AGENT> has the appearance of a human
C01	C01D01	C01D01Q13	[The agent] has a human-like outside	<THE AGENT> has a human-like outside	<THE AGENT> has a human-like outside
C01	C01D01	C01D01Q15	[The agent]'s appearance makes me think of a human	<THE AGENT>'s appearance makes me think of a human	<THE AGENT>'s appearance makes me think of a human
C01	C01D01	C01D01Q16	[The agent] has a human likeness	<THE AGENT> has a human likeness	<THE AGENT> has a human likeness
C01	C01D02	C01D02Q7	A human would behave like [the agent]	A human would behave like <THE AGENT>	A human would behave like <THE AGENT>

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C01	C01D02	C01D02Q10	[The agent]'s manners is consistent with that of people	<THE AGENT>'s manners is consistent with that of people	<THE AGENT>'s manners is consistent with that of people
C01	C01D02	C01D02Q0	[The agent] behavior makes me think of human behavior	<THE AGENT> behavior makes me think of human behavior	<THE AGENT> behavior makes me think of human behavior
C01	C01D02	C01D02Q1	[The agent] behaves like a real person	<THE AGENT> behaves like a real person	<THE AGENT> behaves like a real person
C01	C01D02	C01D02Q9	[The agent] has a human-like manner	<THE AGENT> has a human-like manner	<THE AGENT> has a human-like manner
C01	C01D03	C01D03Q7	[The agent] appears like something that could exist in nature	<THE AGENT> appears like something that could exist in nature	<THE AGENT> appears like something that could exist in nature
C01	C01D03	C01D03Q9	[The agent] has a natural physique	<THE AGENT> has a natural physique	<THE AGENT> has a natural physique
C01	C01D03	C01D03Q10	[The agent]'s resemblance has an organic origin	<THE AGENT>'s resemblance has an organic origin	<THE AGENT>'s resemblance has an organic origin
C01	C01D03	C01D03Q11	[The agent] seems natural from its outward appearance	<THE AGENT> seems natural from its outward appearance	<THE AGENT> seems natural from its outward appearance
C01	C01D03	C01D03Q12	How [the agent] is represented is realistic	How <THE AGENT> is represented is realistic	How <THE AGENT> is represented is realistic
C01	C01D04	C01D04Q0	[The agent] is alive	<THE AGENT> is alive	<THE AGENT> is alive
C01	C01D04	C01D04Q13	[The agent] acts naturally	<THE AGENT> acts naturally	<THE AGENT> acts naturally
C01	C01D04	C01D04Q15	[The agent] reacts like a living organism	<THE AGENT> reacts like a living organism	<THE AGENT> reacts like a living organism
C01	C01D04	C01D04Q8	[The agent]'s behavior is like an animal	<THE AGENT>'s behavior is like an animal	<THE AGENT>'s behavior is like an animal
C01	C01D04	C01D04Q9	There are animals that behave similar to [the agent]	There are animals that behave similar to <THE AGENT>	There are animals that behave similar to <THE AGENT>
C01	C01D05	C01D05Q2	[The agent]'s appearance is appropriate	<THE AGENT>'s appearance is appropriate	<THE AGENT>'s appearance is appropriate
C01	C01D05	C01D05Q9	[The agent]'s physique is suitable for its role	<THE AGENT>'s physique is suitable for its role	<THE AGENT>'s physique is suitable for its role
C01	C01D05	C01D05Q10	The appearance of [the agent] is suitable for its role	The appearance of <THE AGENT> is suitable for its role	The appearance of <THE AGENT> is suitable for its role
C01	C01D05	C01D05Q11	[The agent]'s appearance is functional	<THE AGENT>'s appearance is functional	<THE AGENT>'s appearance is functional
C01	C01D05	C01D05Q12	[The agent]'s physique is fit for purpose	<THE AGENT>'s physique is fit for purpose	<THE AGENT>'s physique is fit for purpose
C02		C02D00Q1	[The agent] is easy to use	<THE AGENT> is easy to use	<THE AGENT> is easy to use

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C02		C02D00Q2	Learning to work with [the agent] is easy	Learning to work with <THE AGENT> is easy	Learning to work with <THE AGENT> is easy
C02		C02D00Q8	Learning how to communicate with [the agent] is quick	Learning how to communicate with <THE AGENT> is quick	Learning how to communicate with <THE AGENT> is quick
C02		C02D00Q11	[R] A manual is needed to communicate with [the agent]	A manual is needed to communicate with <THE AGENT>	A manual is needed to communicate with <THE AGENT>
C02		C02D00Q15	[R] [The agent] is difficult to use	<THE AGENT> is difficult to use	<THE AGENT> is difficult to use
C03	C03D01	C03D01Q1	The amount time it took to complete the task is acceptable	The amount time it took to complete the task is acceptable	The amount time it took to complete the task is acceptable
C03	C03D01	C03D01Q7	[The agent] does its task well	<THE AGENT> does its task well	<THE AGENT> does its task well
C03	C03D01	C03D01Q5	[The agent] enhances [my / the user's] effectiveness on the task	<THE AGENT> enhances my effectiveness on the task	<THE AGENT> enhances the user's effectiveness on the task
C03	C03D01	C03D01Q6	[The agent] allows [me / the user] to get [my / the user's] task done more quickly	<THE AGENT> allows me to get my task done more quickly	<THE AGENT> allows the user to get the user's task done more quickly
C03	C03D01	C03D01Q12	[The agent] does not hinder [me / the user]	<THE AGENT> does not hinder me	<THE AGENT> does not hinder the user
C03	C03D02	C03D02Q0	[I / The user] did well	I did well	The user did well
C03	C03D02	C03D02Q5	[I am / The user is] able to carry out the task well	I am able to carry out the task well	The user is able to carry out the task well
C03	C03D02	C03D02Q10	[I am / The user is] capable of succeeding with [the agent]	I am capable of succeeding with <THE AGENT>	The user is capable of succeeding with <THE AGENT>
C03	C03D02	C03D02Q13	[R] [I / The user] failed the task	I failed the task	The user failed the task
C03	C03D02	C03D02Q1	[R] [I / The user] did badly	I did badly	The user did badly
C04		C04D00Q1	[The agent]'s appearance is pleasing	<THE AGENT>'s appearance is pleasing	<THE AGENT>'s appearance is pleasing
C04		C04D00Q10	I like [the agent]	I like <THE AGENT>	I like <THE AGENT>
C04		C04D00Q11	[R] I dislike [the agent]	I dislike <THE AGENT>	I dislike <THE AGENT>
C04		C04D00Q4	[The agent] is cooperative	<THE AGENT> is cooperative	<THE AGENT> is cooperative
C04		C04D00Q12	I want to hang out with [the agent]	I want to hang out with <THE AGENT>	I want to hang out with <THE AGENT>
C05		C05D00Q3	[R] Interacting with [the agent] is awkward	Interacting with <THE AGENT> is awkward	Interacting with <THE AGENT> is awkward
C05		C05D00Q6	[The agent] can easily mix socially	<THE AGENT> can easily mix socially	<THE AGENT> can easily mix socially
C05		C05D00Q7	It is easy to mingle with [the agent]	It is easy to mingle with <THE AGENT>	It is easy to mingle with <THE AGENT>
C05		C05D00Q1	[The agent] interacts socially with [me / the user]	<THE AGENT> interacts socially with me	<THE AGENT> interacts socially with the user
C05		C05D00Q18	[The agent] is empathic	<THE AGENT> is empathic	<THE AGENT> is empathic

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C06	C06D01	C06D01Q1	[The agent] has a distinctive character	\<THE AGENT\> has a distinctive character	\<THE AGENT\> has a distinctive character
C06	C06D01	C06D01Q6	[R] [The agent] is characterless	\<THE AGENT\> is characterless	\<THE AGENT\> is characterless
C06	C06D01	C06D01Q13	[R] [The agent] lacks character	\<THE AGENT\> lacks character	\<THE AGENT\> lacks character
C06	C06D01	C06D01Q8	[The agent] has a coherent identity	\<THE AGENT\> has a coherent identity	\<THE AGENT\> has a coherent identity
C06	C06D01	C06D01Q11	[The agent] is an individual	\<THE AGENT\> is an individual	\<THE AGENT\> is an individual
C07		C07D00Q0	[I / The user] will use [the agent] again in the future	I will use \<THE AGENT\> again in the future	The user will use \<THE AGENT\> again in the future
C07		C07D00Q11	[I / The user] can see [myself / themselves] using [the agent] in the future	I can see myself using \<THE AGENT\> in the future	The user can see themselves using \<THE AGENT\> in the future
C07		C07D00Q13	[The agent] is acceptable	\<THE AGENT\> is acceptable	\<THE AGENT\> is acceptable
C07		C07D00Q15	[R] [I oppose / The user opposes] further interaction with [the agent]	I oppose further interaction with \<THE AGENT\>	The user opposes further interaction with \<THE AGENT\>
C07		C07D00Q14	[I am / The user is] positive about future interactions with [the agent]	I am is positive about future interactions with \<THE AGENT\>	The user is positive about future interactions with \<THE AGENT\>
C08		C08D00Q3	[R] [The agent] is boring	\<THE AGENT\> is boring	\<THE AGENT\> is boring
C08		C08D00Q4	It is interesting to interact with [the agent]	It is interesting to interact with \<THE AGENT\>	It is interesting to interact with \<THE AGENT\>
C08		C08D00Q10	[R] [The agent] is terrible to cope with	\<THE AGENT\> is terrible to cope with	\<THE AGENT\> is terrible to cope with
C08		C08D00Q0	[I enjoy / The user enjoys] interacting with [the agent]	I enjoy interacting with \<THE AGENT\>	The user enjoys interacting with \<THE AGENT\>
C08		C08D00Q9	[R] [The agent] is unpleasant to deal with	\<THE AGENT\> is unpleasant to deal with	\<THE AGENT\> is unpleasant to deal with
C09		C09D00Q4	[I / The user] was concentrated during the interaction with [the agent]	I was concentrated during the interaction with \<THE AGENT\>	The user was concentrated during the interaction with \<THE AGENT\>
C09		C09D00Q5	[I / The user] forgot about [my / their] surroundings when interacting with [the agent]	I forgot about their surroundings when interacting with \<THE AGENT\>	The user forgot about their surroundings when interacting with \<THE AGENT\>
C09		C09D00Q10	The interaction captured [my / the user's] attention	The interaction captured my attention	The interaction captured the user's attention
C09		C09D00Q3	Interacting with [the agent] was absorbing	Interacting with \<THE AGENT\> was absorbing	Interacting with \<THE AGENT\> was absorbing

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C09		C09D00Q1	[I / The user] was alert during the interaction with [the agent]	I was alert during the interaction with <THE AGENT>	The user was alert during the interaction with <THE AGENT>
C09		C09D00Q9	[R] [I / The user] was looking for distractions during the interaction with [the agent]	I was looking for distractions during the interaction with <THE AGENT>	The user was looking for distractions during the interaction with <THE AGENT>
C10		C10D00Q1	[I am / The user is] confident that the information provided by [the agent] is trustworthy	I am confident that the information provided by <THE AGENT> is trustworthy	The user is confident that the information provided by <THE AGENT> is trustworthy
C10		C10D00Q6	[The agent] always gives good advice	<THE AGENT> always gives good advice	<THE AGENT> always gives good advice
C10		C10D00Q10	[The agent] is an expert in the topic discussed	<THE AGENT> is an expert in the topic discussed	<THE AGENT> is an expert in the topic discussed
C10		C10D00Q16	[The agent] acts truthfully	<THE AGENT> acts truthfully	<THE AGENT> acts truthfully
C10		C10D00Q18	[I / The user] can rely on [the agent]	I can rely on <THE AGENT>	The user can rely on <THE AGENT>
C11	C11D01	C11D01Q6	[The agent] appreciates [my / the user's] efforts	<THE AGENT> appreciates my efforts	<THE AGENT> appreciates the user's efforts
C11	C11D01	C11D01Q9	[The agent] and [I / the user] have a strategic alliance	<THE AGENT> and I have a strategic alliance	<THE AGENT> and the user have a strategic alliance
C11	C11D01	C11D01Q10	Collaborating with [the agent] is like a joint venture	Collaborating with <THE AGENT> is like a joint venture	Collaborating with <THE AGENT> is like a joint venture
C11	C11D01	C11D01Q11	[The agent] joins [me / the user] for mutual benefit	<THE AGENT> joins me for mutual benefit	<THE AGENT> joins the user for mutual benefit
C11	C11D01	C11D01Q14	[The agent] can collaborate in a productive way	<THE AGENT> can collaborate in a productive way	<THE AGENT> can collaborate in a productive way
C11	C11D02	C11D02Q1	[I / The user] can understand [the agent]	I can understand <THE AGENT>	The user can understand <THE AGENT>
C11	C11D02	C11D02Q3	[The agent] cares about [me / the user]	<THE AGENT> cares about me	<THE AGENT> cares about the user
C11	C11D02	C11D02Q4	[The agent] and [I / the user] are in sync with each other	<THE AGENT> and I are in sync with each other	<THE AGENT> and the user are in sync with each other
C11	C11D02	C11D02Q7	[The agent] understands [me / the user]	<THE AGENT> understands me	<THE AGENT> understands the user
C11	C11D02	C11D02Q8	[The agent] and [I / the user] are close	<THE AGENT> and I are close	<THE AGENT> and the user are close
C12		C12D00Q0	[The agent] remains focused on [me / the user] throughout the interaction	<THE AGENT> remains focused on me throughout the interaction	<THE AGENT> remains focused on the user throughout the interaction
C12		C12D00Q13	[The agent] is attentive	<THE AGENT> is attentive	<THE AGENT> is attentive

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C12		C12D00Q1	[I / The user] receives [the agent]'s full attention throughout the interaction	I receives <THE AGENT>'s full attention throughout the interaction	The user receives <THE AGENT>'s full attention throughout the interaction
C12		C12D00Q8	[The agent] notices if [I leave / the user leaves]	<THE AGENT> notices if I leave	<THE AGENT> notices if the user leaves
C12		C12D00Q6	[R] [The agent] does not notice what happens around it	<THE AGENT> does not notice what happens around it	<THE AGENT> does not notice what happens around it
C13		C13D00Q3	[R] [The agent]'s behavior does not make sense	<THE AGENT>'s behavior does not make sense	<THE AGENT>'s behavior does not make sense
C13		C13D00Q7	[The agent] is logical	<THE AGENT> is logical	<THE AGENT> is logical
C13		C13D00Q11	[R] [The agent]'s behavior is irrational	<THE AGENT>'s behavior is irrational	<THE AGENT>'s behavior is irrational
C13		C13D00Q6	[R] [The agent] is inconsistent	<THE AGENT> is inconsistent	<THE AGENT> is inconsistent
C13		C13D00Q15	[R] [The agent] appears confused	<THE AGENT> appears confused	<THE AGENT> appears confused
C14		C14D00Q0	[The agent] acts intentionally	<THE AGENT> acts intentionally	<THE AGENT> acts intentionally
C14		C14D00Q10	[The agent] knows what it is doing	<THE AGENT> knows what it is doing	<THE AGENT> knows what it is doing
C14		C14D00Q13	[R] [The agent] has no clue of what it is doing	<THE AGENT> has no clue of what it is doing	<THE AGENT> has no clue of what it is doing
C14		C14D00Q15	I can understand [the agent]'s reasoning	I can understand <THE AGENT>'s reasoning	I can understand <THE AGENT>'s reasoning
C14		C14D00Q16	[The agent] can make its own decision	<THE AGENT> can make its own decision	<THE AGENT> can make its own decision
C15		C15D00Q10	[I see / The user sees] the interaction with [the agent] as something positive	I see the interaction with <THE AGENT> as something positive	The user sees the interaction with <THE AGENT> as something positive
C15		C15D00Q11	[I view / The user views] the interaction as something favorable	I view the interaction as something favorable	The user views the interaction as something favorable
C15		C15D00Q8	Interacting with [the agent] is rewarding	Interacting with <THE AGENT> is rewarding	Interacting with <THE AGENT> is rewarding
C15		C15D00Q12	Engaging with [the agent] is a good thing	Engaging with <THE AGENT> is a good thing	Engaging with <THE AGENT> is a good thing
C15		C15D00Q15	[R] [I think / The user thinks] negatively of the interaction with [the agent]	I think negatively of the interaction with <THE AGENT>	The user thinks negatively of the interaction with <THE AGENT>
C16		C16D00Q11	During the interaction [I perceive / the user perceives] [the agent] as a social entity	During the interaction I perceive <THE AGENT> as a social entity	During the interaction the user perceives <THE AGENT> as a social entity
C16		C16D00Q12	[The agent] has a social presence	<THE AGENT> has a social presence	<THE AGENT> has a social presence

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C16		C16D00Q13	[The agent] is a social entity	<THE AGENT> is a social entity	<THE AGENT> is a social entity
C16		C16D00Q16	[I behave / The user behaves] as if [the agent] is a social entity	I behave as if <THE AGENT> is a social entity	The user behaves as if <THE AGENT> is a social entity
C16		C16D00Q17	[I have / The user has] the same social presence as [the agent]	I have the same social presence as <THE AGENT>	The user has the same social presence as <THE AGENT>
C17		C17D00Q2	[My / The user's] friends would recommend [me / them] to use [the agent]	My friends would recommend them to use <THE AGENT>	the user's friends would recommend them to use <THE AGENT>
C17		C17D00Q3	Others would encourage [me / the user] to use [the agent]	Others would encourage me to use <THE AGENT>	Others would encourage the user to use <THE AGENT>
C17		C17D00Q8	[I feel / The user feels] cool when others see [me / them] interacting with [the agent]	I fees cool when others see me interacting with <THE AGENT>	The user feels cool when others see them interacting with <THE AGENT>
C17		C17D00Q9	[The agent] makes [me / the user] look good	<THE AGENT> makes me look good	<THE AGENT> makes the user look good
C17		C17D00Q10	People would look favorably at [me / the user] because of [my / their] interaction with [the agent]	People would look favorably at me because of their interaction with <THE AGENT>	People would look favorably at the user because of their interaction with <THE AGENT>
C18	C18D01	C18D01Q2	[The agent] is emotional	<THE AGENT> is emotional	<THE AGENT> is emotional
C18	C18D01	C18D01Q3	[The agent] experiences emotions	<THE AGENT> experiences emotions	<THE AGENT> experiences emotions
C18	C18D01	C18D01Q5	[R] [The agent] is emotionless	<THE AGENT> is emotionless	<THE AGENT> is emotionless
C18	C18D01	C18D01Q8	[The agent] can express its feelings	<THE AGENT> can express its feelings	<THE AGENT> can express its feelings
C18	C18D01	C18D01Q14	[R] [The agent] cannot experience emotions	<THE AGENT> cannot experience emotions	<THE AGENT> cannot experience emotions
C18	C18D03	C18D03Q0	[The agent]'s attitudes influences how [I feel / the user feels]	<THE AGENT>'s attitudes influences how I feel	<THE AGENT>'s attitudes influences how the user feels
C18	C18D03	C18D03Q1	[I am / The user is] influenced by [the agent]'s moods	I am influenced by <THE AGENT>'s moods	The user is influenced by <THE AGENT>'s moods
C18	C18D03	C18D03Q2	The emotions [I feel / the user feels] during the interaction are caused by [the agent]	The emotions I feel during the interaction are caused by <THE AGENT>	The emotions the user feels during the interaction are caused by <THE AGENT>
C18	C18D03	C18D03Q9	[My / The user's] interaction with [the agent] is an emotional experience	My interaction with <THE AGENT> is an emotional experience	The user's interaction with <THE AGENT> is an emotional experience
C18	C18D03	C18D03Q12	[My / The user's] interaction with [the agent] gives [me / them] an emotional sensation	My interaction with <THE AGENT> gives me an emotional sensation	The user's interaction with <THE AGENT> gives them an emotional sensation

CONID	DIMID	ITEMID	Q ORIGINAL	Q 1ST POV	Q 3RD POV
C19		C19D00Q3	[The agent]'s emotions change to what [I do / the user does]	\<THE AGENT\>'s emotions change to what I do	\<THE AGENT\>'s emotions change to what the user does
C19		C19D00Q7	[My / The user's] emotions influence the mood of the interaction	My emotions influence the mood of the interaction	The user's emotions influence the mood of the interaction
C19		C19D00Q14	[The agent] reciprocates [my / the user's] actions	\<THE AGENT\> reciprocates my actions	\<THE AGENT\> reciprocates the user's actions
C19		C19D00Q26	[The agent]'s and [my / the user's] behaviors are in direct response to each other's behavior	\<THE AGENT\>'s and my behaviors are in direct response to each other's behavior	\<THE AGENT\>'s and the user's behaviors are in direct response to each other's behavior
C19		C19D00Q28	[The agent]'s and [my / the user's] emotions change to what [we / they] do to each other	\<THE AGENT\>'s and my emotions change to what we do to each other	\<THE AGENT\>'s and the user's emotions change to what they do to each other

Appendix C Video Check and Attention Check Questions

Check Video: Ambient Lighting[24]

NO.	VIDEO CHECK QUESTION
1	Is the video above playing? o Yes (the correct (expected) answer) o The video is NOT displayed o The video is displayed, but it is not playing o The video is displayed, but there is no sound
2	What is displayed in the video? o Animals (the correct answer) o Cars o Houses o Robots o Books o Aircraft o Boats

Note: a participant can continue to participate in the study if they answer both questions above correctly.

NO.	ATTENTION CHECK QUESTION
1	\<The agent\> is singing, however, to show that you pay attention, select disagree
2	The user can see \<the agent\>, however, please as attention check select agree
3	\<The agent\> speaks English, however this is an attention check so please select disagree
4	The user runs toward \<the agent\>, but to show you pay attention please select disagree
5	\<The agent\> can walk or not, however, select the middle option labelled with the number to indicate that you are not sleeping
6	You've seen \<the agent\>. However, to show that you have watched the video please select agree
7	\<The agent\>'s body color is black. Please ignore the previous statement and select disagree
8	\<The agent\> talks to the user, but to show you are not a bot, please select agree
9	Make sure you select the middle option labelled with the number zero to show you are not a bot
10	Please select disagree here to show you still pay attention
11	Please select agree to pass this attention check
12	To show you are really reading these questions, please select the option labelled with the number two

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[24] Siska Fitrianie, Merijn Bruijnes, and Willem-Paul Brinkman. 2020. Technical Report: Study 5 - Collecting Prototypical Artificial Social Agents, No.ASAEvalInst-TR#06, Date: 11-December-2020.

NO.	ATTENTION CHECK QUESTION
13	To indicate you are still there please select agree
14	To show you are not sleeping, as attention check please select disagree
15	To show you are paying attention, please select the option labelled with the number one

Note: <the agent> is setup on the fly to the name of the corresponding agent

Appendix D Data Description

Note: N = number of participants, M = mean, SD = standard deviation, RANGE = (MIN, MAX), MIN = minimum value, MAX = maximum value

All data:

ITEM ID	N	M	SD	RANGE	
C01D01Q3	532	-0.88	2.21	-3	3
C01D01Q10	532	-0.78	2.24	-3	3
C01D01Q13	532	-0.75	2.22	-3	3
C01D01Q15	532	-0.6	2.23	-3	3
C01D01Q16	532	-0.1	2.07	-3	3
C01D02Q7	532	-0.46	1.94	-3	3
C01D02Q10	532	0.42	1.84	-3	3
C01D02Q0	532	0.24	1.95	-3	3
C01D02Q1	532	-0.18	2.04	-3	3
C01D02Q9	532	0.19	1.99	-3	3
C01D03Q7	532	-0.8	2.12	-3	3
C01D03Q9	532	-0.43	2.05	-3	3
C01D03Q10	532	-0.23	1.99	-3	3
C01D03Q11	532	-0.33	2.05	-3	3
C01D03Q12	532	0.57	1.72	-3	3
C01D04Q0	532	-1.37	2.1	-3	3
C01D04Q13	532	0.18	1.81	-3	3
C01D04Q15	532	0.32	2.02	-3	3
C01D04Q8	532	-1.26	1.97	-3	3
C01D04Q9	532	-0.73	2.05	-3	3
C01D05Q2	532	1.43	1.5	-3	3
C01D05Q9	532	1.23	1.51	-3	3
C01D05Q11	532	1.47	1.34	-3	3
C01D05Q12	532	1.09	1.55	-3	3
C01D05Q0	532	1.38	1.49	-3	3
C02D00Q1	532	1.34	1.44	-3	3
C02D00Q2	532	1.04	1.47	-3	3
C02D00Q8	532	1.32	1.42	-3	3
R_C02D00Q11	532	0.88	1.82	-3	3
R_C02D00Q15	532	1.38	1.48	-3	3
C03D01Q1	532	1.49	1.51	-3	3
C03D01Q7	532	1.44	1.4	-3	3
C03D01Q5	532	0.6	1.61	-3	3
C03D01Q6	532	0.36	1.76	-3	3
C03D01Q12	532	1.16	1.48	-3	3
C03D02Q0	532	1.44	1.31	-3	3
C03D02Q5	532	1.44	1.32	-3	3
C03D02Q10	532	1.32	1.4	-3	3
R_C03D02Q13	532	1.74	1.49	-3	3
R_C03D02Q1	532	1.77	1.33	-3	3
C04D00Q1	532	0.61	1.7	-3	3
C04D00Q10	532	0.87	1.81	-3	3
R_C04D00Q11	532	1.29	1.87	-3	3
C04D00Q4	532	1.54	1.39	-3	3
C04D00Q12	532	-0.45	2.19	-3	3
R_C05D00Q3	532	0.47	1.87	-3	3
C05D00Q6	532	-0.21	1.87	-3	3
C05D00Q7	532	0.35	1.78	-3	3
C05D00Q1	532	0.81	1.79	-3	3
C05D00Q18	532	-0.39	1.85	-3	3

C06D01Q1	532	0.59	1.68	-3	3
R_C06D01Q6	532	0.41	2.03	-3	3
R_C06D01Q13	532	0.27	2	-3	3
C06D01Q8	532	0.45	1.63	-3	3
C06D01Q11	532	-0.4	2.04	-3	3
C07D00Q0	532	1.36	1.42	-3	3
C07D00Q11	532	1.17	1.55	-3	3
C07D00Q13	532	1.48	1.34	-3	3
R_C07D00Q15	532	1.4	1.61	-3	3
C07D00Q14	532	1.11	1.47	-3	3
R_C08D00Q3	532	0.77	1.88	-3	3
C08D00Q4	532	1.35	1.56	-3	3
R_C08D00Q10	532	1.67	1.46	-3	3
C08D00Q0	532	1.25	1.6	-3	3
R_C08D00Q9	532	1.64	1.55	-3	3
C09D00Q4	532	1.69	1.28	-3	3
C09D00Q5	532	0.2	1.63	-3	3
C09D00Q10	532	1.75	1.25	-3	3
C09D00Q3	532	0.49	1.67	-3	3
C09D00Q1	532	2	1.2	-3	3
R_C09D00Q9	532	1.52	1.55	-3	3
C10D00Q1	532	0.93	1.55	-3	3
C10D00Q6	532	-0.21	1.55	-3	3
C10D00Q10	532	0.14	1.93	-3	3
C10D00Q16	532	0.98	1.45	-3	3
C10D00Q18	532	0.52	1.63	-3	3
C11D01Q6	532	0.16	1.78	-3	3
C11D01Q9	532	0.08	1.69	-3	3
C11D01Q10	532	0.5	1.66	-3	3
C11D01Q11	532	0.08	1.69	-3	3
C11D01Q14	532	0.98	1.58	-3	3
C11D02Q1	532	1.81	1.32	-3	3
C11D02Q3	532	-0.3	2	-3	3
C11D02Q4	532	0.61	1.62	-3	3
C11D02Q7	532	0.82	1.76	-3	3
C11D02Q8	532	-0.24	1.82	-3	3
C12D00Q0	532	1.62	1.52	-3	3
C12D00Q13	532	1.47	1.45	-3	3
C12D00Q1	532	1.88	1.36	-3	3
C12D00Q8	532	0.41	1.66	-3	3
R_C12D00Q6	532	0.22	1.96	-3	3
R_C13D00Q3	532	1.56	1.47	-3	3
C13D00Q7	532	1.17	1.62	-3	3
R_C13D00Q11	532	1.75	1.38	-3	3
R_C13D00Q6	532	1.33	1.49	-3	3
R_C13D00Q15	532	1.55	1.6	-3	3
C14D00Q0	532	0.97	1.62	-3	3
C14D00Q10	532	0.83	1.81	-3	3
R_C14D00Q13	532	0.93	1.92	-3	3
C14D00Q15	532	0.84	1.58	-3	3
C14D00Q16	532	0.01	1.91	-3	3
C15D00Q10	532	1.43	1.5	-3	3
C15D00Q11	532	1.29	1.52	-3	3
C15D00Q8	532	0.91	1.52	-3	3
C15D00Q12	532	1.02	1.43	-3	3
R_C15D00Q15	532	1.58	1.53	-3	3
C16D00Q11	532	0.7	1.73	-3	3
C16D00Q12	532	0.34	1.78	-3	3
C16D00Q13	532	-0.1	1.9	-3	3
C16D00Q16	532	1.01	1.73	-3	3
C16D00Q17	532	-0.73	1.89	-3	3
C17D00Q2	532	0.78	1.51	-3	3
C17D00Q3	532	0.89	1.51	-3	3

ITEM ID	N	M	SD	MIN	MAX
C17D00Q8	532	0.33	1.69	-3	3
C17D00Q9	532	0.4	1.52	-3	3
C17D00Q10	532	0.52	1.53	-3	3
C18D01Q2	532	-0.92	1.88	-3	3
C18D01Q3	532	-0.82	2.03	-3	3
R_C18D01Q5	532	-0.29	2.1	-3	3
C18D01Q8	532	-0.35	1.99	-3	3
R_C18D01Q14	532	-0.96	2.11	-3	3
C18D03Q0	532	0.86	1.63	-3	3
C18D03Q1	532	0.2	1.81	-3	3
C18D03Q2	532	0.7	1.76	-3	3
C18D03Q9	532	0.24	1.99	-3	3
C18D03Q12	532	0.74	1.82	-3	3
C19D00Q3	532	0.17	1.87	-3	3
C19D00Q7	532	0.72	1.85	-3	3
C19D00Q14	532	0.79	1.58	-3	3
C19D00Q26	532	1.23	1.58	-3	3
C19D00Q28	532	0.44	1.73	-3	3

Group: AIBO

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	39	-2.72	0.56	-3	-1
C01D01Q10	39	-2.59	0.88	-3	0
C01D01Q13	39	-2.51	1.21	-3	3
C01D01Q15	39	-2.36	1.29	-3	2
C01D01Q16	39	-1.77	1.86	-3	3
C01D02Q7	39	-1.87	1.32	-3	1
C01D02Q10	39	-0.82	1.89	-3	3
C01D02Q0	39	-1.49	1.52	-3	2
C01D02Q1	39	-2	1.43	-3	3
C01D02Q9	39	-1.77	1.42	-3	2
C01D03Q7	39	-0.46	2.32	-3	3
C01D03Q9	39	-0.03	1.91	-3	3
C01D03Q10	39	0.33	2.19	-3	3
C01D03Q11	39	-0.56	2.21	-3	3
C01D03Q12	39	0.92	1.66	-3	3
C01D04Q0	39	-2.21	1.56	-3	3
C01D04Q13	39	0.62	1.68	-3	3
C01D04Q15	39	0.69	1.88	-3	3
C01D04Q8	39	1.74	1.48	-2	3
C01D04Q9	39	1.87	1.26	-2	3
C01D05Q2	39	2	1.19	-3	3
C01D05Q9	39	2.15	0.84	0	3
C01D05Q11	39	1.33	1.42	-2	3
C01D05Q12	39	1.9	1.12	-1	3
C01D05Q0	39	2.03	1.29	-3	3
C02D00Q1	39	1.95	0.86	0	3
C02D00Q2	39	1.62	1.37	-3	3
C02D00Q8	39	1.77	0.96	0	3
R_C02D00Q11	39	0.13	1.82	-3	3
R_C02D00Q15	39	2	1.21	-2	3
C03D01Q1	39	1.74	1.27	-3	3
C03D01Q7	39	1.9	1.07	-2	3
C03D01Q5	39	0.41	1.46	-3	3
C03D01Q6	39	-0.38	1.63	-3	3
C03D01Q12	39	1.44	1.12	0	3
C03D02Q0	39	2.05	1.07	0	3

C03D02Q5	39	1.87	1.06	-1	3
C03D02Q10	39	1.33	1.44	-3	3
R_C03D02Q13	39	2.56	0.85	0	3
R_C03D02Q1	39	2.31	1.3	-3	3
C04D00Q1	39	1.69	1.42	-3	3
C04D00Q10	39	1.44	1.65	-3	3
R_C04D00Q11	39	1.79	1.52	-2	3
C04D00Q4	39	2.03	1.09	-2	3
C04D00Q12	39	0.46	2.01	-3	3
R_C05D00Q3	39	1.33	1.75	-3	3
C05D00Q6	39	0.54	1.82	-3	3
C05D00Q7	39	1.05	1.56	-3	3
C05D00Q1	39	1.21	1.76	-3	3
C05D00Q18	39	-0.95	1.62	-3	3
C06D01Q1	39	0.82	1.65	-3	3
R_C06D01Q6	39	1.49	1.78	-3	3
R_C06D01Q13	39	1	1.92	-3	3
C06D01Q8	39	0.62	1.77	-3	3
C06D01Q11	39	-1.36	1.63	-3	3
C07D00Q0	39	1.74	1.09	0	3
C07D00Q11	39	1.56	1.39	-3	3
C07D00Q13	39	1.74	1.29	-3	3
R_C07D00Q15	39	2.15	1.01	0	3
C07D00Q14	39	1.64	1.27	-1	3
R_C08D00Q3	39	1.41	1.45	-3	3
C08D00Q4	39	1.64	1.5	-3	3
R_C08D00Q10	39	2.31	1.06	-1	3
C08D00Q0	39	2.54	0.72	0	3
R_C08D00Q9	39	2.23	1.27	-3	3
C09D00Q4	39	2.05	1.21	-2	3
C09D00Q5	39	0.85	1.31	-1	3
C09D00Q10	39	2.31	1.26	-3	3
C09D00Q3	39	1.28	1.41	-3	3
C09D00Q1	39	2.21	1.03	-1	3
R_C09D00Q9	39	1.85	1.31	-1	3
C10D00Q1	39	0.95	1.07	0	3
C10D00Q6	39	-0.95	1.45	-3	2
C10D00Q10	39	-0.62	1.62	-3	2
C10D00Q16	39	0.49	1.43	-3	3
C10D00Q18	39	0.21	1.59	-3	3
C11D01Q6	39	0.31	1.95	-3	3
C11D01Q9	39	-0.13	1.59	-3	3
C11D01Q10	39	0.51	1.78	-3	3
C11D01Q11	39	0.1	1.68	-3	3
C11D01Q14	39	0.13	1.96	-3	3
C11D02Q1	39	1.62	1.55	-3	3
C11D02Q3	39	-0.74	1.96	-3	3
C11D02Q4	39	0.54	1.52	-3	3
C11D02Q7	39	1.03	1.68	-3	3
C11D02Q8	39	0.08	1.58	-3	3
C12D00Q0	39	1.92	1.26	-3	3
C12D00Q13	39	1.69	1.08	-1	3
C12D00Q1	39	1.92	1.11	-2	3
C12D00Q8	39	0.33	1.28	-3	3
R_C12D00Q6	39	0.79	1.87	-3	3
R_C13D00Q3	39	1.92	1.18	-1	3
C13D00Q7	39	0.46	1.59	-3	3

R_C13D00Q11	39	1.92	1.18	-1	3
R_C13D00Q6	39	1.36	1.42	-3	3
R_C13D00Q15	39	1.82	1.35	-2	3
C14D00Q0	39	0.44	1.71	-3	3
C14D00Q10	39	0.77	1.78	-3	3
R_C14D00Q13	39	0.59	2.09	-3	3
C14D00Q15	39	0.28	1.64	-3	3
C14D00Q16	39	-1.26	1.73	-3	3
C15D00Q10	39	2.33	0.77	1	3
C15D00Q11	39	2.15	1.06	-2	3
C15D00Q8	39	1.59	1.21	-1	3
C15D00Q12	39	1.21	1.36	-3	3
R_C15D00Q15	39	2.62	0.78	0	3
C16D00Q11	39	0.95	1.49	-3	3
C16D00Q12	39	0.77	1.44	-3	3
C16D00Q13	39	-0.13	2	-3	3
C16D00Q16	39	1.46	1.6	-3	3
C16D00Q17	39	-0.56	1.86	-3	3
C17D00Q2	39	1.44	1.41	-3	3
C17D00Q3	39	1.28	1.45	-3	3
C17D00Q8	39	1.08	1.24	-1	3
C17D00Q9	39	0.77	1.35	-3	3
C17D00Q10	39	0.77	1.65	-3	3
C18D01Q2	39	-0.95	1.83	-3	3
C18D01Q3	39	-1.15	1.99	-3	3
R_C18D01Q5	39	0.05	2.26	-3	3
C18D01Q8	39	0.05	2.04	-3	3
R_C18D01Q14	39	-1.46	1.82	-3	3
C18D03Q0	39	1.28	1.47	-3	3
C18D03Q1	39	1.26	1.52	-3	3
C18D03Q2	39	1.82	1.1	-1	3
C18D03Q9	39	1.26	1.48	-3	3
C18D03Q12	39	1.67	1.44	-3	3
C19D00Q3	39	0.92	1.81	-3	3
C19D00Q7	39	1.28	1.62	-3	3
C19D00Q14	39	1.21	1.49	-3	3
C19D00Q26	39	1.38	1.63	-3	3
C19D00Q28	39	1.33	1.56	-3	3

Group: AMY

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	39	0.69	1.92	-3	3
C01D01Q10	39	1.13	1.67	-3	3
C01D01Q13	39	0.82	1.83	-3	3
C01D01Q15	39	0.87	1.54	-3	3
C01D01Q16	39	0.46	1.62	-3	3
C01D02Q7	39	-0.56	1.8	-3	3
C01D02Q10	39	0.51	1.68	-3	3
C01D02Q0	39	0.18	1.89	-3	3
C01D02Q1	39	-0.13	1.88	-3	3
C01D02Q9	39	0.44	1.82	-3	3

C01D03Q7	39	-1.49	1.43	-3	1
C01D03Q9	39	0.36	1.55	-3	3
C01D03Q10	39	0.1	1.94	-3	3
C01D03Q11	39	-0.46	1.82	-3	3
C01D03Q12	39	0.26	1.7	-3	3
C01D04Q0	39	-1.97	1.58	-3	2
C01D04Q13	39	-0.41	1.74	-3	2
C01D04Q15	39	-0.18	1.92	-3	3
C01D04Q8	39	-2.31	1.06	-3	0
C01D04Q9	39	-2.08	1.24	-3	1
C01D05Q2	39	1.13	1.59	-3	3
C01D05Q9	39	1.03	1.48	-2	3
C01D05Q11	39	1.64	0.93	0	3
C01D05Q12	39	1.1	1.31	-2	3
C01D05Q0	39	1.49	1.41	-2	3
C02D00Q1	39	1.51	1.1	0	3
C02D00Q2	39	1.03	1.37	-3	3
C02D00Q8	39	1.31	1.1	-1	3
R_C02D00Q11	39	1	1.49	-3	3
R_C02D00Q15	39	1.15	1.42	-3	3
C03D01Q1	39	1.51	1.35	-3	3
C03D01Q7	39	0.9	1.48	-3	3
C03D01Q5	39	0.08	1.68	-3	3
C03D01Q6	39	0.33	1.46	-3	3
C03D01Q12	39	0.87	1.45	-2	3
C03D02Q0	39	0.62	1.63	-3	3
C03D02Q5	39	1.1	1.31	-3	3
C03D02Q10	39	0.85	1.35	-3	3
R_C03D02Q13	39	1.08	1.72	-3	3
R_C03D02Q1	39	0.9	1.57	-3	3
C04D00Q1	39	0.54	1.54	-3	3
C04D00Q10	39	-0.05	1.97	-3	3
R_C04D00Q11	39	0.36	1.99	-3	3
C04D00Q4	39	1.26	1.07	-1	3
C04D00Q12	39	-1.72	1.7	-3	2
R_C05D00Q3	39	-0.69	1.67	-3	2
C05D00Q6	39	-1.05	1.54	-3	3
C05D00Q7	39	-0.44	1.73	-3	2
C05D00Q1	39	0.64	1.58	-3	3
C05D00Q18	39	0.23	1.8	-3	3
C06D01Q1	39	0.03	1.56	-3	2
R_C06D01Q6	39	-0.72	1.81	-3	3
R_C06D01Q13	39	-0.82	1.76	-3	3

C06D01Q8	39	0.56	1.52	-3	3
C06D01Q11	39	-0.64	1.65	-3	3
C07D00Q0	39	0.36	1.2	-2	3
C07D00Q11	39	0.62	1.14	-2	3
C07D00Q13	39	0.77	1.42	-2	3
R_C07D00Q15	39	0.92	1.44	-3	3
C07D00Q14	39	0.1	1.05	-3	2
R_C08D00Q3	39	-0.26	1.79	-3	3
C08D00Q4	39	0.67	1.51	-3	3
R_C08D00Q10	39	1.28	1.32	-2	3
C08D00Q0	39	-0.15	1.16	-3	2
R_C08D00Q9	39	0.97	1.6	-3	3
C09D00Q4	39	1.44	1.21	-1	3
C09D00Q5	39	0.28	1.32	-2	3
C09D00Q10	39	1.1	1.23	-1	3
C09D00Q3	39	-0.36	1.56	-3	3
C09D00Q1	39	1.38	1.07	-1	3
R_C09D00Q9	39	1.05	1.38	-2	3
C10D00Q1	39	1.08	1.48	-3	3
C10D00Q6	39	0.33	1.01	-3	2
C10D00Q10	39	0.31	1.75	-3	3
C10D00Q16	39	1.15	1.31	-2	3
C10D00Q18	39	0.33	1.36	-3	3
C11D01Q6	39	-0.13	1.54	-3	3
C11D01Q9	39	-0.23	1.51	-3	3
C11D01Q10	39	0.08	1.51	-3	3
C11D01Q11	39	-0.28	1.57	-3	2
C11D01Q14	39	0.79	1.22	-3	3
C11D02Q1	39	1.56	1.33	-2	3
C11D02Q3	39	-0.33	1.69	-3	2
C11D02Q4	39	0.21	1.52	-3	3
C11D02Q7	39	0.05	1.69	-3	3
C11D02Q8	39	-1.36	1.37	-3	1
C12D00Q0	39	1.74	1.58	-3	3
C12D00Q13	39	1.23	1.55	-3	3
C12D00Q1	39	2	1.08	-1	3
C12D00Q8	39	0.1	1.57	-3	3
R_C12D00Q6	39	-0.13	2.15	-3	3
R_C13D00Q3	39	1.31	1.56	-3	3
C13D00Q7	39	1.41	1.63	-3	3
R_C13D00Q11	39	1.62	1.31	-2	3
R_C13D00Q6	39	1.28	1.54	-2	3
R_C13D00Q15	39	1.79	1.49	-2	3

C14D00Q0	39	0.72	1.86	-3	3
C14D00Q10	39	0.36	1.93	-3	3
R_C14D00Q13	39	0.82	1.68	-3	3
C14D00Q15	39	1.36	1.11	-2	3
C14D00Q16	39	-0.56	2.04	-3	3
C15D00Q10	39	0.44	1.25	-3	3
C15D00Q11	39	0.18	1.23	-2	3
C15D00Q8	39	0.28	1.57	-3	3
C15D00Q12	39	0.64	1.51	-3	3
R_C15D00Q15	39	0.46	1.19	-3	3
C16D00Q11	39	0.23	1.81	-3	3
C16D00Q12	39	-0.08	1.51	-3	3
C16D00Q13	39	-0.18	1.86	-3	3
C16D00Q16	39	0.21	1.56	-3	3
C16D00Q17	39	-1.13	1.66	-3	3
C17D00Q2	39	-0.13	1.26	-3	3
C17D00Q3	39	0.51	1.39	-3	3
C17D00Q8	39	-1.18	1.43	-3	2
C17D00Q9	39	-0.67	1.22	-3	2
C17D00Q10	39	-0.1	1.29	-3	2
C18D01Q2	39	-1.08	1.92	-3	3
C18D01Q3	39	-1.28	1.75	-3	2
R_C18D01Q5	39	-0.36	2.05	-3	3
C18D01Q8	39	-0.1	1.71	-3	3
R_C18D01Q14	39	-1.77	1.55	-3	2
C18D03Q0	39	0.92	1.42	-3	3
C18D03Q1	39	-0.28	1.73	-3	3
C18D03Q2	39	0.03	1.46	-3	2
C18D03Q9	39	0.51	1.94	-3	3
C18D03Q12	39	0.54	1.76	-3	3
C19D00Q3	39	0.44	1.68	-3	3
C19D00Q7	39	1.21	1.42	-3	3
C19D00Q14	39	0.62	1.55	-3	3
C19D00Q26	39	0.54	1.31	-3	3
C19D00Q28	39	0.38	1.33	-3	3

Group: CHAPPIE

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	38	-1.42	1.62	-3	2
C01D01Q10	38	-1.21	1.76	-3	2
C01D01Q13	38	-0.95	1.87	-3	2
C01D01Q15	38	-0.79	1.91	-3	2
C01D01Q16	38	0.05	1.68	-3	2
C01D02Q7	38	-0.24	1.7	-3	2
C01D02Q10	38	0.63	1.36	-2	3
C01D02Q0	38	1	1.59	-3	3

C01D02Q1	38	-0.26	1.62	-3	2
C01D02Q9	38	0.42	1.69	-3	2
C01D03Q7	38	-1.37	2.02	-3	3
C01D03Q9	38	-1.5	1.47	-3	2
C01D03Q10	38	-0.74	1.84	-3	3
C01D03Q11	38	-1.13	1.6	-3	2
C01D03Q12	38	0.13	1.77	-3	3
C01D04Q0	38	-0.47	1.97	-3	3
C01D04Q13	38	0.05	1.43	-3	3
C01D04Q15	38	0.89	1.59	-3	3
C01D04Q8	38	-0.68	1.71	-3	3
C01D04Q9	38	0.24	1.72	-3	3
C01D05Q2	38	0.87	1.7	-3	3
C01D05Q9	38	0.95	1.58	-3	3
C01D05Q11	38	1.66	1.07	-1	3
C01D05Q12	38	1.08	1.32	-3	3
C01D05Q0	38	1.03	1.28	-3	3
C02D00Q1	38	0.71	1.37	-3	3
C02D00Q2	38	0.5	1.33	-3	3
C02D00Q8	38	1.03	1.3	-3	3
R_C02D00Q11	38	0.92	1.89	-3	3
R_C02D00Q15	38	0.84	1.35	-3	3
C03D01Q1	38	1.45	1.35	-2	3
C03D01Q7	38	1.29	1.04	-2	3
C03D01Q5	38	0.45	1.29	-3	3
C03D01Q6	38	0.24	1.22	-3	3
C03D01Q12	38	0.87	1.3	-2	3
C03D02Q0	38	1.61	1.37	-3	3
C03D02Q5	38	1.29	1.06	-1	3
C03D02Q10	38	1.24	1.26	-3	3
R_C03D02Q13	38	1.82	1.39	-2	3
R_C03D02Q1	38	1.95	0.98	0	3
C04D00Q1	38	0.47	1.37	-3	3
C04D00Q10	38	1.47	1.5	-3	3
R_C04D00Q11	38	2.11	1.39	-2	3
C04D00Q4	38	1.61	1.03	-1	3
C04D00Q12	38	0.71	1.75	-3	3
R_C05D00Q3	38	0.55	1.62	-2	3
C05D00Q6	38	0.13	1.47	-3	2
C05D00Q7	38	0.82	1.5	-3	3
C05D00Q1	38	0.95	1.71	-3	3
C05D00Q18	38	-0.34	1.46	-3	2
C06D01Q1	38	0.68	1.54	-3	3
R_C06D01Q6	38	1.21	1.79	-3	3
R_C06D01Q13	38	1.13	1.61	-3	3
C06D01Q8	38	0.61	1.39	-3	3
C06D01Q11	38	0.42	1.78	-3	3
C07D00Q0	38	1.71	1.27	-2	3
C07D00Q11	38	0.95	1.69	-3	3
C07D00Q13	38	1.47	1.25	-2	3
R_C07D00Q15	38	1.5	1.69	-3	3
C07D00Q14	38	1.45	1.25	-1	3
R_C08D00Q3	38	1.47	1.47	-3	3
C08D00Q4	38	1.84	1.44	-3	3
R_C08D00Q10	38	1.66	1.4	-3	3
C08D00Q0	38	2.24	0.97	-1	3
R_C08D00Q9	38	1.74	1.35	-2	3

C09D00Q4	38	1.97	1.05	-1	3
C09D00Q5	38	0.74	1.75	-3	3
C09D00Q10	38	2.13	0.91	0	3
C09D00Q3	38	0.76	1.85	-3	3
C09D00Q1	38	2	1.23	-3	3
R_C09D00Q9	38	1.34	1.65	-3	3
C10D00Q1	38	0.47	1.59	-3	3
C10D00Q6	38	-0.47	1.16	-3	2
C10D00Q10	38	-0.92	1.57	-3	2
C10D00Q16	38	0.76	1.5	-3	3
C10D00Q18	38	-0.08	1.51	-3	2
C11D01Q6	38	0.34	1.71	-3	3
C11D01Q9	38	-0.03	1.53	-3	3
C11D01Q10	38	0.89	1.45	-3	3
C11D01Q11	38	0.29	1.41	-3	2
C11D01Q14	38	1.11	1.16	-2	3
C11D02Q1	38	1.5	1.37	-3	3
C11D02Q3	38	0.32	1.76	-3	3
C11D02Q4	38	0.74	1.18	-2	3
C11D02Q7	38	0.92	1.57	-3	3
C11D02Q8	38	0.97	1.33	-2	3
C12D00Q0	38	0.82	1.77	-3	3
C12D00Q13	38	1.11	1.43	-3	3
C12D00Q1	38	1.53	1.33	-2	3
C12D00Q8	38	0.5	1.52	-3	3
R_C12D00Q6	38	1.05	1.31	-2	3
R_C13D00Q3	38	1.45	1.33	-3	3
C13D00Q7	38	0.68	1.3	-3	3
R_C13D00Q11	38	1.55	1.11	0	3
R_C13D00Q6	38	1.18	1.29	-1	3
R_C13D00Q15	38	0.03	1.67	-3	3
C14D00Q0	38	0.42	1.84	-3	3
C14D00Q10	38	0.03	1.6	-3	2
R_C14D00Q13	38	0.53	1.93	-3	3
C14D00Q15	38	0.74	1.27	-2	3
C14D00Q16	38	-0.24	1.48	-3	2
C15D00Q10	38	2	1.29	-3	3
C15D00Q11	38	1.71	1.33	-3	3
C15D00Q8	38	1.11	1.41	-3	3
C15D00Q12	38	1.53	1.29	-3	3
R_C15D00Q15	38	1.87	1.44	-2	3
C16D00Q11	38	1.29	1.25	-2	3
C16D00Q12	38	0.76	1.53	-3	3
C16D00Q13	38	0.42	1.59	-3	3
C16D00Q16	38	1.42	1.78	-3	3
C16D00Q17	38	-0.42	1.81	-3	3
C17D00Q2	38	0.76	1.57	-3	3
C17D00Q3	38	1.21	1.34	-2	3
C17D00Q8	38	0.95	1.51	-3	3
C17D00Q9	38	0.55	1.35	-3	3
C17D00Q10	38	0.97	1.13	-2	3
C18D01Q2	38	0.16	1.64	-3	3
C18D01Q3	38	0.29	1.8	-3	3
R_C18D01Q5	38	0.53	1.77	-3	3
C18D01Q8	38	0.39	1.53	-3	3
R_C18D01Q14	38	-0.08	1.71	-3	2
C18D03Q0	38	1.08	1.67	-3	3

ITEM ID	N	M	SD	MIN	MAX
C18D03Q1	38	0.58	1.78	-3	3
C18D03Q2	38	1.55	1.52	-3	3
C18D03Q9	38	1.37	1.73	-3	3
C18D03Q12	38	1.53	1.47	-2	3
C19D00Q3	38	0.79	1.36	-3	3
C19D00Q7	38	0.79	1.83	-3	3
C19D00Q14	38	1.05	1.29	-3	3
C19D00Q26	38	1.45	1.48	-3	3
C19D00Q28	38	0.79	1.32	-3	3

Group: DEEPBLUE

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	39	-2	1.99	-3	3
C01D01Q10	39	-2.1	1.6	-3	3
C01D01Q13	39	-1.87	1.82	-3	3
C01D01Q15	39	-1.85	1.8	-3	3
C01D01Q16	39	-1.15	2.08	-3	3
C01D02Q7	39	-0.59	2.01	-3	3
C01D02Q10	39	-0.62	1.94	-3	3
C01D02Q0	39	0.1	2.19	-3	3
C01D02Q1	39	-0.74	2.17	-3	3
C01D02Q9	39	-0.9	2.05	-3	3
C01D03Q7	39	-2.03	1.65	-3	3
C01D03Q9	39	-1.64	1.78	-3	3
C01D03Q10	39	-1.49	1.97	-3	3
C01D03Q11	39	-1.15	1.83	-3	3
C01D03Q12	39	0.79	1.59	-3	3
C01D04Q0	39	-2.21	1.56	-3	3
C01D04Q13	39	-0.33	2.07	-3	3
C01D04Q15	39	-0.87	2.3	-3	3
C01D04Q8	39	-2.21	1.32	-3	1
C01D04Q9	39	-1.54	1.68	-3	2
C01D05Q2	39	1.18	1.54	-3	3
C01D05Q9	39	0.82	1.79	-3	3
C01D05Q11	39	1.85	1.41	-2	3
C01D05Q12	39	0.46	1.88	-3	3
C01D05Q0	39	1.26	1.41	-2	3
C02D00Q1	39	1.28	1.41	-3	3
C02D00Q2	39	0.69	1.4	-3	3
C02D00Q8	39	0.44	1.43	-3	3
R_C02D00Q11	39	-0.49	1.85	-3	3
R_C02D00Q15	39	0.85	1.41	-2	3
C03D01Q1	39	1.51	1.37	-3	3
C03D01Q7	39	2.51	0.79	0	3
C03D01Q5	39	1.49	1.75	-3	3

C03D01Q6	39	1.41	1.57	-3	3
C03D01Q12	39	1.59	1.39	-3	3
C03D02Q0	39	1.28	1.36	-2	3
C03D02Q5	39	1.85	1.31	-3	3
C03D02Q10	39	1.67	1.42	-2	3
R_C03D02Q13	39	1.33	1.4	-2	3
R_C03D02Q1	39	1.56	1.45	-2	3
C04D00Q1	39	-0.05	1.54	-3	3
C04D00Q10	39	0.85	1.37	-3	3
R_C04D00Q11	39	1.44	1.59	-2	3
C04D00Q4	39	0.82	1.99	-3	3
C04D00Q12	39	-1.41	1.85	-3	3
R_C05D00Q3	39	0.62	1.71	-3	3
C05D00Q6	39	-1.54	1.73	-3	3
C05D00Q7	39	-1.03	1.98	-3	3
C05D00Q1	39	-1.13	1.89	-3	3
C05D00Q18	39	-2.05	1.36	-3	1
C06D01Q1	39	-0.56	1.96	-3	3
R_C06D01Q6	39	-1.77	1.77	-3	3
R_C06D01Q13	39	-1.26	1.96	-3	3
C06D01Q8	39	-0.13	1.91	-3	3
C06D01Q11	39	-1.59	1.8	-3	3
C07D00Q0	39	1.59	1.09	-1	3
C07D00Q11	39	1.21	1.59	-2	3
C07D00Q13	39	1.54	1.23	-1	3
R_C07D00Q15	39	1.23	1.46	-3	3
C07D00Q14	39	1.1	1.41	-3	3
R_C08D00Q3	39	0.33	1.66	-3	3
C08D00Q4	39	1.79	1.06	0	3
R_C08D00Q10	39	1.62	1.31	-2	3
C08D00Q0	39	1.08	1.36	-3	3
R_C08D00Q9	39	1.51	1.52	-2	3
C09D00Q4	39	1.74	1.29	-3	3
C09D00Q5	39	0.15	1.76	-3	3
C09D00Q10	39	1.69	1.28	-3	3
C09D00Q3	39	0.31	1.59	-3	3
C09D00Q1	39	1.97	1.18	-1	3
R_C09D00Q9	39	1.46	1.62	-3	3
C10D00Q1	39	1.87	1.15	-1	3
C10D00Q6	39	0.36	1.84	-3	3
C10D00Q10	39	2.23	1.37	-2	3
C10D00Q16	39	1.62	1.27	0	3
C10D00Q18	39	1.56	1.65	-3	3

C11D01Q6	39	-0.74	1.98	-3	3
C11D01Q9	39	0.46	1.79	-3	3
C11D01Q10	39	0.54	1.85	-3	3
C11D01Q11	39	0.18	1.88	-3	3
C11D01Q14	39	1.51	1.57	-3	3
C11D02Q1	39	1.21	1.47	-3	3
C11D02Q3	39	-1.87	1.87	-3	3
C11D02Q4	39	0.59	1.98	-3	3
C11D02Q7	39	0.49	1.88	-3	3
C11D02Q8	39	-0.69	1.82	-3	3
C12D00Q0	39	0.85	2.08	-3	3
C12D00Q13	39	1.49	1.67	-3	3
C12D00Q1	39	1.62	1.79	-3	3
C12D00Q8	39	0.15	1.87	-3	3
R_C12D00Q6	39	-0.97	1.95	-3	3
R_C13D00Q3	39	2	1.19	-1	3
C13D00Q7	39	2.15	1.46	-3	3
R_C13D00Q11	39	2.03	1.44	-3	3
R_C13D00Q6	39	2.18	1.14	-1	3
R_C13D00Q15	39	2.23	1.29	-3	3
C14D00Q0	39	1.33	1.88	-3	3
C14D00Q10	39	2.1	1.5	-3	3
R_C14D00Q13	39	1.72	1.9	-3	3
C14D00Q15	39	0.59	1.63	-3	3
C14D00Q16	39	1	2	-3	3
C15D00Q10	39	1.38	1.46	-3	3
C15D00Q11	39	1.36	1.37	-3	3
C15D00Q8	39	1.18	1.25	-1	3
C15D00Q12	39	1.1	1.31	-3	3
R_C15D00Q15	39	1.67	1.32	-2	3
C16D00Q11	39	-0.85	1.77	-3	3
C16D00Q12	39	-1.08	1.91	-3	3
C16D00Q13	39	-1.38	1.9	-3	3
C16D00Q16	39	-0.36	2.07	-3	3
C16D00Q17	39	-1.18	1.93	-3	3
C17D00Q2	39	1.15	1.41	-2	3
C17D00Q3	39	1.1	1.59	-3	3
C17D00Q8	39	0.26	1.65	-3	3
C17D00Q9	39	1	1.78	-3	3
C17D00Q10	39	0.05	1.7	-3	3
C18D01Q2	39	-2	1.69	-3	2
C18D01Q3	39	-2.21	1.63	-3	3
R_C18D01Q5	39	-2.41	1.14	-3	3

ITEM ID	N	M	SD	MIN	MAX
C18D01Q8	39	-1.97	1.69	-3	3
R_C18D01Q14	39	-2.26	1.52	-3	3
C18D03Q0	39	0.05	2.01	-3	3
C18D03Q1	39	-1.05	1.85	-3	3
C18D03Q2	39	-0.03	2.08	-3	3
C18D03Q9	39	-0.82	1.8	-3	3
C18D03Q12	39	-0.59	1.68	-3	3
C19D00Q3	39	-1.62	1.86	-3	3
C19D00Q7	39	-0.38	2.22	-3	3
C19D00Q14	39	0.87	1.82	-3	3
C19D00Q26	39	1.21	1.69	-3	3
C19D00Q28	39	-1	1.86	-3	3

Group: DOG

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	39	-2.21	1.4	-3	2
C01D01Q10	39	-2.13	1.36	-3	2
C01D01Q13	39	-1.97	1.69	-3	2
C01D01Q15	39	-1.33	2.16	-3	3
C01D01Q16	39	-0.82	2.02	-3	3
C01D02Q7	39	-1.41	1.48	-3	3
C01D02Q10	39	-0.31	1.85	-3	3
C01D02Q0	39	-0.08	1.94	-3	3
C01D02Q1	39	-0.77	1.88	-3	3
C01D02Q9	39	-0.51	2	-3	3
C01D03Q7	39	2.08	1.18	-1	3
C01D03Q9	39	1.64	1.53	-3	3
C01D03Q10	39	1.23	1.63	-3	3
C01D03Q11	39	2.1	1.39	-3	3
C01D03Q12	39	1.44	1.52	-2	3
C01D04Q0	39	2.49	1.37	-3	3
C01D04Q13	39	0.9	1.89	-3	3
C01D04Q15	39	2.28	0.92	0	3
C01D04Q8	39	1.69	1.4	-1	3
C01D04Q9	39	2.08	1.2	-2	3
C01D05Q2	39	2.28	1.23	-3	3
C01D05Q9	39	1.1	1.8	-3	3
C01D05Q11	39	1.13	1.56	-3	3
C01D05Q12	39	1.62	1.37	-2	3
C01D05Q0	39	2.18	1.32	-3	3
C02D00Q1	39	0.74	1.53	-3	3
C02D00Q2	39	0.36	1.35	-2	3
C02D00Q8	39	0.15	1.76	-3	3
R_C02D00Q11	39	1.54	1.55	-3	3
R_C02D00Q15	39	1.18	1.5	-3	3
C03D01Q1	39	1.28	1.82	-3	3
C03D01Q7	39	1.23	1.8	-3	3
C03D01Q5	39	0.31	1.98	-3	3
C03D01Q6	39	-0.82	1.96	-3	3
C03D01Q12	39	1.21	1.69	-3	3
C03D02Q0	39	1.87	1.1	-1	3
C03D02Q5	39	1.41	1.46	-3	3

C03D02Q10	39	1.41	1.79	-3	3
R_C03D02Q13	39	2.03	1.5	-3	3
R_C03D02Q1	39	1.85	1.27	-2	3
C04D00Q1	39	2.23	1.06	-2	3
C04D00Q10	39	2.62	0.75	0	3
R_C04D00Q11	39	2.85	0.54	0	3
C04D00Q4	39	2.21	1.03	-1	3
C04D00Q12	39	1.64	1.77	-3	3
R_C05D00Q3	39	1.72	1.54	-3	3
C05D00Q6	39	1.18	1.3	-2	3
C05D00Q7	39	1.67	1.03	0	3
C05D00Q1	39	1.59	1.46	-3	3
C05D00Q18	39	0.05	1.45	-3	3
C06D01Q1	39	1.21	1.44	-2	3
R_C06D01Q6	39	1.77	1.55	-3	3
R_C06D01Q13	39	1.74	1.57	-2	3
C06D01Q8	39	0.54	1.33	-3	2
C06D01Q11	39	1.44	1.55	-2	3
C07D00Q0	39	2.08	1.06	0	3
C07D00Q11	39	1.9	1.29	-3	3
C07D00Q13	39	2.13	0.95	0	3
R_C07D00Q15	39	2	1.59	-3	3
C07D00Q14	39	2.13	1.17	-2	3
R_C08D00Q3	39	2.03	1.39	-2	3
C08D00Q4	39	1.87	1.4	-3	3
R_C08D00Q10	39	2.21	1.36	-3	3
C08D00Q0	39	2.64	0.67	0	3
R_C08D00Q9	39	2.62	0.81	0	3
C09D00Q4	39	2.05	1.02	-1	3
C09D00Q5	39	0.56	1.94	-3	3
C09D00Q10	39	2.36	0.87	0	3
C09D00Q3	39	1.64	1.14	-1	3
C09D00Q1	39	2.59	0.68	0	3
R_C09D00Q9	39	2.05	1.28	-1	3
C10D00Q1	39	1.15	1.46	-3	3
C10D00Q6	39	-1.33	1.72	-3	3
C10D00Q10	39	-1.18	1.94	-3	3
C10D00Q16	39	0.9	1.43	-3	3
C10D00Q18	39	1.05	1.49	-3	3
C11D01Q6	39	0.64	1.61	-3	3
C11D01Q9	39	0.82	1.7	-3	3
C11D01Q10	39	1.15	1.79	-3	3
C11D01Q11	39	0.92	1.35	-3	3
C11D01Q14	39	0.87	1.75	-3	3
C11D02Q1	39	1.13	1.47	-3	3
C11D02Q3	39	1.51	1.65	-3	3
C11D02Q4	39	1.38	1.37	-3	3
C11D02Q7	39	1	1.64	-3	3
C11D02Q8	39	2.13	0.98	0	3
C12D00Q0	39	1.85	1.31	-2	3
C12D00Q13	39	1.87	1.28	-2	3
C12D00Q1	39	2.03	1.35	-2	3
C12D00Q8	39	0.85	1.97	-3	3
R_C12D00Q6	39	0.69	1.67	-3	3
R_C13D00Q3	39	1.33	1.81	-3	3
C13D00Q7	39	-0.21	1.67	-3	3
R_C13D00Q11	39	1.44	1.47	-3	3

ITEM ID	N	M	SD	MIN	MAX
R_C13D00Q6	39	0.77	1.72	-3	3
R_C13D00Q15	39	0.74	1.71	-3	3
C14D00Q0	39	0.69	1.66	-3	3
C14D00Q10	39	0.08	1.78	-3	3
R_C14D00Q13	39	-0.54	1.82	-3	3
C14D00Q15	39	-0.21	1.67	-3	3
C14D00Q16	39	0.59	1.37	-3	3
C15D00Q10	39	2.49	0.97	-1	3
C15D00Q11	39	2.49	0.85	0	3
C15D00Q8	39	2.13	1.06	-1	3
C15D00Q12	39	2.1	1.21	-2	3
R_C15D00Q15	39	2.54	0.97	-1	3
C16D00Q11	39	1.59	1.45	-2	3
C16D00Q12	39	1.1	1.59	-3	3
C16D00Q13	39	1.03	1.61	-3	3
C16D00Q16	39	1.64	1.39	-2	3
C16D00Q17	39	-0.69	1.85	-3	3
C17D00Q2	39	1.21	1.56	-3	3
C17D00Q3	39	1.31	1.42	-2	3
C17D00Q8	39	1.74	1.37	-3	3
C17D00Q9	39	1.26	1.53	-3	3
C17D00Q10	39	1.87	1.28	-3	3
C18D01Q2	39	0.36	1.63	-3	3
C18D01Q3	39	1.56	1.35	-3	3
R_C18D01Q5	39	1.51	1.54	-3	3
C18D01Q8	39	0.38	1.68	-3	3
R_C18D01Q14	39	1.67	1.59	-2	3
C18D03Q0	39	0.97	1.69	-3	3
C18D03Q1	39	0.56	1.85	-3	3
C18D03Q2	39	2.26	0.97	0	3
C18D03Q9	39	1.82	1.07	-1	3
C18D03Q12	39	2.26	1.16	-2	3
C19D00Q3	39	0.69	1.56	-3	3
C19D00Q7	39	1.97	1.27	-2	3
C19D00Q14	39	1.38	1.55	-2	3
C19D00Q26	39	1.69	1.49	-3	3
C19D00Q28	39	1.26	1.58	-3	3

Group: FURBY

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	39	-2.31	1.47	-3	2
C01D01Q10	39	-2.69	0.8	-3	1
C01D01Q13	39	-1.92	1.71	-3	3
C01D01Q15	39	-1.64	1.98	-3	3
C01D01Q16	39	-0.85	2.24	-3	3
C01D02Q7	39	-0.67	1.99	-3	3
C01D02Q10	39	0.41	1.97	-3	3
C01D02Q0	39	0.41	2.04	-3	3
C01D02Q1	39	-0.85	1.99	-3	3
C01D02Q9	39	0	2.2	-3	3
C01D03Q7	39	-0.95	1.96	-3	3
C01D03Q9	39	-1.46	1.71	-3	3
C01D03Q10	39	-0.49	1.85	-3	3
C01D03Q11	39	-1.1	1.92	-3	3
C01D03Q12	39	-0.23	1.86	-3	3
R_C01D04Q0	39	-1.95	1.54	-3	2

C01D04Q13	39	-0.08	1.84	-3	3
C01D04Q15	39	0.21	2	-3	3
C01D04Q8	39	-0.59	2.04	-3	3
C01D04Q9	39	-0.1	1.89	-3	3
C01D05Q2	39	1.87	1.26	-3	3
C01D05Q9	39	1.77	1.4	-3	3
C01D05Q11	39	0.95	1.59	-3	3
C01D05Q12	39	1.38	1.6	-3	3
C01D05Q0	39	1.77	1.4	-3	3
C02D00Q1	39	2.18	1.21	-2	3
C02D00Q2	39	1.74	1.29	-2	3
C02D00Q8	39	1.85	1.29	-2	3
R_C02D00Q11	39	0.95	1.88	-3	3
R_C02D00Q15	39	2.18	1.35	-3	3
C03D01Q1	39	1.54	1.57	-3	3
C03D01Q7	39	1.51	1.23	-1	3
C03D01Q5	39	0.05	1.69	-3	3
C03D01Q6	39	-0.82	1.82	-3	3
C03D01Q12	39	1.28	1.52	-2	3
C03D02Q0	39	1.69	1.26	-2	3
C03D02Q5	39	1.97	1.18	-2	3
C03D02Q10	39	0.69	1.58	-3	3
R_C03D02Q13	39	2.18	1.45	-3	3
R_C03D02Q1	39	2.23	1.27	-1	3
C04D00Q1	39	1.28	1.41	-3	3
C04D00Q10	39	0.85	2.06	-3	3
R_C04D00Q11	39	1.05	2.09	-3	3
C04D00Q4	39	1.31	1.66	-3	3
C04D00Q12	39	0.05	2.38	-3	3
R_C05D00Q3	39	0.51	2.05	-3	3
C05D00Q6	39	0	2.09	-3	3
C05D00Q7	39	0.85	1.48	-3	3
C05D00Q1	39	1.33	1.9	-3	3
C05D00Q18	39	-0.49	2.15	-3	3
C06D01Q1	39	1.33	1.74	-3	3
R_C06D01Q6	39	1.36	1.84	-3	3
R_C06D01Q13	39	1.15	1.9	-3	3
C06D01Q8	39	0.41	1.79	-3	3
C06D01Q11	39	-0.46	2.05	-3	3
C07D00Q0	39	1	1.69	-3	3
C07D00Q11	39	0.69	1.79	-3	3
C07D00Q13	39	1.74	1.35	-3	3
R_C07D00Q15	39	1.36	1.78	-3	3
C07D00Q14	39	1.38	1.31	-2	3
R_C08D00Q3	39	0.82	1.99	-3	3
C08D00Q4	39	1.36	1.75	-3	3
R_C08D00Q10	39	1.74	1.68	-3	3
C08D00Q0	39	1.79	1.58	-3	3
R_C08D00Q9	39	1.77	1.66	-3	3
C09D00Q4	39	1.13	1.56	-2	3
C09D00Q5	39	0.13	1.56	-3	3
C09D00Q10	39	1.74	1.31	-3	3
C09D00Q3	39	0.69	2.05	-3	3
C09D00Q1	39	1.64	1.14	-2	3
R_C09D00Q9	39	1.33	1.83	-3	3
C10D00Q1	39	0.33	1.58	-3	3
C10D00Q6	39	-1.03	1.71	-3	3

C10D00Q10	39	-1	1.91	-3	3
C10D00Q16	39	0.23	1.78	-3	3
C10D00Q18	39	-0.59	1.85	-3	3
C11D01Q6	39	0.54	1.9	-3	3
C11D01Q9	39	-0.54	1.85	-3	3
C11D01Q10	39	-0.38	1.91	-3	3
C11D01Q11	39	0.08	1.78	-3	3
C11D01Q14	39	-0.15	1.87	-3	3
C11D02Q1	39	1.62	1.48	-3	3
C11D02Q3	39	-0.54	2.22	-3	3
C11D02Q4	39	0.85	1.63	-3	3
C11D02Q7	39	-0.18	2.05	-3	3
C11D02Q8	39	0.05	1.82	-3	3
C12D00Q0	39	1.1	1.7	-3	3
C12D00Q13	39	0.9	1.73	-3	3
C12D00Q1	39	1.41	1.87	-3	3
C12D00Q8	39	0.49	1.78	-3	3
R_C12D00Q6	39	0.1	1.94	-3	3
R_C13D00Q3	39	1.13	1.73	-3	3
C13D00Q7	39	0.08	1.61	-3	3
R_C13D00Q11	39	1.54	1.67	-3	3
R_C13D00Q6	39	1.21	1.59	-2	3
R_C13D00Q15	39	1.77	1.66	-3	3
C14D00Q0	39	0.36	1.94	-3	3
C14D00Q10	39	-0.64	2.21	-3	3
R_C14D00Q13	39	-0.62	2.21	-3	3
C14D00Q15	39	0.33	1.95	-3	3
C14D00Q16	39	-1.05	1.79	-3	3
C15D00Q10	39	1.54	1.5	-3	3
C15D00Q11	39	1.44	1.29	-3	3
C15D00Q8	39	1.13	1.47	-3	3
C15D00Q12	39	1.05	1.57	-3	3
R_C15D00Q15	39	1.72	1.65	-2	3
C16D00Q11	39	0.77	2.06	-3	3
C16D00Q12	39	0.38	2.09	-3	3
C16D00Q13	39	0	2.27	-3	3
C16D00Q16	39	0.64	1.86	-3	3
C16D00Q17	39	-0.74	1.98	-3	3
C17D00Q2	39	0.85	1.58	-3	3
C17D00Q3	39	0.9	1.65	-3	3
C17D00Q8	39	0.15	1.86	-3	3
C17D00Q9	39	0.26	1.53	-3	3
C17D00Q10	39	0.54	1.76	-3	3
C18D01Q2	39	0.15	1.91	-3	3
C18D01Q3	39	-0.64	2.21	-3	3
R_C18D01Q5	39	0.79	2.09	-3	3
C18D01Q8	39	0.15	2.32	-3	3
R_C18D01Q14	39	-1.21	2.26	-3	3
C18D03Q0	39	1.28	1.61	-3	3
C18D03Q1	39	0.64	1.55	-3	3
C18D03Q2	39	1.1	1.73	-3	3
C18D03Q9	39	0.38	1.82	-3	3
C18D03Q12	39	1.1	1.65	-3	3
C19D00Q3	39	1.23	1.71	-3	3
C19D00Q7	39	0.85	1.89	-3	3
C19D00Q14	39	0.82	1.75	-3	3
C19D00Q26	39	1.38	1.48	-3	3

ITEM ID	N	M	SD	MIN	MAX
C19D00Q28	39	1.05	1.82	-3	3

Group: HAL 9000

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	37	-2.35	1.27	-3	1
C01D01Q10	37	-2.14	1.58	-3	2
C01D01Q13	37	-1.89	1.61	-3	3
C01D01Q15	37	-1.95	1.78	-3	3
C01D01Q16	37	-0.7	2.04	-3	3
C01D02Q7	37	-0.38	1.86	-3	3
C01D02Q10	37	0.84	1.89	-3	3
C01D02Q0	37	0.11	1.84	-3	3
C01D02Q1	37	0.03	2.14	-3	3
C01D02Q9	37	0.54	1.97	-3	3
C01D03Q7	37	-1.62	1.82	-3	2
C01D03Q9	37	-1.97	1.46	-3	2
C01D03Q10	37	-1.78	1.58	-3	1
C01D03Q11	37	-1.62	1.69	-3	3
C01D03Q12	37	1	1.63	-3	3
C01D04Q0	37	-1.3	1.81	-3	3
C01D04Q13	37	0.22	1.9	-3	3
C01D04Q15	37	0	2	-3	3
C01D04Q8	37	-2.49	0.87	-3	0
C01D04Q9	37	-1.97	1.48	-3	2
C01D05Q2	37	1.7	1.1	0	3
C01D05Q9	37	1.32	1.31	-1	3
C01D05Q11	37	2.05	1.22	-2	3
C01D05Q12	37	1.08	1.52	-2	3
C01D05Q0	37	1.14	1.51	-3	3
C02D00Q1	37	1.65	1.16	-1	3
C02D00Q2	37	0.92	1.42	-2	3
C02D00Q8	37	1.59	1.26	-2	3
R_C02D00Q11	37	0.84	1.92	-3	3
R_C02D00Q15	37	1.43	1.41	-2	3
C03D01Q1	37	1.95	1.45	-2	3
C03D01Q7	37	1.43	1.39	-1	3
C03D01Q5	37	1.27	1.24	-1	3
C03D01Q6	37	1.49	1.26	-1	3
C03D01Q12	37	0.73	1.66	-3	3
C03D02Q0	37	1.35	1.21	-1	3
C03D02Q5	37	1.49	1.24	-2	3
C03D02Q10	37	1.38	1.48	-3	3
R_C03D02Q13	37	1.57	1.46	-1	3
R_C03D02Q1	37	1.46	1.22	-1	3
C04D00Q1	37	0.27	1.81	-3	3
C04D00Q10	37	0.41	1.79	-3	3
R_C04D00Q11	37	0.59	1.95	-3	3
C04D00Q4	37	1.3	1.58	-3	3
C04D00Q12	37	-0.76	2.18	-3	3
R_C05D00Q3	37	0.05	1.86	-3	3
C05D00Q6	37	-0.38	1.8	-3	3
C05D00Q7	37	-0.27	1.97	-3	3
C05D00Q1	37	0.78	1.32	-2	3
C05D00Q18	37	-0.19	1.81	-3	3
C06D01Q1	37	0.73	1.74	-3	3
R_C06D01Q6	37	0.41	1.83	-3	3

R_C06D01Q13	37	0.14	2.07	-3	3
C06D01Q8	37	0.81	1.47	-3	3
C06D01Q11	37	-0.27	1.82	-3	3
C07D00Q0	37	1.92	1.23	-1	3
C07D00Q11	37	1.59	1.28	-1	3
C07D00Q13	37	1.35	1.3	-3	3
R_C07D00Q15	37	0.57	1.8	-3	3
C07D00Q14	37	0.41	1.85	-3	3
R_C08D00Q3	37	0.54	1.92	-3	3
C08D00Q4	37	1.51	1.52	-3	3
R_C08D00Q10	37	1.14	1.69	-3	3
C08D00Q0	37	0.24	1.85	-3	3
R_C08D00Q9	37	1.14	1.78	-3	3
C09D00Q4	37	2.08	1.21	-3	3
C09D00Q5	37	-0.16	1.82	-3	3
C09D00Q10	37	1.97	1.28	-2	3
C09D00Q3	37	0.92	1.66	-3	3
C09D00Q1	37	2.3	1.1	-1	3
R_C09D00Q9	37	1.89	1.33	-1	3
C10D00Q1	37	0.3	2.15	-3	3
C10D00Q6	37	-0.14	1.32	-3	2
C10D00Q10	37	1.84	1.21	-1	3
C10D00Q16	37	0.59	1.8	-3	3
C10D00Q18	37	0.76	1.8	-3	3
C11D01Q6	37	0.05	1.99	-3	3
C11D01Q9	37	0.51	1.98	-3	3
C11D01Q10	37	0.73	1.37	-2	3
C11D01Q11	37	0.16	1.74	-3	3
C11D01Q14	37	1.62	1.23	-2	3
C11D02Q1	37	2.22	1.06	-1	3
C11D02Q3	37	-0.27	1.77	-3	3
C11D02Q4	37	0.46	1.69	-3	3
C11D02Q7	37	1.54	1.39	-2	3
C11D02Q8	37	-0.24	1.71	-3	2
C12D00Q0	37	2.03	1.07	-1	3
C12D00Q13	37	2.24	1.06	-1	3
C12D00Q1	37	2.03	0.96	0	3
C12D00Q8	37	0.95	1.6	-3	3
R_C12D00Q6	37	1.05	1.58	-3	3
R_C13D00Q3	37	1.27	1.5	-2	3
C13D00Q7	37	2	1.35	-2	3
R_C13D00Q11	37	1.59	1.59	-3	3
R_C13D00Q6	37	1.7	1.43	-2	3
R_C13D00Q15	37	1.89	1.52	-2	3
C14D00Q0	37	1.46	1.45	-3	3
C14D00Q10	37	1.97	1.24	-1	3
R_C14D00Q13	37	2.3	1.08	0	3
C14D00Q15	37	1.19	1.54	-3	3
C14D00Q16	37	1.46	1.5	-2	3
C15D00Q10	37	0.49	1.77	-3	3
C15D00Q11	37	0.35	1.77	-3	3
C15D00Q8	37	0.46	1.5	-3	3
C15D00Q12	37	0.73	1.33	-2	3
R_C15D00Q15	37	0.38	1.99	-3	3
C16D00Q11	37	0.41	1.66	-3	3
C16D00Q12	37	0.35	1.42	-3	3
C16D00Q13	37	-0.14	1.51	-3	3

ITEM ID	N	M	SD	MIN	MAX
C16D00Q16	37	1.05	1.33	-2	3
C16D00Q17	37	-1	1.89	-3	3
C17D00Q2	37	0.7	1.88	-3	3
C17D00Q3	37	0.95	1.51	-3	3
C17D00Q8	37	0.54	1.71	-3	3
C17D00Q9	37	0.62	1.52	-3	3
C17D00Q10	37	0.73	1.26	-3	3
C18D01Q2	37	-1.54	1.68	-3	2
C18D01Q3	37	-1.27	1.45	-3	2
R_C18D01Q5	37	-0.92	1.79	-3	3
C18D01Q8	37	-0.57	1.8	-3	2
R_C18D01Q14	37	-1	1.78	-3	3
C18D03Q0	37	1.32	1.51	-3	3
C18D03Q1	37	0.68	1.62	-3	3
C18D03Q2	37	0.65	1.64	-3	3
C18D03Q9	37	-0.19	1.87	-3	3
C18D03Q12	37	0.57	1.85	-3	3
C19D00Q3	37	-0.14	1.72	-3	3
C19D00Q7	37	0.76	1.57	-3	3
C19D00Q14	37	0.49	1.57	-3	3
C19D00Q26	37	1.32	1.58	-3	3
C19D00Q28	37	0.14	1.46	-3	3

Group: iCAT

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	36	-2.25	1.4	-3	2
C01D01Q10	36	-2.19	1.51	-3	2
C01D01Q13	36	-2.22	1.48	-3	2
C01D01Q15	36	-2.17	1.44	-3	1
C01D01Q16	36	-1.83	1.61	-3	2
C01D02Q7	36	-1.72	1.56	-3	3
C01D02Q10	36	-0.31	2.1	-3	3
C01D02Q0	36	-1.47	1.68	-3	2
C01D02Q1	36	-1.69	1.74	-3	2
C01D02Q9	36	-1.22	1.81	-3	3
C01D03Q7	36	-2.11	1.43	-3	2
C01D03Q9	36	-2.17	1.34	-3	1
C01D03Q10	36	-0.44	1.83	-3	3
C01D03Q11	36	-1.81	1.62	-3	2
C01D03Q12	36	-0.97	1.48	-3	2
C01D04Q0	36	-2.64	0.9	-3	1
C01D04Q13	36	-1.36	1.55	-3	3
C01D04Q15	36	-1.64	1.73	-3	3
C01D04Q8	36	-2.19	1.26	-3	2
C01D04Q9	36	-1.67	1.84	-3	3
C01D05Q2	36	0.64	1.66	-3	3
C01D05Q9	36	0.56	1.71	-2	3
C01D05Q11	36	0.75	1.46	-3	3

C01D05Q12	36	0.22	1.88	-3	3
C01D05Q0	36	0.28	1.81	-3	3
C02D00Q1	36	1.25	1.52	-3	3
C02D00Q2	36	0.92	1.48	-3	3
C02D00Q8	36	1.42	1.32	-3	3
R_C02D00Q11	36	0.72	1.73	-2	3
R_C02D00Q15	36	1.58	1.18	-1	3
C03D01Q1	36	1.25	1.5	-2	3
C03D01Q7	36	0.75	1.42	-3	3
C03D01Q5	36	0.03	1.52	-3	3
C03D01Q6	36	-0.58	1.5	-3	2
C03D01Q12	36	0.86	1.51	-2	3
C03D02Q0	36	1.33	1.24	-2	3
C03D02Q5	36	1.19	1.45	-3	3
C03D02Q10	36	1.22	1.27	-3	3
R_C03D02Q13	36	2.03	1.16	0	3
R_C03D02Q1	36	2.19	1.09	0	3
C04D00Q1	36	-1.14	1.62	-3	2
C04D00Q10	36	-0.75	1.75	-3	3
R_C04D00Q11	36	-0.39	2.16	-3	3
C04D00Q4	36	1.14	1.48	-3	3
C04D00Q12	36	-1.69	1.88	-3	3
R_C05D00Q3	36	-0.89	1.72	-3	3
C05D00Q6	36	-1.22	1.91	-3	3
C05D00Q7	36	-0.31	1.95	-3	3
C05D00Q1	36	0.47	1.9	-3	3
C05D00Q18	36	-1.5	1.63	-3	3
C06D01Q1	36	0.28	1.99	-3	3
R_C06D01Q6	36	-0.33	1.93	-3	3
R_C06D01Q13	36	-0.56	1.92	-3	3
C06D01Q8	36	-0.53	1.7	-3	3
C06D01Q11	36	-1.5	1.87	-3	3
C07D00Q0	36	0.5	1.48	-3	3
C07D00Q11	36	0.06	1.67	-3	2
C07D00Q13	36	0.81	1.67	-3	3
R_C07D00Q15	36	1.42	1.66	-3	3
C07D00Q14	36	0.69	1.33	-3	3
R_C08D00Q3	36	-0.5	1.73	-3	3
C08D00Q4	36	0.28	2.02	-3	3
R_C08D00Q10	36	0.64	1.74	-3	3
C08D00Q0	36	1.22	1.48	-3	3
R_C08D00Q9	36	0.86	1.76	-3	3
C09D00Q4	36	1.53	1.36	-3	3

C09D00Q5	36	0.42	1.38	-3	3
C09D00Q10	36	1.39	1.34	-2	3
C09D00Q3	36	-0.11	1.56	-3	3
C09D00Q1	36	2.08	1.4	-3	3
R_C09D00Q9	36	1.89	1.21	-1	3
C10D00Q1	36	0.92	1.44	-3	3
C10D00Q6	36	-0.86	1.57	-3	2
C10D00Q10	36	-0.47	1.95	-3	3
C10D00Q16	36	0.89	1.41	-3	3
C10D00Q18	36	-0.11	1.62	-3	3
C11D01Q6	36	-0.72	1.81	-3	2
C11D01Q9	36	-0.86	1.71	-3	2
C11D01Q10	36	-0.44	1.78	-3	2
C11D01Q11	36	-0.97	1.52	-3	2
C11D01Q14	36	0.42	1.66	-3	3
C11D02Q1	36	2.11	1.19	-3	3
C11D02Q3	36	-1.56	1.9	-3	3
C11D02Q4	36	0.19	1.85	-3	3
C11D02Q7	36	0.11	1.86	-3	3
C11D02Q8	36	-1.08	1.7	-3	3
C12D00Q0	36	1.64	1.46	-2	3
C12D00Q13	36	0.92	1.75	-3	3
C12D00Q1	36	1.58	1.27	-2	3
C12D00Q8	36	-0.19	1.51	-3	3
R_C12D00Q6	36	-0.56	2.1	-3	3
R_C13D00Q3	36	1.31	1.58	-3	3
C13D00Q7	36	1.08	1.65	-3	3
R_C13D00Q11	36	2.03	1.38	-3	3
R_C13D00Q6	36	1.36	1.44	-3	3
R_C13D00Q15	36	2.03	1.08	0	3
C14D00Q0	36	0.78	1.55	-3	3
C14D00Q10	36	0.06	1.94	-3	3
R_C14D00Q13	36	-0.08	1.87	-3	3
C14D00Q15	36	0.44	1.59	-3	3
C14D00Q16	36	-0.47	1.9	-3	3
C15D00Q10	36	1.11	1.53	-3	3
C15D00Q11	36	0.86	1.66	-3	3
C15D00Q8	36	0.06	1.49	-3	2
C15D00Q12	36	0.14	1.07	-3	2
R_C15D00Q15	36	1.33	1.53	-3	3
C16D00Q11	36	0.56	1.66	-3	3
C16D00Q12	36	-0.39	1.76	-3	3
C16D00Q13	36	-1.14	1.9	-3	3

ITEM ID	N	M	SD	MIN	MAX
C16D00Q16	36	0.94	1.6	-3	3
C16D00Q17	36	-1.83	1.86	-3	3
C17D00Q2	36	0.17	1.48	-3	2
C17D00Q3	36	-0.06	1.35	-3	2
C17D00Q8	36	-0.47	1.48	-3	2
C17D00Q9	36	-0.14	1.51	-3	3
C17D00Q10	36	-0.31	1.72	-3	3
C18D01Q2	36	-2.14	1.22	-3	1
C18D01Q3	36	-1.97	1.54	-3	2
R_C18D01Q5	36	-1.83	1.54	-3	2
C18D01Q8	36	-1.61	1.55	-3	2
R_C18D01Q14	36	-1.67	2.06	-3	3
C18D03Q0	36	0.31	1.74	-3	3
C18D03Q1	36	0.22	1.81	-3	3
C18D03Q2	36	0.44	1.46	-3	3
C18D03Q9	36	-1.14	1.81	-3	3
C18D03Q12	36	0.08	1.92	-3	3
C19D00Q3	36	-1.19	1.8	-3	3
C19D00Q7	36	-0.64	1.82	-3	3
C19D00Q14	36	0.14	1.69	-3	3
C19D00Q26	36	0.97	1.56	-3	3
C19D00Q28	36	-0.22	1.73	-3	3

Group: MARCUS

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	36	1.58	1.42	-2	3
C01D01Q10	36	1.67	1.45	-3	3
C01D01Q13	36	1.61	1.38	-2	3
C01D01Q15	36	1.92	1.25	-3	3
C01D01Q16	36	1.97	1.21	-1	3
C01D02Q7	36	1.56	1.38	-1	3
C01D02Q10	36	1.36	1.5	-2	3
C01D02Q0	36	1.72	1.23	-1	3
C01D02Q1	36	1.89	1.28	-2	3
C01D02Q9	36	1.97	1.13	-2	3
C01D03Q7	36	-0.14	2.24	-3	3
C01D03Q9	36	0.97	1.7	-2	3
C01D03Q10	36	0.67	2	-3	3
C01D03Q11	36	0.61	2.11	-3	3
C01D03Q12	36	1.22	1.44	-2	3
C01D04Q0	36	0.75	1.93	-3	3
C01D04Q13	36	1.22	1.62	-2	3

C01D04Q15	36	1.67	1.24	-1	3
C01D04Q8	36	-1.33	1.74	-3	3
C01D04Q9	36	-0.5	1.78	-3	3
C01D05Q2	36	0.97	1.52	-3	3
C01D05Q9	36	1.89	1.24	-3	3
C01D05Q11	36	1.17	1.56	-2	3
C01D05Q12	36	1.81	1.12	-1	3
C01D05Q0	36	1.36	1.29	-2	3
C02D00Q1	36	0.25	1.68	-3	3
C02D00Q2	36	0.28	1.65	-3	3
C02D00Q8	36	1.42	1.44	-3	3
R_C02D00Q11	36	1.47	1.84	-3	3
R_C02D00Q15	36	0.72	1.49	-3	3
C03D01Q1	36	1	1.67	-3	3
C03D01Q7	36	1.42	1.08	0	3
C03D01Q5	36	0.92	1.34	-2	3
C03D01Q6	36	0.86	1.51	-3	3
C03D01Q12	36	0.53	1.48	-2	3
C03D02Q0	36	0.69	1.09	-2	3
C03D02Q5	36	0.64	1.33	-3	3
C03D02Q10	36	1.33	1.24	-3	3
R_C03D02Q13	36	1.28	1.37	-2	3
R_C03D02Q1	36	0.97	1.4	-2	3
C04D00Q1	36	-0.19	1.89	-3	3
C04D00Q10	36	0.58	1.57	-3	3
R_C04D00Q11	36	1.17	1.5	-3	3
C04D00Q4	36	0.92	1.44	-3	3
C04D00Q12	36	-0.44	1.65	-3	3
R_C05D00Q3	36	0.42	1.65	-3	3
C05D00Q6	36	0.08	1.68	-3	3
C05D00Q7	36	0.5	1.58	-3	3
C05D00Q1	36	1.67	1.12	-1	3
C05D00Q18	36	0.08	1.56	-3	3
C06D01Q1	36	1.56	1.32	-3	3
R_C06D01Q6	36	1.33	1.57	-3	3
R_C06D01Q13	36	1.17	1.52	-3	3
C06D01Q8	36	1.03	1.48	-3	3
C06D01Q11	36	1.17	1.76	-3	3
C07D00Q0	36	0.72	1.49	-3	3
C07D00Q11	36	0.97	1.56	-3	3
C07D00Q13	36	1.11	1.65	-3	3
R_C07D00Q15	36	0.58	1.59	-3	3
C07D00Q14	36	-0.06	1.49	-3	3

R_C08D00Q3	36	1.31	1.88	-3	3
C08D00Q4	36	1.19	1.6	-3	3
R_C08D00Q10	36	1.28	1.32	-2	3
C08D00Q0	36	-0.64	1.66	-3	3
R_C08D00Q9	36	0.97	1.7	-3	3
C09D00Q4	36	2.08	1.23	-3	3
C09D00Q5	36	0.53	1.8	-3	3
C09D00Q10	36	2.06	1.04	0	3
C09D00Q3	36	1.17	1.21	-2	3
C09D00Q1	36	2.11	1.14	-1	3
R_C09D00Q9	36	1	1.74	-3	3
C10D00Q1	36	-0.22	1.76	-3	3
C10D00Q6	36	-0.28	1.26	-3	3
C10D00Q10	36	0.92	1.3	-2	3
C10D00Q16	36	0.78	1.48	-3	3
C10D00Q18	36	0.42	1.18	-2	3
C11D01Q6	36	0.47	1.18	-2	3
C11D01Q9	36	1.14	1.33	-2	3
C11D01Q10	36	0.83	1.38	-3	3
C11D01Q11	36	1.61	1.2	-1	3
C11D01Q14	36	1.31	1.17	-1	3
C11D02Q1	36	1.67	1.31	-3	3
C11D02Q3	36	0.14	1.38	-3	3
C11D02Q4	36	0.14	1.62	-3	3
C11D02Q7	36	1.39	1.54	-2	3
C11D02Q8	36	-0.78	1.71	-3	2
C12D00Q0	36	2	1.2	-1	3
C12D00Q13	36	1.78	1.1	-1	3
C12D00Q1	36	2.11	1.33	-2	3
C12D00Q8	36	1.33	1.49	-3	3
R_C12D00Q6	36	1.42	1.5	-2	3
R_C13D00Q3	36	1.17	1.48	-2	3
C13D00Q7	36	1.78	1.22	-1	3
R_C13D00Q11	36	1.25	1.52	-2	3
R_C13D00Q6	36	0.97	1.44	-3	3
R_C13D00Q15	36	0.78	1.62	-3	3
C14D00Q0	36	1.75	1.08	-2	3
C14D00Q10	36	1.72	1.34	-1	3
R_C14D00Q13	36	1.83	1.3	-2	3
C14D00Q15	36	1.39	1.18	-1	3
C14D00Q16	36	1.22	1.76	-3	3
C15D00Q10	36	-0.06	1.47	-3	3
C15D00Q11	36	-0.06	1.77	-3	3

ITEM ID	N	M	SD	MIN	MAX
C15D00Q8	36	0.58	1.38	-3	3
C15D00Q12	36	0.78	1.4	-2	3
R_C15D00Q15	36	0.08	1.61	-3	3
C16D00Q11	36	0.67	1.8	-3	3
C16D00Q12	36	1.22	1.55	-2	3
C16D00Q13	36	0.53	1.65	-3	3
C16D00Q16	36	1.44	1.66	-3	3
C16D00Q17	36	0.5	1.98	-3	3
C17D00Q2	36	0.31	1.51	-2	3
C17D00Q3	36	0.33	1.51	-3	3
C17D00Q8	36	-0.19	1.39	-3	3
C17D00Q9	36	-0.28	1.21	-3	2
C17D00Q10	36	0.58	1.5	-3	3
C18D01Q2	36	0.36	1.4	-3	3
C18D01Q3	36	0.97	1.7	-3	3
R_C18D01Q5	36	0.69	1.88	-3	3
C18D01Q8	36	1.22	1.74	-3	3
R_C18D01Q14	36	0.64	1.94	-3	3
C18D03Q0	36	1.36	1.38	-3	3
C18D03Q1	36	1.08	1.44	-2	3
C18D03Q2	36	1.39	1.38	-3	3
C18D03Q9	36	1.22	1.55	-3	3
C18D03Q12	36	1.14	1.48	-3	3
C19D00Q3	36	0.75	1.7	-3	3
C19D00Q7	36	1.31	1.53	-3	3
C19D00Q14	36	1.08	1.13	0	3
C19D00Q26	36	2	1.07	0	3
C19D00Q28	36	1.22	1.42	-2	3

Group: NAO

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	36	-0.94	1.88	-3	3
C01D01Q10	36	-1.17	1.75	-3	3
C01D01Q13	36	-1.11	1.77	-3	3
C01D01Q15	36	-0.5	2.02	-3	3
C01D01Q16	36	0.36	1.79	-3	3
C01D02Q7	36	0.11	1.91	-3	3
C01D02Q10	36	1.22	1.31	-3	3
C01D02Q0	36	1.11	1.56	-3	3
C01D02Q1	36	0.31	1.7	-3	3
C01D02Q9	36	0.97	1.59	-3	3
C01D03Q7	36	-1.33	2.06	-3	3
C01D03Q9	36	-0.64	1.79	-3	3

C01D03Q10	36	-0.83	2.05	-3	3
C01D03Q11	36	-0.89	1.89	-3	3
C01D03Q12	36	0.86	1.64	-3	3
C01D04Q0	36	-1.83	1.7	-3	3
C01D04Q13	36	0.25	1.7	-3	3
C01D04Q15	36	0.5	2.05	-3	3
C01D04Q8	36	-1.47	1.81	-3	3
C01D04Q9	36	-0.56	1.87	-3	3
C01D05Q2	36	2	1.15	-2	3
C01D05Q9	36	1.58	1.16	-1	3
C01D05Q11	36	1.75	0.94	-1	3
C01D05Q12	36	1.17	1.38	-3	3
C01D05Q0	36	1.64	1.38	-3	3
C02D00Q1	36	1.06	1.15	-2	3
C02D00Q2	36	0.75	1.42	-3	3
C02D00Q8	36	1.19	1.49	-3	3
R_C02D00Q11	36	0	1.77	-3	3
R_C02D00Q15	36	1.14	1.51	-3	3
C03D01Q1	36	1.22	1.79	-3	3
C03D01Q7	36	0.69	1.6	-3	3
C03D01Q5	36	0.11	1.89	-3	3
C03D01Q6	36	-0.61	1.57	-3	3
C03D01Q12	36	1.56	1.32	-1	3
C03D02Q0	36	1.44	1.27	-2	3
C03D02Q5	36	1.28	1.52	-3	3
C03D02Q10	36	1.67	1.01	0	3
R_C03D02Q13	36	0.81	1.92	-3	3
R_C03D02Q1	36	1.64	1.44	-3	3
C04D00Q1	36	1.22	1.57	-3	3
C04D00Q10	36	2	1.6	-3	3
R_C04D00Q11	36	2.25	1.4	-3	3
C04D00Q4	36	1.92	1.16	-1	3
C04D00Q12	36	1.33	2.22	-3	3
R_C05D00Q3	36	1.42	1.56	-3	3
C05D00Q6	36	0.5	1.48	-2	3
C05D00Q7	36	0.89	1.33	-2	3
C05D00Q1	36	1.53	1.28	-3	3
C05D00Q18	36	0	1.82	-3	3
C06D01Q1	36	1.31	1.33	-3	3
R_C06D01Q6	36	1.72	1.45	-3	3
R_C06D01Q13	36	1.17	1.68	-3	3
C06D01Q8	36	0.75	1.79	-3	3
C06D01Q11	36	0.17	2.08	-3	3

C07D00Q0	36	1.56	1.56	-3	3
C07D00Q11	36	1.25	1.76	-3	3
C07D00Q13	36	1.94	0.95	0	3
R_C07D00Q15	36	1.92	1.13	0	3
C07D00Q14	36	1.53	1.44	-2	3
R_C08D00Q3	36	1.75	1.61	-3	3
C08D00Q4	36	1.92	1.32	-3	3
R_C08D00Q10	36	1.86	1.4	-2	3
C08D00Q0	36	1.67	1.33	-2	3
R_C08D00Q9	36	2.31	0.92	0	3
C09D00Q4	36	2.11	0.82	1	3
C09D00Q5	36	-0.28	1.83	-3	3
C09D00Q10	36	1.78	1.12	-2	3
C09D00Q3	36	1	1.29	-3	3
C09D00Q1	36	2.44	0.88	0	3
R_C09D00Q9	36	1.81	1.33	-1	3
C10D00Q1	36	0.86	1.2	-3	3
C10D00Q6	36	-0.03	1.42	-3	3
C10D00Q10	36	-0.83	1.59	-3	3
C10D00Q16	36	1.39	1.36	-3	3
C10D00Q18	36	0.17	1.48	-3	2
C11D01Q6	36	0.69	1.86	-3	3
C11D01Q9	36	0.67	1.53	-3	3
C11D01Q10	36	1.31	1.55	-3	3
C11D01Q11	36	0.42	1.52	-3	3
C11D01Q14	36	1.47	1.46	-3	3
C11D02Q1	36	2.03	1.38	-3	3
C11D02Q3	36	0.33	1.87	-3	3
C11D02Q4	36	0.47	1.76	-3	3
C11D02Q7	36	1.31	1.56	-3	3
C11D02Q8	36	1.22	1.24	-2	3
C12D00Q0	36	1.22	1.59	-2	3
C12D00Q13	36	1.56	1.27	-2	3
C12D00Q1	36	2	1.22	-2	3
C12D00Q8	36	0.72	1.28	-3	3
R_C12D00Q6	36	0.78	1.87	-3	3
R_C13D00Q3	36	2	1.15	-1	3
C13D00Q7	36	1.22	1.62	-3	3
R_C13D00Q11	36	1.97	1	0	3
R_C13D00Q6	36	1.11	1.49	-3	3
R_C13D00Q15	36	1.36	1.57	-1	3
C14D00Q0	36	1.28	1.54	-3	3
C14D00Q10	36	0.75	1.54	-3	3

ITEM ID	N	M	SD	MIN	MAX
R_C14D00Q13	36	1.14	1.69	-3	3
C14D00Q15	36	1.19	1.45	-3	3
C14D00Q16	36	0.11	1.63	-3	3
C15D00Q10	36	2.03	1.11	-2	3
C15D00Q11	36	1.61	1.25	-1	3
C15D00Q8	36	1.75	1.42	-3	3
C15D00Q12	36	1.72	1.06	-1	3
R_C15D00Q15	36	2.06	1.12	-1	3
C16D00Q11	36	1.22	1.71	-3	3
C16D00Q12	36	1.08	1.42	-3	3
C16D00Q13	36	0.5	1.9	-3	3
C16D00Q16	36	1.61	1.61	-3	3
C16D00Q17	36	-0.39	1.9	-3	3
C17D00Q2	36	1.33	1.57	-3	3
C17D00Q3	36	1.39	1.42	-3	3
C17D00Q8	36	1.06	1.45	-3	3
C17D00Q9	36	0.72	1.52	-3	3
C17D00Q10	36	1.03	1.56	-3	3
C18D01Q2	36	0.06	2.11	-3	3
C18D01Q3	36	-0.33	1.88	-3	3
R_C18D01Q5	36	0.47	2.25	-3	3
C18D01Q8	36	0.5	2.02	-3	3
R_C18D01Q14	36	-0.36	2.22	-3	3
C18D03Q0	36	1.11	1.7	-3	3
C18D03Q1	36	0.67	1.47	-3	3
C18D03Q2	36	1	1.47	-3	3
C18D03Q9	36	0.14	1.82	-3	3
C18D03Q12	36	1.17	1.44	-3	3
C19D00Q3	36	0.89	1.79	-3	3
C19D00Q7	36	1.03	1.59	-3	3
C19D00Q14	36	1.22	1.44	-3	3
C19D00Q26	36	1.11	1.69	-3	3
C19D00Q28	36	1.19	1.62	-2	3

Group: POPPY

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	38	0.63	1.82	-3	3
C01D01Q10	38	0.95	1.54	-3	3
C01D01Q13	38	0.45	1.78	-3	3
C01D01Q15	38	0.53	1.96	-3	3
C01D01Q16	38	0.74	1.64	-3	3
C01D02Q7	38	0.05	1.83	-3	3
C01D02Q10	38	0.76	1.81	-3	3

C01D02Q0	38	0.32	1.86	-3	3
C01D02Q1	38	0.53	1.83	-3	3
C01D02Q9	38	0.87	1.8	-3	3
C01D03Q7	38	-0.66	1.98	-3	3
C01D03Q9	38	-0.39	1.62	-3	3
C01D03Q10	38	-0.11	1.61	-3	3
C01D03Q11	38	-0.18	1.72	-3	3
C01D03Q12	38	-0.18	1.72	-3	3
C01D04Q0	38	-1.95	1.71	-3	2
C01D04Q13	38	0.37	1.72	-3	3
C01D04Q15	38	0.45	1.81	-3	3
C01D04Q8	38	-1.89	1.27	-3	1
C01D04Q9	38	-1.21	1.83	-3	3
C01D05Q2	38	0.87	1.55	-3	3
C01D05Q9	38	0.5	1.62	-3	3
C01D05Q11	38	1.26	1.46	-3	3
C01D05Q12	38	0.42	1.43	-3	3
C01D05Q0	38	0.74	1.73	-3	3
C02D00Q1	38	0.68	1.86	-3	3
C02D00Q2	38	0.84	1.75	-3	3
C02D00Q8	38	1	1.64	-3	3
R_C02D00Q11	38	1.05	1.89	-3	3
R_C02D00Q15	38	0.55	2.01	-3	3
C03D01Q1	38	1.16	1.6	-3	3
C03D01Q7	38	0.92	1.65	-3	3
C03D01Q5	38	0.42	1.33	-3	3
C03D01Q6	38	0.18	1.35	-2	3
C03D01Q12	38	0.87	1.61	-3	3
C03D02Q0	38	1.32	1.63	-3	3
C03D02Q5	38	1.37	1.38	-2	3
C03D02Q10	38	1.03	1.59	-3	3
R_C03D02Q13	38	1.47	1.74	-2	3
R_C03D02Q1	38	1.74	1.41	-1	3
C04D00Q1	38	-0.11	1.71	-3	3
C04D00Q10	38	0.13	1.77	-3	3
R_C04D00Q11	38	0.71	1.99	-3	3
C04D00Q4	38	1.63	1.32	-2	3
C04D00Q12	38	-1.26	1.94	-3	3
R_C05D00Q3	38	-0.11	1.96	-3	3
C05D00Q6	38	0.42	1.65	-3	3
C05D00Q7	38	0.55	1.72	-3	3
C05D00Q1	38	1.29	1.18	-2	3
C05D00Q18	38	0.26	1.88	-3	3

C06D01Q1	38	0.16	1.42	-3	3
R_C06D01Q6	38	0.24	1.91	-3	3
R_C06D01Q13	38	-0.03	2.12	-3	3
C06D01Q8	38	-0.03	1.33	-3	3
C06D01Q11	38	-0.53	1.81	-3	3
C07D00Q0	38	1.53	1.45	-2	3
C07D00Q11	38	1.32	1.53	-3	3
C07D00Q13	38	1.32	1.04	-2	3
R_C07D00Q15	38	1.21	1.79	-3	3
C07D00Q14	38	1.71	1.41	-2	3
R_C08D00Q3	38	-0.13	2.2	-3	3
C08D00Q4	38	1.11	1.67	-3	3
R_C08D00Q10	38	1.61	1.39	-1	3
C08D00Q0	38	1.79	1.3	-3	3
R_C08D00Q9	38	1.34	1.6	-3	3
C09D00Q4	38	2	1.07	-1	3
C09D00Q5	38	-0.21	1.54	-3	3
C09D00Q10	38	1.84	1.48	-3	3
C09D00Q3	38	-0.34	1.66	-3	3
C09D00Q1	38	2.13	1.3	-3	3
R_C09D00Q9	38	1.82	1.25	-2	3
C10D00Q1	38	1.03	1.33	-2	3
C10D00Q6	38	-0.05	1.18	-3	3
C10D00Q10	38	-0.16	1.73	-3	3
C10D00Q16	38	0.84	1.55	-3	3
C10D00Q18	38	0.18	1.57	-3	3
C11D01Q6	38	0.29	1.97	-3	3
C11D01Q9	38	-0.26	1.5	-3	3
C11D01Q10	38	0.39	1.55	-3	3
C11D01Q11	38	-0.08	1.53	-3	3
C11D01Q14	38	0.55	1.45	-3	3
C11D02Q1	38	2.21	1.02	-1	3
C11D02Q3	38	-0.55	2.06	-3	3
C11D02Q4	38	0.42	1.83	-3	3
C11D02Q7	38	0.29	1.97	-3	3
C11D02Q8	38	-0.58	1.75	-3	3
C12D00Q0	38	1.76	1.42	-3	3
C12D00Q13	38	1	1.61	-3	3
C12D00Q1	38	1.74	1.55	-2	3
C12D00Q8	38	-0.13	1.46	-3	3
R_C12D00Q6	38	0.05	2.03	-3	3
R_C13D00Q3	38	1.18	1.75	-3	3
C13D00Q7	38	0.82	1.57	-3	3

ITEM ID	N	M	SD	MIN	MAX
R_C13D00Q11	38	1.66	1.62	-3	3
R_C13D00Q6	38	0.92	1.75	-3	3
R_C13D00Q15	38	1.13	1.63	-3	3
C14D00Q0	38	0.68	1.32	-3	3
C14D00Q10	38	0.76	1.44	-3	3
R_C14D00Q13	38	0.61	1.76	-3	3
C14D00Q15	38	0.55	1.66	-3	3
C14D00Q16	38	-0.29	1.77	-3	3
C15D00Q10	38	1.63	1.57	-3	3
C15D00Q11	38	1.66	1.48	-3	3
C15D00Q8	38	0.39	1.7	-3	3
C15D00Q12	38	0.29	1.64	-3	3
R_C15D00Q15	38	1.76	1.51	-2	3
C16D00Q11	38	1.18	1.59	-3	3
C16D00Q12	38	0.42	1.76	-3	3
C16D00Q13	38	0.05	1.68	-3	3
C16D00Q16	38	1.53	1.41	-3	3
C16D00Q17	38	-0.37	1.88	-3	3
C17D00Q2	38	0.21	1.42	-3	2
C17D00Q3	38	0.37	1.76	-3	3
C17D00Q8	38	0.71	1.64	-3	3
C17D00Q9	38	0.18	1.74	-3	3
C17D00Q10	38	0.08	1.65	-3	3
C18D01Q2	38	-1.24	1.87	-3	3
C18D01Q3	38	-0.92	2.11	-3	3
R_C18D01Q5	38	-0.21	1.85	-3	3
C18D01Q8	38	-0.24	1.85	-3	3
R_C18D01Q14	38	-1.05	1.93	-3	3
C18D03Q0	38	0.53	1.75	-3	3
C18D03Q1	38	0.21	1.82	-3	3
C18D03Q2	38	0.61	1.62	-3	3
C18D03Q9	38	0.08	1.75	-3	3
C18D03Q12	38	0.63	1.78	-3	3
C19D00Q3	38	0.71	1.72	-3	3
C19D00Q7	38	0.68	1.97	-3	3
C19D00Q14	38	0.61	1.52	-3	3
C19D00Q26	38	1.05	1.77	-3	3
C19D00Q28	38	0.37	1.73	-3	3

Group: SARAH

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	39	1.77	1.16	-1	3
C01D01Q10	39	1.87	1.26	-2	3

C01D01Q13	39	1.85	1.33	-2	3
C01D01Q15	39	1.15	1.76	-3	3
C01D01Q16	39	1.44	1.25	-3	3
C01D02Q7	39	0.21	1.84	-3	3
C01D02Q10	39	0.85	1.58	-3	3
C01D02Q0	39	0.69	1.66	-3	3
C01D02Q1	39	0.92	1.55	-3	3
C01D02Q9	39	0.87	1.4	-3	3
C01D03Q7	39	0.1	1.86	-3	3
C01D03Q9	39	0.97	1.66	-3	3
C01D03Q10	39	0.97	1.63	-3	3
C01D03Q11	39	1	1.56	-2	3
C01D03Q12	39	1.31	1.45	-3	3
C01D04Q0	39	-1.62	2.02	-3	3
C01D04Q13	39	0.28	1.47	-2	3
C01D04Q15	39	0.36	1.75	-3	3
C01D04Q8	39	-2.13	1.22	-3	1
C01D04Q9	39	-1.38	1.41	-3	1
C01D05Q2	39	1.85	1.01	-1	3
C01D05Q9	39	1.56	1.23	-2	3
C01D05Q11	39	1.67	1.08	-2	3
C01D05Q12	39	1.46	1.17	-1	3
C01D05Q0	39	1.82	0.88	0	3
C02D00Q1	39	1.72	1.3	-2	3
C02D00Q2	39	1.64	1.22	-2	3
C02D00Q8	39	1.77	1.13	-2	3
R_C02D00Q11	39	1.69	1.38	-1	3
R_C02D00Q15	39	2.05	0.97	0	3
C03D01Q1	39	1.9	1.25	-3	3
C03D01Q7	39	1.87	1.1	-2	3
C03D01Q5	39	0.79	1.42	-3	3
C03D01Q6	39	1.33	1.51	-3	3
C03D01Q12	39	1.54	1.25	-2	3
C03D02Q0	39	1.59	0.94	0	3
C03D02Q5	39	1.46	0.94	-1	3
C03D02Q10	39	1.74	1.02	-2	3
R_C03D02Q13	39	2.33	1.06	0	3
R_C03D02Q1	39	1.97	1.11	-1	3
C04D00Q1	39	1.18	1.25	-2	3
C04D00Q10	39	0.59	1.73	-3	3
R_C04D00Q11	39	1.1	1.89	-3	3
C04D00Q4	39	2.15	0.9	0	3
C04D00Q12	39	-1.15	1.91	-3	3

R_C05D00Q3	39	0.23	1.9	-3	3
C05D00Q6	39	-0.46	1.76	-3	3
C05D00Q7	39	0.03	1.8	-3	3
C05D00Q1	39	0.56	1.74	-3	3
C05D00Q18	39	-0.23	1.77	-3	3
C06D01Q1	39	0.18	1.37	-3	3
R_C06D01Q6	39	-0.56	1.74	-3	3
R_C06D01Q13	39	-0.59	1.82	-3	3
C06D01Q8	39	1.1	1.21	-3	3
C06D01Q11	39	-0.13	1.99	-3	3
C07D00Q0	39	1.31	1.15	-1	3
C07D00Q11	39	1.51	1.14	-2	3
C07D00Q13	39	1.67	1.13	-2	3
R_C07D00Q15	39	1.72	1.56	-3	3
C07D00Q14	39	1.13	1	-1	3
R_C08D00Q3	39	0.41	1.85	-3	3
C08D00Q4	39	1.23	1.37	-3	3
R_C08D00Q10	39	1.95	1.39	-3	3
C08D00Q0	39	0.97	1.04	-1	3
R_C08D00Q9	39	1.82	1.43	-3	3
C09D00Q4	39	1.59	0.88	-1	3
C09D00Q5	39	0.18	1.35	-3	3
C09D00Q10	39	1.59	0.91	0	3
C09D00Q3	39	-0.08	1.58	-3	3
C09D00Q1	39	1.82	1.02	-2	3
R_C09D00Q9	39	2	1.26	-2	3
C10D00Q1	39	1.64	0.96	0	3
C10D00Q6	39	0.9	1.35	-3	3
C10D00Q10	39	1.13	1.42	-3	3
C10D00Q16	39	1.51	1.02	-1	3
C10D00Q18	39	1.49	1	-1	3
C11D01Q6	39	0.28	1.59	-3	3
C11D01Q9	39	0.41	1.35	-3	2
C11D01Q10	39	0.59	1.29	-3	2
C11D01Q11	39	-0.05	1.7	-3	3
C11D01Q14	39	1.44	0.97	-1	3
C11D02Q1	39	2.26	0.88	0	3
C11D02Q3	39	-0.23	1.84	-3	3
C11D02Q4	39	0.92	1.35	-3	3
C11D02Q7	39	1.41	1.45	-3	3
C11D02Q8	39	-1.46	1.39	-3	2
C12D00Q0	39	1.97	1.22	-1	3
C12D00Q13	39	1.79	1.15	-1	3

C12D00Q1	39	2.36	0.87	0	3
C12D00Q8	39	0.26	1.52	-3	3
R_C12D00Q6	39	-0.36	1.69	-3	3
R_C13D00Q3	39	2.08	1.09	-1	3
C13D00Q7	39	1.87	1.2	-3	3
R_C13D00Q11	39	2.05	1.17	-2	3
R_C13D00Q6	39	1.72	1.38	-1	3
R_C13D00Q15	39	1.85	1.44	-3	3
C14D00Q0	39	1.72	1.02	0	3
C14D00Q10	39	1.59	1.29	-1	3
R_C14D00Q13	39	1.69	1.28	-2	3
C14D00Q15	39	1.69	0.89	0	3
C14D00Q16	39	0.44	1.8	-3	3
C15D00Q10	39	1.62	1.04	-1	3
C15D00Q11	39	1.69	1	0	3
C15D00Q8	39	0.87	1.22	-3	3
C15D00Q12	39	0.92	1.31	-2	3
R_C15D00Q15	39	1.87	1.2	-2	3
C16D00Q11	39	1.08	1.09	-3	3
C16D00Q12	39	0.64	1.55	-3	3
C16D00Q13	39	0.03	1.71	-3	3
C16D00Q16	39	1.31	1.51	-3	3
C16D00Q17	39	-0.49	1.93	-3	3
C17D00Q2	39	1	1.05	-1	3
C17D00Q3	39	1.08	1.18	-1	3
C17D00Q8	39	0.23	1.33	-3	3
C17D00Q9	39	0.44	1.29	-3	3
C17D00Q10	39	0.62	1.04	-2	3
C18D01Q2	39	-1.74	1.37	-3	1
C18D01Q3	39	-1.54	1.73	-3	2
R_C18D01Q5	39	-0.9	1.82	-3	3
C18D01Q8	39	-1.08	1.77	-3	2
R_C18D01Q14	39	-1.54	1.86	-3	3
C18D03Q0	39	1.08	1.26	-3	3
C18D03Q1	39	-0.26	1.57	-3	3
C18D03Q2	39	0.05	1.62	-3	3
C18D03Q9	39	-1.54	1.65	-3	3
C18D03Q12	39	-0.28	1.7	-3	3
C19D00Q3	39	-0.26	1.55	-3	3
C19D00Q7	39	0.18	1.47	-3	3
C19D00Q14	39	0.31	1.72	-3	3
C19D00Q26	39	1.21	1.63	-3	3
C19D00Q28	39	-0.1	1.19	-3	2

Group: SIM SENSEI

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	38	1.18	1.56	-3	3
C01D01Q10	38	1.42	1.57	-3	3
C01D01Q13	38	1.32	1.71	-3	3
C01D01Q15	38	1.21	1.86	-3	3
C01D01Q16	38	1.11	1.71	-3	3
C01D02Q7	38	0.55	1.81	-3	3
C01D02Q10	38	0.95	1.58	-3	3
C01D02Q0	38	1.05	1.58	-3	3
C01D02Q1	38	0.82	1.66	-3	3
C01D02Q9	38	1.21	1.61	-2	3
C01D03Q7	38	0.05	1.83	-3	3
C01D03Q9	38	1.05	1.86	-3	3
C01D03Q10	38	0.37	1.36	-3	3
C01D03Q11	38	0.71	1.74	-3	3
C01D03Q12	38	0.87	1.61	-3	3
C01D04Q0	38	-2.11	1.43	-3	2
C01D04Q13	38	0.53	1.78	-3	3
C01D04Q15	38	0.5	1.8	-3	3
C01D04Q8	38	-1.89	1.33	-3	2
C01D04Q9	38	-1.37	1.38	-3	2
C01D05Q2	38	1.66	1.49	-3	3
C01D05Q9	38	1.39	1.41	-3	3
C01D05Q11	38	1.76	1.15	-1	3
C01D05Q12	38	1.37	1.42	-2	3
C01D05Q0	38	1.61	1.44	-2	3
C02D00Q1	38	1.45	1.33	-3	3
C02D00Q2	38	0.97	1.24	-3	3
C02D00Q8	38	1.34	1.38	-3	3
R_C02D00Q11	38	0.87	1.76	-3	3
R_C02D00Q15	38	1.39	1.2	-2	3
C03D01Q1	38	1.13	1.53	-3	3
C03D01Q7	38	1.26	1.37	-3	3
C03D01Q5	38	0.37	1.55	-3	3
C03D01Q6	38	0.11	1.45	-3	3
C03D01Q12	38	1.03	1.59	-3	3
C03D02Q0	38	1.45	1.16	0	3
C03D02Q5	38	0.95	1.41	-3	3
C03D02Q10	38	0.82	1.45	-3	3
R_C03D02Q13	38	1.45	1.37	-2	3
R_C03D02Q1	38	1.82	1.18	0	3

C04D00Q1	38	0.61	1.39	-2	3
C04D00Q10	38	0.53	1.57	-3	3
R_C04D00Q11	38	1.47	1.56	-3	3
C04D00Q4	38	1.37	1.5	-3	3
C04D00Q12	38	-0.92	1.98	-3	3
R_C05D00Q3	38	0.32	1.8	-3	3
C05D00Q6	38	-0.26	1.73	-3	3
C05D00Q7	38	0.03	1.6	-3	3
C05D00Q1	38	0.63	1.75	-3	3
C05D00Q18	38	0.76	1.75	-3	3
C06D01Q1	38	0.32	1.56	-3	3
R_C06D01Q6	38	0.32	1.74	-3	3
R_C06D01Q13	38	-0.08	1.81	-3	3
C06D01Q8	38	0.71	1.39	-3	3
C06D01Q11	38	-0.61	2.03	-3	3
C07D00Q0	38	0.58	1.33	-3	3
C07D00Q11	38	0.55	1.5	-3	3
C07D00Q13	38	1.21	1.47	-3	3
R_C07D00Q15	38	1.08	1.62	-3	3
C07D00Q14	38	0.37	1.38	-3	3
R_C08D00Q3	38	0.66	1.76	-3	3
C08D00Q4	38	1	1.58	-3	3
R_C08D00Q10	38	1.92	1.22	0	3
C08D00Q0	38	0.32	1.3	-3	3
R_C08D00Q9	38	1.47	1.54	-3	3
C09D00Q4	38	0.63	1.7	-3	3
C09D00Q5	38	0.08	1.53	-3	3
C09D00Q10	38	1.11	1.27	-2	3
C09D00Q3	38	0.13	1.56	-3	3
C09D00Q1	38	1.39	1.64	-3	3
R_C09D00Q9	38	-0.03	1.81	-3	3
C10D00Q1	38	0.55	1.46	-3	3
C10D00Q6	38	0	1.25	-3	3
C10D00Q10	38	0.08	1.68	-3	3
C10D00Q16	38	1.08	1.02	0	3
C10D00Q18	38	0.37	1.75	-3	3
C11D01Q6	38	0.61	1.6	-3	3
C11D01Q9	38	-0.79	1.23	-3	1
C11D01Q10	38	0.45	1.48	-3	3
C11D01Q11	38	-0.58	1.46	-3	3
C11D01Q14	38	1.16	1.69	-3	3
C11D02Q1	38	1.87	1.28	-3	3
C11D02Q3	38	0.18	1.9	-3	3

C11D02Q4	38	0.66	1.71	-3	3
C11D02Q7	38	1	1.43	-3	3
C11D02Q8	38	-0.95	1.43	-3	2
C12D00Q0	38	1.79	1.47	-3	3
C12D00Q13	38	1.61	1.31	-2	3
C12D00Q1	38	1.89	1.35	-2	3
C12D00Q8	38	0.84	1.53	-3	3
R_C12D00Q6	38	0.39	1.7	-3	3
R_C13D00Q3	38	1.61	1.35	-1	3
C13D00Q7	38	1.13	1.32	-3	3
R_C13D00Q11	38	1.74	1.35	-2	3
R_C13D00Q6	38	1.26	1.54	-3	3
R_C13D00Q15	38	1.71	1.69	-2	3
C14D00Q0	38	1.13	1.14	-1	3
C14D00Q10	38	0.92	1.6	-3	3
R_C14D00Q13	38	1.24	1.75	-3	3
C14D00Q15	38	1.03	1.57	-3	3
C14D00Q16	38	0.11	1.61	-3	3
C15D00Q10	38	0.84	1.42	-3	3
C15D00Q11	38	0.55	1.33	-3	3
C15D00Q8	38	0.21	1.49	-3	3
C15D00Q12	38	0.61	1.48	-3	3
R_C15D00Q15	38	1.37	1.24	-1	3
C16D00Q11	38	0.71	1.51	-3	3
C16D00Q12	38	0.32	1.77	-3	3
C16D00Q13	38	0.05	1.8	-3	3
C16D00Q16	38	1.13	1.53	-3	3
C16D00Q17	38	-0.55	1.7	-3	3
C17D00Q2	38	0.47	1.27	-3	3
C17D00Q3	38	0.71	1.52	-3	3
C17D00Q8	38	-0.42	1.59	-3	3
C17D00Q9	38	0.05	1.33	-3	3
C17D00Q10	38	0.18	1.14	-3	3
C18D01Q2	38	-1.21	1.36	-3	2
C18D01Q3	38	-0.89	1.66	-3	3
R_C18D01Q5	38	0.16	1.6	-3	3
C18D01Q8	38	-0.29	1.68	-3	3
R_C18D01Q14	38	-1	1.99	-3	3
C18D03Q0	38	0.74	1.27	-2	3
C18D03Q1	38	-0.16	1.69	-3	3
C18D03Q2	38	-0.45	1.74	-3	3
C18D03Q9	38	1.53	1.59	-3	3
C18D03Q12	38	1.29	1.47	-3	3

ITEM ID	N	M	SD	MIN	MAX
C19D00Q3	38	0.53	1.61	-3	3
C19D00Q7	38	1.68	1.23	-2	3
C19D00Q14	38	0.34	1.62	-3	3
C19D00Q26	38	1	1.76	-3	3
C19D00Q28	38	0.79	1.61	-3	3

Group: SIRI

ITEM ID	N	M	SD	MIN	MAX
C01D01Q3	39	-1.9	1.41	-3	3
C01D01Q10	39	-1.72	1.61	-3	3
C01D01Q13	39	-2	1.21	-3	1
C01D01Q15	39	-1.44	1.68	-3	2
C01D01Q16	39	-0.28	1.57	-3	2
C01D02Q7	39	-1.36	1.74	-3	2
C01D02Q10	39	0.59	1.62	-3	3
C01D02Q0	39	-0.15	1.9	-3	3
C01D02Q1	39	-0.44	2.02	-3	3
C01D02Q9	39	-0.03	1.77	-3	3
C01D03Q7	39	-1.41	1.87	-3	3
C01D03Q9	39	-1.33	1.68	-3	3
C01D03Q10	39	-1.03	1.78	-3	3
C01D03Q11	39	-0.28	1.65	-3	3
C01D03Q12	39	0.56	1.43	-3	3
C01D04Q0	39	-2.18	1.27	-3	2
C01D04Q13	39	0.21	1.7	-3	3
C01D04Q15	39	-0.46	1.85	-3	3
C01D04Q8	39	-2	1.43	-3	2
C01D04Q9	39	-2.1	1.45	-3	2
C01D05Q2	39	0.9	1.68	-3	3
C01D05Q9	39	0.62	1.29	-2	3
C01D05Q11	39	1.64	1.22	-1	3
C01D05Q12	39	0.23	1.74	-3	3
C01D05Q0	39	0.9	1.5	-3	3
C02D00Q1	39	2.26	0.88	0	3
C02D00Q2	39	2.21	0.98	-1	3
C02D00Q8	39	2.18	0.94	0	3
R_C02D00Q11	39	1.62	1.43	-2	3
R_C02D00Q15	39	2.13	1.3	-3	3
C03D01Q1	39	2.15	1.18	-3	3
C03D01Q7	39	2.28	0.89	0	3
C03D01Q5	39	1.72	1.02	-1	3
C03D01Q6	39	2.18	1.14	-3	3
C03D01Q12	39	1.79	1.24	-2	3

C03D02Q0	39	1.85	1.18	0	3
C03D02Q5	39	2.13	0.98	0	3
C03D02Q10	39	2.13	0.95	0	3
R_C03D02Q13	39	2.33	1.06	0	3
R_C03D02Q1	39	2.18	1.02	0	3
C04D00Q1	39	0.31	1.26	-3	3
C04D00Q10	39	1.38	1.29	-2	3
R_C04D00Q11	39	1.46	1.8	-3	3
C04D00Q4	39	1.85	1.06	0	3
C04D00Q12	39	-1.15	1.66	-3	3
R_C05D00Q3	39	1	1.62	-2	3
C05D00Q6	39	-0.87	2.1	-3	3
C05D00Q7	39	0.54	1.74	-3	3
C05D00Q1	39	-0.08	2.09	-3	3
C05D00Q18	39	-1	1.86	-3	3
C06D01Q1	39	0.33	1.59	-3	3
R_C06D01Q6	39	-0.59	1.68	-3	3
R_C06D01Q13	39	-0.26	1.53	-3	3
C06D01Q8	39	-0.1	1.89	-3	3
C06D01Q11	39	-1.67	1.75	-3	3
C07D00Q0	39	2.36	0.96	0	3
C07D00Q11	39	2.18	0.94	0	3
C07D00Q13	39	1.87	1.15	-1	3
R_C07D00Q15	39	1.85	1.48	-3	3
C07D00Q14	39	1.82	1.02	0	3
R_C08D00Q3	39	0.97	1.74	-3	3
C08D00Q4	39	1.38	1.27	-2	3
R_C08D00Q10	39	2.1	1.27	-2	3
C08D00Q0	39	1.67	1.15	-1	3
R_C08D00Q9	39	2.1	1.35	-3	3
C09D00Q4	39	1.33	1.2	-1	3
C09D00Q5	39	-0.46	1.37	-3	3
C09D00Q10	39	1.38	1.33	-3	3
C09D00Q3	39	-0.05	1.52	-3	3
C09D00Q1	39	1.95	1.17	-1	3
R_C09D00Q9	39	1.82	1.39	-1	3
C10D00Q1	39	1.9	1.35	-3	3
C10D00Q6	39	0.56	1.47	-3	3
C10D00Q10	39	0.62	1.7	-3	3
C10D00Q16	39	1.46	1.19	-2	3
C10D00Q18	39	1.49	1.05	-1	3
C11D01Q6	39	-0.44	1.47	-3	3
C11D01Q9	39	0.03	1.72	-3	3

C11D01Q10	39	0.33	1.71	-3	3
C11D01Q11	39	-0.59	1.77	-3	3
C11D01Q14	39	1.56	1.48	-3	3
C11D02Q1	39	2.38	0.85	0	3
C11D02Q3	39	-0.59	1.96	-3	3
C11D02Q4	39	0.87	1.36	-3	3
C11D02Q7	39	1.23	1.83	-3	3
C11D02Q8	39	-0.62	1.43	-3	3
C12D00Q0	39	1.97	1.29	-3	3
C12D00Q13	39	1.36	1.58	-3	3
C12D00Q1	39	2.05	1.43	-3	3
C12D00Q8	39	-0.36	1.91	-3	3
R_C12D00Q6	39	-1.05	2.09	-3	3
R_C13D00Q3	39	2.1	1.14	0	3
C13D00Q7	39	2	1.1	-1	3
R_C13D00Q11	39	2.13	1.24	-2	3
R_C13D00Q6	39	1.62	1.27	-1	3
R_C13D00Q15	39	2.46	0.76	0	3
C14D00Q0	39	0.9	1.67	-3	3
C14D00Q10	39	1.18	1.57	-3	3
R_C14D00Q13	39	1.87	1.4	-2	3
C14D00Q15	39	1.26	1.62	-3	3
C14D00Q16	39	-0.77	1.98	-3	3
C15D00Q10	39	2.05	0.97	0	3
C15D00Q11	39	1.87	1.06	-1	3
C15D00Q8	39	0.92	1.55	-3	3
C15D00Q12	39	1.33	1.18	-1	3
R_C15D00Q15	39	2.18	1.02	0	3
C16D00Q11	39	-0.03	1.8	-3	3
C16D00Q12	39	-0.64	1.88	-3	3
C16D00Q13	39	-0.95	1.78	-3	3
C16D00Q16	39	0.21	1.89	-3	3
C16D00Q17	39	-1.38	1.5	-3	2
C17D00Q2	39	1.44	1.17	-1	3
C17D00Q3	39	1.28	1.3	-3	3
C17D00Q8	39	0.21	1.76	-3	3
C17D00Q9	39	0.79	1.3	-3	3
C17D00Q10	39	0.21	1.42	-3	3
C18D01Q2	39	-1.97	1.39	-3	1
C18D01Q3	39	-2.03	1.4	-3	1
R_C18D01Q5	39	-1.67	1.56	-3	1
C18D01Q8	39	-1.69	1.58	-3	3
R_C18D01Q14	39	-2.18	1.45	-3	3

C18D03Q0	39	0	1.56	-3	3
C18D03Q1	39	-1.21	1.81	-3	3
C18D03Q2	39	-0.64	1.84	-3	3
C18D03Q9	39	-1.31	1.62	-3	3
C18D03Q12	39	-0.64	1.84	-3	3
C19D00Q3	39	-1.28	1.41	-3	2
C19D00Q7	39	-0.69	1.94	-3	3
C19D00Q14	39	0.92	1.53	-3	3
C19D00Q26	39	1	1.52	-3	3
C19D00Q28	39	-1.03	1.56	-3	3

Appendix E Data Standardization Algorithm

```
#################
# A customized algorithm for data standardization
# First data of each item is segmented based on its corresponding agent
# Then the mean and standard deviation of each segment is calculated
# Finally, each record on each item is subtracted by its corresponding mean and
# then divided by its corresponding standard deviation.
#
# Input:
# - a list of the agents' name (case sensitive)
# - result_all.csv (accepted participants' answers)
#
# Output:
# - result_all_pItem_std.csv (standardized data)
#################

###################### Library ##########################
library(dplyr)
library(psych)
library(crayon)
library(CTT)

##################### Read data ########################
d_results_all=read.csv2("data/result_all.csv", header = TRUE, sep =";")
drop=c("PRID","RID","STARTDATE","ENDDATE","RECORDDATE","CheckScore")
d_results = d_results_all[,!(names(d_results_all) %in% drop)]

agents = c("AIBO", "AMY", "CHAPPIE", "DEEPBLUE","DOG","FURBY","HAL
9000","iCAT","NAO", "POPPIE","SIM SENSEI", "SIRI", "SARAH","MARCUS")

################ Standardization function ################
standardize_pItem <- function(a, d_){
  d_M = data.frame(matrix(ncol = 132, nrow = 0))
  d_SD = data.frame(matrix(ncol = 132, nrow = 0))
  row = 1
  for (agent in a){
    d_M[row,1] <- agent
    d_SD[row,1] <- agent
    for(j in 2:132){
      d<-d_[d_[,1]==agent,j]
      if (length(d)==0) {
        print(j)
        print(paste("agent ", agent, " is empty", sep=" "))
      }
      M <- mean(d)
      std <- sd(d)
      d_M[row,j] <- M
      d_SD[row,j] <- std
```

```
    }
    row = row + 1
  }

  d_standard = data.frame()
  for(col in 2:ncol(d_)){
    newCol = col - 1
    for (row in 1:nrow(d_)){
        M = d_M[d_M[,1]==d_[row,1], col]
        std = d_SD[d_SD[,1]==d_[row,1], col]
        d_standard[row,newCol] <- (d_[row, col] - M)/std
    }
  }
  names(d_standard) <- colnames(d_[c(2:ncol(d_))])
  return(d_standard)
}

################# Create and write standardized data ################
d_results_pItem_std = standardize_pItem(agents, d_results)
write.csv(d_results_pItem_std, "data/result_all_pItem_std.csv" , row.names =
FALSE)
```

Appendix F The CFA Results of Convergent Validity Analysis

C01 Agent's Believability
Definition: The extent to which a user believes that the artefact is a social agent

Initial set:
```
lavaan 0.6-8 ended normally after 49 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        55

  Number of observations                           532

Model Test User Model:

  Test statistic                               695.337
  Degrees of freedom                               270
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                              5051.376
  Degrees of freedom                               300
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.910
  Tucker-Lewis Index (TLI)                       0.901

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -16516.519
  Loglikelihood unrestricted model (H1)     -16168.851

  Akaike (AIC)                               33143.038
  Bayesian (BIC)                             33378.253
  Sample-size adjusted Bayesian (BIC)        33203.667

Root Mean Square Error of Approximation:
```

```
    RMSEA                                         0.054
  90 Percent confidence interval - lower          0.049
  90 Percent confidence interval - upper          0.059
  P-value RMSEA <= 0.05                           0.071


Standardized Root Mean Square Residual:

  SRMR                                            0.058

Parameter Estimates:

  Standard errors                              Standard
  Information                                  Expected
  Information saturated (h1) model            Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C01D01 =~
    C01D01Q3        1.000                                0.719    0.728
    C01D01Q10       1.046    0.064   16.449    0.000     0.752    0.762
    C01D01Q13       0.957    0.063   15.079    0.000     0.688    0.697
    C01D01Q15       1.014    0.064   15.959    0.000     0.729    0.739
    C01D01Q16       0.983    0.063   15.489    0.000     0.707    0.716
  C01D02 =~
    C01D02Q7        1.000                                0.637    0.646
    C01D02Q10       0.942    0.077   12.191    0.000     0.601    0.609
    C01D02Q0        1.137    0.080   14.217    0.000     0.725    0.735
    C01D02Q1        1.205    0.081   14.856    0.000     0.768    0.778
    C01D02Q9        1.231    0.082   15.088    0.000     0.785    0.795
  C01D03 =~
    C01D03Q7        1.000                                0.536    0.543
    C01D03Q9        1.137    0.111   10.212    0.000     0.609    0.618
    C01D03Q10       0.823    0.101    8.174    0.000     0.441    0.447
    C01D03Q11       1.350    0.120   11.220    0.000     0.723    0.733
    C01D03Q12       1.152    0.112   10.293    0.000     0.617    0.626
  C01D04 =~
    C01D04Q0        1.000                                0.323    0.328
    C01D04Q13       2.296    0.332    6.913    0.000     0.742    0.752
    C01D04Q15       2.078    0.306    6.786    0.000     0.672    0.681
    C01D04Q8        0.247    0.148    1.665    0.096     0.080    0.081
    C01D04Q9        0.752    0.175    4.307    0.000     0.243    0.246
  C01D05 =~
    C01D05Q2        1.000                                0.657    0.666
    C01D05Q9        1.109    0.084   13.166    0.000     0.728    0.738
    C01D05Q11       0.802    0.078   10.291    0.000     0.527    0.534
    C01D05Q12       1.014    0.082   12.426    0.000     0.666    0.675
    C01D05Q0        0.956    0.080   11.889    0.000     0.628    0.636
  C01 =~
    C01D04          1.000                                0.936    0.936
    C01D01          1.929    0.293    6.590    0.000     0.812    0.812
    C01D02          1.901    0.291    6.528    0.000     0.902    0.902
    C01D03          1.514    0.246    6.155    0.000     0.855    0.855
    C01D05          0.946    0.176    5.387    0.000     0.436    0.436

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C01D01Q3       0.457    0.034   13.613    0.000     0.457    0.469
   .C01D01Q10      0.408    0.031   12.995    0.000     0.408    0.419
   .C01D01Q13      0.501    0.036   14.062    0.000     0.501    0.514
   .C01D01Q15      0.443    0.033   13.445    0.000     0.443    0.455
   .C01D01Q16      0.474    0.034   13.799    0.000     0.474    0.487
   .C01D02Q7       0.567    0.038   14.769    0.000     0.567    0.583
   .C01D02Q10      0.613    0.041   15.046    0.000     0.613    0.629
   .C01D02Q0       0.448    0.033   13.764    0.000     0.448    0.460
   .C01D02Q1       0.384    0.030   12.955    0.000     0.384    0.394
   .C01D02Q9       0.358    0.029   12.553    0.000     0.358    0.368
   .C01D03Q7       0.686    0.046   14.827    0.000     0.686    0.705
   .C01D03Q9       0.602    0.043   14.107    0.000     0.602    0.619
```

.C01D03Q10	0.779	0.050	15.430	0.000	0.779	0.800
.C01D03Q11	0.450	0.037	12.064	0.000	0.450	0.463
.C01D03Q12	0.593	0.042	14.009	0.000	0.593	0.609
.C01D04Q0	0.869	0.055	15.914	0.000	0.869	0.893
.C01D04Q13	0.423	0.038	11.101	0.000	0.423	0.434
.C01D04Q15	0.522	0.040	13.130	0.000	0.522	0.536
.C01D04Q8	0.967	0.059	16.288	0.000	0.967	0.993
.C01D04Q9	0.915	0.057	16.099	0.000	0.915	0.939
.C01D05Q2	0.542	0.042	13.054	0.000	0.542	0.557
.C01D05Q9	0.443	0.039	11.396	0.000	0.443	0.455
.C01D05Q11	0.696	0.047	14.703	0.000	0.696	0.715
.C01D05Q12	0.530	0.041	12.883	0.000	0.530	0.545
.C01D05Q0	0.580	0.043	13.536	0.000	0.580	0.595
.C01D01	0.176	0.025	7.018	0.000	0.341	0.341
.C01D02	0.075	0.016	4.651	0.000	0.186	0.186
.C01D03	0.078	0.017	4.518	0.000	0.270	0.270
.C01D04	0.013	0.006	2.061	0.039	0.124	0.124
.C01D05	0.349	0.046	7.554	0.000	0.810	0.810
C01	0.092	0.026	3.496	0.000	1.000	1.000

SEQUENTIAL ACTION	CFI
INITIAL	0.910
REMOVE C01D04Q8 (STD.ALL = .08)	0.938
REMOVE C01D04Q9 (STD.ALL = .24)	0.944
REMOVE C01D01Q16 (C01D02 =~ C01D01Q16; MI=28.033)	0.949
C01D02 ~~ C01D04 (MI = 27.252)	0.956

Removal of items occur in C01D01 and C01D04

C01D01 Human-Like Appearance

Definition: The extent to which a user believes that the social agent appears like a human
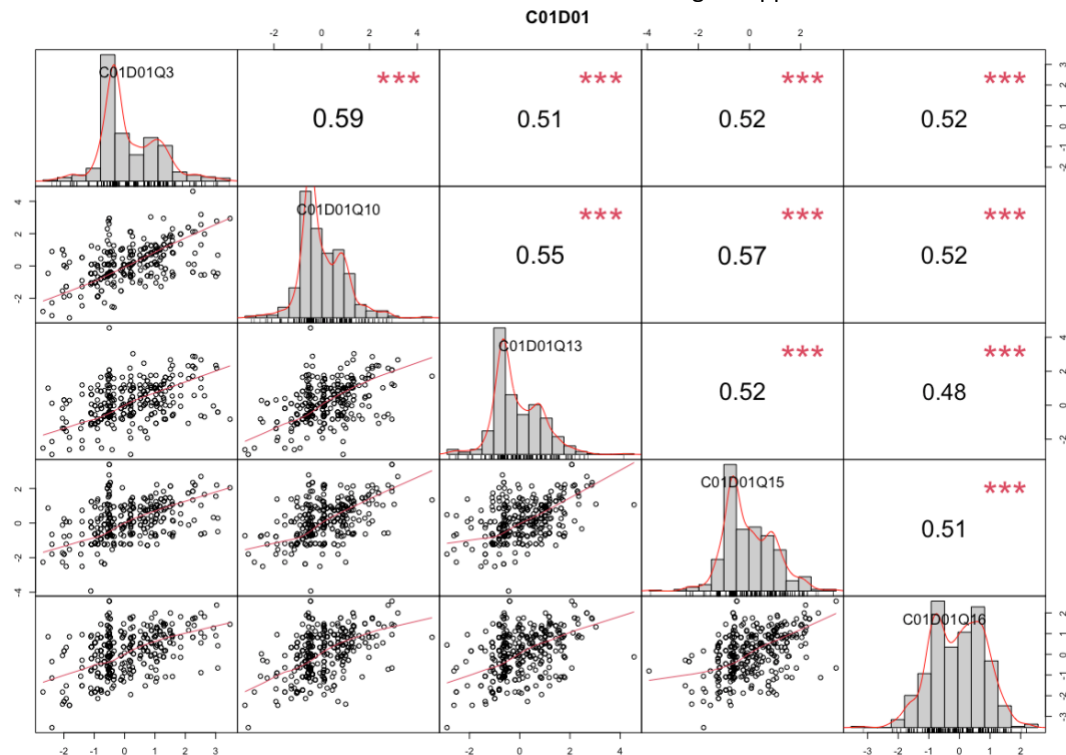
No.	ITEMID	ITEMQ
1.	C01D01Q3	[The agent]'s appearance is human
2.	C01D01Q10	[The agent] has the appearance of a human
3.	C01D01Q13	[The agent] has a human-like outside
4.	C01D01Q15	[The agent]'s appearance makes me think of a human

No.	ITEMID	ITEMQ
~~5.~~	~~C01D01Q16~~	~~[The agent] has a human likeness~~

Exclusion reasoning:

Four judges agreed to remove C01D01Q16 as there could be possible confusion with word likeness (similarity to liking)

C01D04 Natural Behavior

Definition: The extent to which a user believes that the social agent's behavior could exist in or be derived from nature
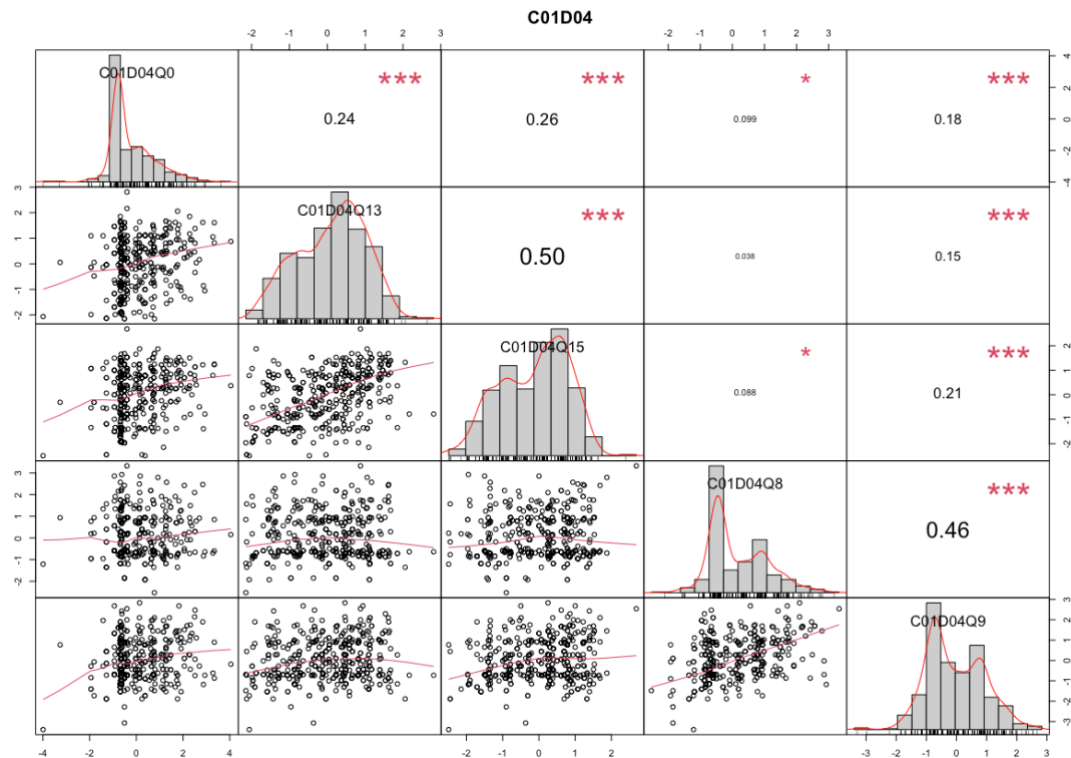
No.	ITEMID	ITEMQ
1.	C01D04Q0	[The agent] is alive
2.	C01D04Q13	[The agent] acts naturally
3.	C01D04Q15	[The agent] reacts like a living organism
~~4.~~	~~C01D04Q8~~	~~[The agent]'s behavior is like an animal~~
~~5.~~	~~C01D04Q9~~	~~There are animals that behave similar to [the agent]~~

Exclusion reasoning:

Four judges agreed to remove C01D04Q8 and C01D04Q9. It could be that 'animal' represents as a subdimension of a living organism. Further, the analogy of 'animal' could be problematic when the agent represents a human.

Final Set of C01

Final model:

```
C01D01 =~ C01D01Q3 + C01D01Q10 + C01D01Q13 + C01D01Q15
C01D02 =~ C01D02Q7 + C01D02Q10 + C01D02Q0 + C01D02Q1  + C01D02Q9
C01D03 =~ C01D03Q7 + C01D03Q9 +  C01D03Q11 + C01D03Q10 + C01D03Q12
C01D04 =~ C01D04Q0 +  C01D04Q13 +  C01D04Q15
C01D05 =~ C01D05Q0 + C01D05Q2 + C01D05Q9 +  C01D05Q11 + C01D05Q12
C01 =~ C01D04 + C01D01 + C01D02 + C01D03 +  C01D05
C01D02 ~~   C01D04
```

CFA result:

```
lavaan 0.6-8 ended normally after 52 iterations
```

```
   Estimator                                        ML
   Optimization method                          NLMINB
   Number of model parameters                       50

   Number of observations                          532

Model Test User Model:

   Test statistic                              386.772
   Degrees of freedom                              203
   P-value (Chi-square)                          0.000

Model Test Baseline Model:

   Test statistic                             4442.843
   Degrees of freedom                              231
   P-value                                       0.000

User Model versus Baseline Model:

   Comparative Fit Index (CFI)                   0.956
   Tucker-Lewis Index (TLI)                      0.950

Loglikelihood and Information Criteria:

   Loglikelihood user model (H0)            -14423.158
   Loglikelihood unrestricted model (H1)    -14229.773

   Akaike (AIC)                              28946.317
   Bayesian (BIC)                            29160.149
   Sample-size adjusted Bayesian (BIC)       29001.434

Root Mean Square Error of Approximation:

   RMSEA                                         0.041
   90 Percent confidence interval - lower        0.035
   90 Percent confidence interval - upper        0.047
   P-value RMSEA <= 0.05                         0.990

Standardized Root Mean Square Residual:

   SRMR                                          0.047

Parameter Estimates:

   Standard errors                            Standard
   Information                                Expected
   Information saturated (h1) model         Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   C01D01 =~
     C01D01Q3       1.000                               0.722    0.732
     C01D01Q10      1.067    0.065   16.499    0.000    0.770    0.781
     C01D01Q13      0.965    0.064   15.052    0.000    0.697    0.706
     C01D01Q15      1.007    0.064   15.668    0.000    0.727    0.737
   C01D02 =~
     C01D02Q7       1.000                               0.641    0.649
     C01D02Q10      0.934    0.077   12.196    0.000    0.598    0.606
     C01D02Q0       1.129    0.079   14.270    0.000    0.723    0.733
     C01D02Q1       1.199    0.080   14.952    0.000    0.769    0.779
     C01D02Q9       1.225    0.081   15.184    0.000    0.785    0.795
```

```
  C01D03 =~
    C01D03Q7        1.000                                    0.527    0.534
    C01D03Q9        1.184    0.115   10.268   0.000           0.624    0.632
    C01D03Q11       1.373    0.124   11.108   0.000           0.723    0.733
    C01D03Q10       0.848    0.103    8.211   0.000           0.447    0.453
    C01D03Q12       1.155    0.114   10.120   0.000           0.608    0.617
  C01D04 =~
    C01D04Q0        1.000                                    0.314    0.318
    C01D04Q13       2.361    0.349    6.757   0.000           0.740    0.750
    C01D04Q15       2.129    0.321    6.633   0.000           0.668    0.677
  C01D05 =~
    C01D05Q0        1.000                                    0.624    0.633
    C01D05Q2        1.053    0.089   11.858   0.000           0.657    0.666
    C01D05Q9        1.171    0.093   12.651   0.000           0.731    0.741
    C01D05Q11       0.838    0.084    9.968   0.000           0.523    0.530
    C01D05Q12       1.069    0.089   11.981   0.000           0.668    0.676
  C01 =~
    C01D04          1.000                                    0.837    0.837
    C01D01          2.282    0.365    6.255   0.000           0.830    0.830
    C01D02          1.952    0.306    6.381   0.000           0.800    0.800
    C01D03          1.851    0.315    5.880   0.000           0.922    0.922
    C01D05          1.082    0.207    5.218   0.000           0.455    0.455

Covariances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
 .C01D02 ~~
   .C01D04          0.048    0.011    4.313   0.000           0.724    0.724

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C01D01Q3        0.452    0.034   13.119   0.000           0.452    0.464
   .C01D01Q10       0.380    0.032   11.978   0.000           0.380    0.391
   .C01D01Q13       0.488    0.036   13.566   0.000           0.488    0.501
   .C01D01Q15       0.445    0.034   13.022   0.000           0.445    0.457
   .C01D02Q7        0.563    0.038   14.744   0.000           0.563    0.578
   .C01D02Q10       0.616    0.041   15.065   0.000           0.616    0.633
   .C01D02Q0        0.450    0.033   13.795   0.000           0.450    0.463
   .C01D02Q1        0.383    0.030   12.952   0.000           0.383    0.393
   .C01D02Q9        0.358    0.029   12.556   0.000           0.358    0.368
   .C01D03Q7        0.696    0.047   14.958   0.000           0.696    0.715
   .C01D03Q9        0.585    0.042   14.025   0.000           0.585    0.601
   .C01D03Q11       0.451    0.037   12.224   0.000           0.451    0.463
   .C01D03Q10       0.774    0.050   15.442   0.000           0.774    0.795
   .C01D03Q12       0.603    0.042   14.207   0.000           0.603    0.620
   .C01D04Q0        0.875    0.055   15.968   0.000           0.875    0.899
   .C01D04Q13       0.425    0.038   11.162   0.000           0.425    0.437
   .C01D04Q15       0.528    0.040   13.286   0.000           0.528    0.542
   .C01D05Q0        0.584    0.043   13.602   0.000           0.584    0.600
   .C01D05Q2        0.541    0.041   13.056   0.000           0.541    0.556
   .C01D05Q9        0.439    0.039   11.338   0.000           0.439    0.451
   .C01D05Q11       0.700    0.047   14.739   0.000           0.700    0.719
   .C01D05Q12       0.528    0.041   12.866   0.000           0.528    0.542
   .C01D01          0.163    0.027    6.022   0.000           0.312    0.312
   .C01D02          0.148    0.024    6.094   0.000           0.360    0.360
   .C01D03          0.041    0.015    2.765   0.006           0.149    0.149
   .C01D04          0.029    0.010    2.879   0.004           0.299    0.299
   .C01D05          0.309    0.044    7.081   0.000           0.793    0.793
    C01             0.069    0.021    3.316   0.001           1.000    1.000
```

C02 Agent's Usability

Definition: The extent to which a user believes that using an agent will be free from effort (future process)

Initial set:

```
lavaan 0.6-8 ended normally after 18 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                27.528
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                               496.867
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.954
  Tucker-Lewis Index (TLI)                       0.907

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3504.238
  Loglikelihood unrestricted model (H1)      -3490.474

  Akaike (AIC)                                7028.477
  Bayesian (BIC)                              7071.243
  Sample-size adjusted Bayesian (BIC)         7039.500

Root Mean Square Error of Approximation:

  RMSEA                                          0.092
  90 Percent confidence interval - lower         0.060
  90 Percent confidence interval - upper         0.127
  P-value RMSEA <= 0.05                          0.017

Standardized Root Mean Square Residual:

  SRMR                                           0.044

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C02 =~
    C02D00Q1       1.000                                0.710    0.720
    C02D00Q2       0.944    0.081   11.718    0.000     0.670    0.679
    C02D00Q8       0.880    0.078   11.296    0.000     0.625    0.633
    R_C02D00Q11    0.400    0.071    5.669    0.000     0.284    0.288
    R_C02D00Q15    0.751    0.075   10.042    0.000     0.533    0.541

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C02D00Q1      0.469    0.045   10.330    0.000     0.469    0.482
   .C02D00Q2      0.524    0.046   11.522    0.000     0.524    0.538
   .C02D00Q8      0.583    0.046   12.611    0.000     0.583    0.599
```

.R_C02D00Q11	0.893	0.056	15.831	0.000	0.893	0.917
.R_C02D00Q15	0.689	0.049	14.078	0.000	0.689	0.708
C02	0.505	0.063	8.009	0.000	1.000	1.000

SEQUENTIAL ACTION	CFI
INITIAL	0.954
R_C02D00Q11 (STD.ALL = .29)	1.000

Final model:

```
C02 =~ C02D00Q1 + C02D00Q2 + C02D00Q8 + R_C02D00Q15
```

CFA result:

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8

  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.470
  Degrees of freedom                                 2
  P-value (Chi-square)                           0.791

Model Test Baseline Model:

  Test statistic                               436.430
  Degrees of freedom                                 6
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.011

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2773.146
  Loglikelihood unrestricted model (H1)      -2772.911

  Akaike (AIC)                                5562.292
  Bayesian (BIC)                              5596.505
  Sample-size adjusted Bayesian (BIC)         5571.111

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.055
  P-value RMSEA <= 0.05                          0.936

Standardized Root Mean Square Residual:

  SRMR                                           0.006

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C02 =~
```

```
     C02D00Q1          1.000                                   0.734    0.743
     C02D00Q2          0.899    0.078   11.563    0.000        0.660    0.668
     C02D00Q8          0.856    0.076   11.290    0.000        0.628    0.636
     R_C02D00Q15       0.697    0.072    9.704    0.000        0.511    0.518

Variances:
                     Estimate  Std.Err  z-value  P(>|z|)    Std.lv   Std.all
    .C02D00Q1          0.435    0.047    9.345    0.000        0.435    0.447
    .C02D00Q2          0.539    0.046   11.684    0.000        0.539    0.553
    .C02D00Q8          0.580    0.046   12.471    0.000        0.580    0.595
    .R_C02D00Q15       0.712    0.050   14.306    0.000        0.712    0.731
     C02               0.538    0.066    8.199    0.000        1.000    1.000
```
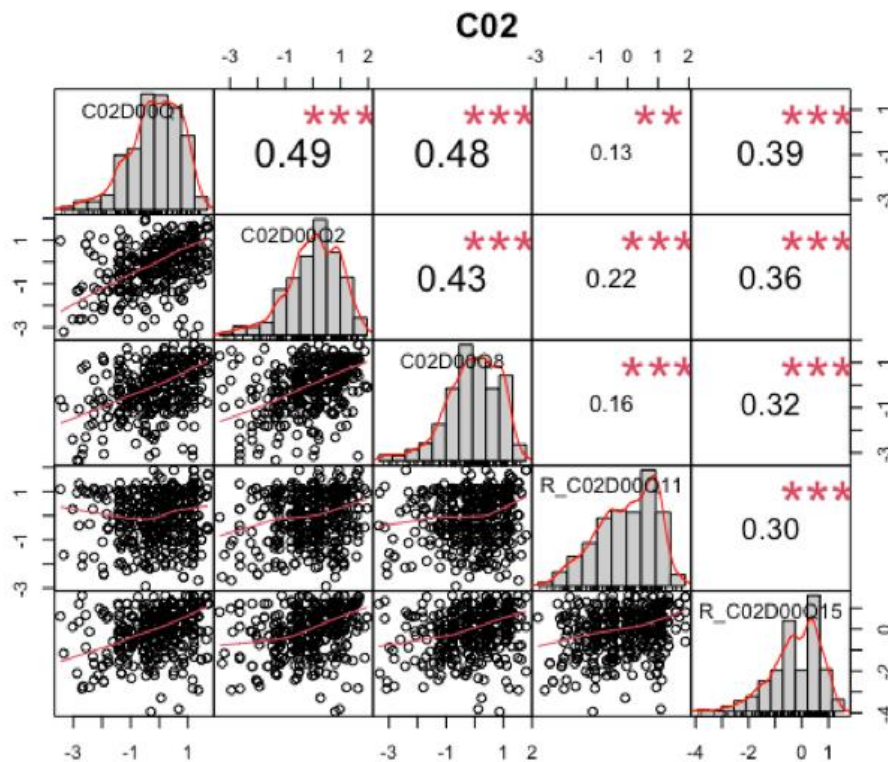

C02

No.	ITEMID	ITEMQ
1.	C02D00Q1	[The agent] is easy to use
2.	C02D00Q2	Learning to work with [the agent] is easy
3.	C02D00Q8	Learning how to communicate with [the agent] is quick
4.	~~C02D00Q11~~	~~[R] A manual is needed to communicate with [the agent]~~
5.	C02D00Q15	[R] [The agent] is difficult to use

Exclusion reasoning:

Four judges agreed to remove C02D00Q11 because it could be that some applications (that are related with/employed ASA) do not provide any manual

C03 Performance

Definition: The extent to which a task was well performed (past performance)

Model with a C03 construct and two dimensions C03D01 and C03D02 gives a warning message:
```
Warning messages:
1: In lav_model_vcov(lavmodel = lavmodel, lavsamplestats = lavsamplestats,
:
  lavaan WARNING:
    Could not compute standard errors! The information matrix could
    not be inverted. This may be a symptom that the model is not
```

```
     identified.
2: In lav_object_post_check(object) :
  lavaan WARNING: some estimated lv variances are negative
```

Alternative solutions:
1. Separated: as not one construct with two dimensions, but the dimensions as two separate constructs
The consideration is that theoretically, although the two dimensions are similar, from a user perspective, they don't necessarily form a construct; In a sense that if an agent performs poorly it doesn't mean that the user is unable to perform well. It might become a question of blame attribution, who was the cause of a poor outcome (of any task or interaction). There might not have been a reason to combine of both parties in one construct, both agent and user performance are independent.
2. Selective combination: focusing on the agent's performance
The consideration is that it might not be relevant to measure how well a user (individually) did. As IVA researchers, we are more interested in the agent's performance (working together with the user).

Decision:
Four judges agreed to combine C03D01 and C03D02 into one construct and remove the items C03D02Q0, C03D02Q1 and C03D02Q13 because these items only measure the user's performance individually.

Initial set:

```
lavaan 0.6-8 ended normally after 30 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        14

  Number of observations                           532

Model Test User Model:

  Test statistic                                68.634
  Degrees of freedom                                14
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                               887.952
  Degrees of freedom                                21
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.937
  Tucker-Lewis Index (TLI)                       0.905

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -4824.812
  Loglikelihood unrestricted model (H1)      -4790.495

  Akaike (AIC)                                9677.624
  Bayesian (BIC)                              9737.497
  Sample-size adjusted Bayesian (BIC)         9693.057

Root Mean Square Error of Approximation:

  RMSEA                                          0.086
  90 Percent confidence interval - lower         0.066
  90 Percent confidence interval - upper         0.106
  P-value RMSEA <= 0.05                          0.002

Standardized Root Mean Square Residual:
```

```
    SRMR                                      0.044

Parameter Estimates:

  Standard errors                         Standard
  Information                             Expected
  Information saturated (h1) model        Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C03 =~
    C03D01Q1       1.000                                0.382    0.387
    C03D01Q7       1.836    0.233    7.873    0.000     0.701    0.711
    C03D01Q5       1.754    0.226    7.777    0.000     0.670    0.679
    C03D01Q6       1.447    0.199    7.286    0.000     0.552    0.560
    C03D01Q12      1.433    0.197    7.258    0.000     0.547    0.554
    C03D02Q5       1.520    0.205    7.423    0.000     0.580    0.588
    C03D02Q10      1.666    0.218    7.657    0.000     0.636    0.644

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C03D01Q1      0.828    0.053   15.621    0.000     0.828    0.850
   .C03D01Q7      0.482    0.039   12.248    0.000     0.482    0.495
   .C03D01Q5      0.525    0.041   12.909    0.000     0.525    0.539
   .C03D01Q6      0.669    0.046   14.511    0.000     0.669    0.687
   .C03D01Q12     0.675    0.046   14.561    0.000     0.675    0.693
   .C03D02Q5      0.637    0.045   14.219    0.000     0.637    0.654
   .C03D02Q10     0.569    0.042   13.489    0.000     0.569    0.585
    C03.          0.146    0.035    4.174    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.937
C03D01Q5 ~~ C03D01Q6 (MI = 56.096)	0.997
REMOVE C03D01Q1 (STD.ALL = .39)	1.0

Final model:
```
C03 =~ C03D01Q7 + C03D01Q5 + C03D01Q6 + C03D01Q12 + C03D02Q5 + C03D02Q10
C03D01Q5 ~~ C03D01Q6
```

CFA result:
```
lavaan 0.6-8 ended normally after 20 iterations

  Estimator                                       ML
  Optimization method                         NLMINB
  Number of model parameters                      13

  Number of observations                         532

Model Test User Model:

  Test statistic                               6.406
  Degrees of freedom                               8
  P-value (Chi-square)                         0.602

Model Test Baseline Model:

  Test statistic                             805.457
  Degrees of freedom                              15
  P-value                                      0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                  1.000
  Tucker-Lewis Index (TLI)                     1.004

Loglikelihood and Information Criteria:
```

```
  Loglikelihood user model (H0)                    -4087.164
  Loglikelihood unrestricted model (H1)            -4083.961

  Akaike (AIC)                                      8200.327
  Bayesian (BIC)                                    8255.923
  Sample-size adjusted Bayesian (BIC)               8214.657

Root Mean Square Error of Approximation:

  RMSEA                                                0.000
  90 Percent confidence interval - lower               0.000
  90 Percent confidence interval - upper               0.044
  P-value RMSEA <= 0.05                                0.975

Standardized Root Mean Square Residual:

  SRMR                                                 0.014

Parameter Estimates:

  Standard errors                                   Standard
  Information                                       Expected
  Information saturated (h1) model                Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C03D01 =~
    C03D01Q7        1.000                                0.708    0.717
    C03D01Q5        0.883    0.074   11.938    0.000     0.625    0.633
    C03D01Q6        0.677    0.072    9.344    0.000     0.479    0.485
    C03D01Q12       0.790    0.072   10.948    0.000     0.559    0.567
    C03D02Q5        0.831    0.073   11.427    0.000     0.588    0.596
    C03D02Q10       0.926    0.074   12.434    0.000     0.655    0.664

Covariances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
 .C03D01Q5 ~~
   .C03D01Q6        0.224    0.037    6.123    0.000     0.224    0.339

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C03D01Q7       0.473    0.042   11.373    0.000     0.473    0.485
   .C03D01Q5       0.583    0.044   13.132    0.000     0.583    0.599
   .C03D01Q6       0.744    0.051   14.701    0.000     0.744    0.764
   .C03D01Q12      0.661    0.047   14.138    0.000     0.661    0.679
   .C03D02Q5       0.628    0.046   13.771    0.000     0.628    0.645
   .C03D02Q10      0.544    0.043   12.639    0.000     0.544    0.559
    C03D01         0.501    0.060    8.337    0.000     1.000    1.000
```
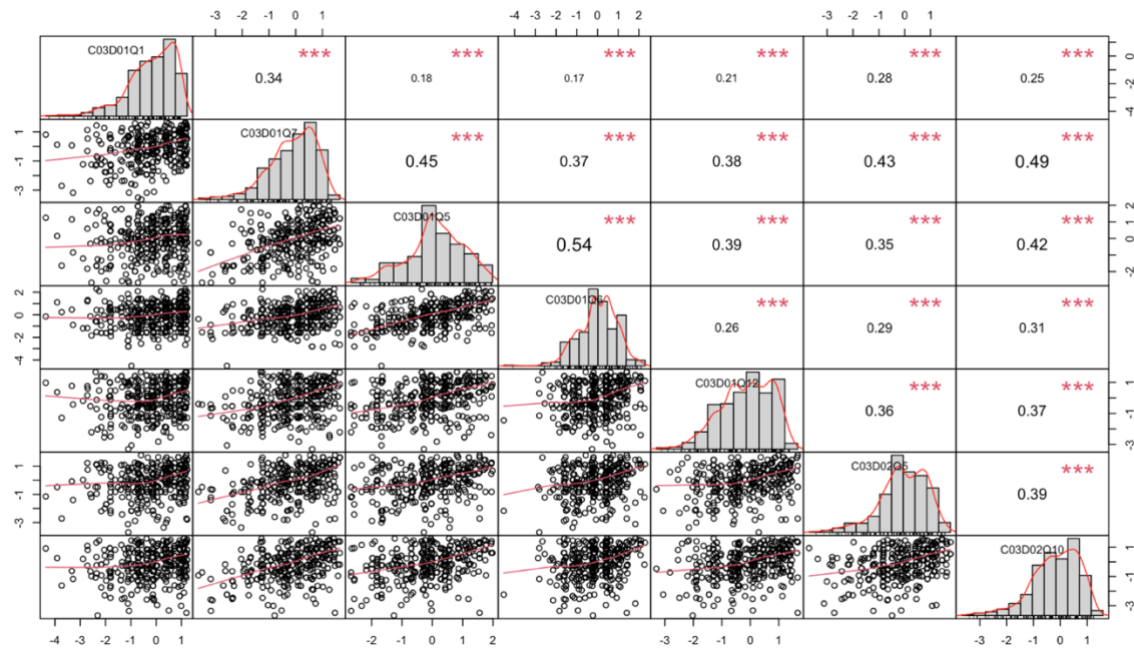
No.	ITEMID	ITEMQ
~~1.~~	~~C03D01Q1~~	~~The amount time it took to complete the task is acceptable~~
2.	C03D01Q7	[The agent] does its task well
3.	C03D01Q5	[The agent] enhances [my / the user's] effectiveness on the task
4.	C03D01Q6	[The agent] allows [me / the user] to get [my / the user's] task done more quickly
5.	C03D01Q12	[The agent] does not hinder [me / the user]
6.	C03D02Q5	[I am / The user is] able to carry out the task well
7.	C03D02Q10	[I am / The user is] capable of succeeding with [the agent]

Exclusion reasoning:
Four judges agreed to remove C03D01D1 because it has also a low correlation with other items. Another reason is that the item mentions the "time" element, which is different from other items.

C04 Agent's Likeability

Definition: The agent's qualities that bring about a favourable regard

Initial set:
```
lavaan 0.6-8 ended normally after 24 iterations

  Estimator                                     ML
  Optimization method                       NLMINB
  Number of model parameters                    10

  Number of observations                       532

Model Test User Model:

  Test statistic                            24.827
  Degrees of freedom                             5
  P-value (Chi-square)                       0.000

Model Test Baseline Model:

  Test statistic                           897.181
  Degrees of freedom                            10
  P-value                                    0.000

User Model versus Baseline Model:
```

```
   Comparative Fit Index (CFI)                       0.978
   Tucker-Lewis Index (TLI)                          0.955

Loglikelihood and Information Criteria:

   Loglikelihood user model (H0)            -3302.731
   Loglikelihood unrestricted model (H1)    -3290.317

   Akaike (AIC)                              6625.462
   Bayesian (BIC)                            6668.228
   Sample-size adjusted Bayesian (BIC)       6636.485

Root Mean Square Error of Approximation:

   RMSEA                                        0.086
   90 Percent confidence interval - lower       0.054
   90 Percent confidence interval - upper       0.122
   P-value RMSEA <= 0.05                         0.032

Standardized Root Mean Square Residual:

   SRMR                                         0.034

Parameter Estimates:

   Standard errors                           Standard
   Information                               Expected
   Information saturated (h1) model          Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   C04 =~
     C04D00Q1       1.000                                0.590    0.598
     C04D00Q10      1.490    0.105   14.147    0.000     0.879    0.890
     R_C04D00Q11    1.355    0.098   13.811    0.000     0.799    0.810
     C04D00Q4       0.704    0.083    8.456    0.000     0.415    0.421
     C04D00Q12      1.006    0.089   11.305    0.000     0.593    0.601

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C04D00Q1      0.626    0.042   14.951    0.000     0.626    0.643
    .C04D00Q10     0.202    0.030    6.669    0.000     0.202    0.207
    .R_C04D00Q11   0.335    0.031   10.715    0.000     0.335    0.344
    .C04D00Q4      0.801    0.051   15.802    0.000     0.801    0.823
    .C04D00Q12     0.622    0.042   14.923    0.000     0.622    0.638
     C04           0.348    0.049    7.143    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	.978

Final model:
```
C04 =~ C04D00Q1 +  C04D00Q10 + R_C04D00Q11 + C04D00Q4 + C04D00Q12
```

Note: No item removal

C05 Agent's Sociability
Initial set:
```
lavaan 0.6-8 ended normally after 26 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532
```

```
Model Test User Model:

  Test statistic                                    7.106
  Degrees of freedom                                    5
  P-value (Chi-square)                              0.213

Model Test Baseline Model:

  Test statistic                                  503.285
  Degrees of freedom                                   10
  P-value                                           0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                       0.996
  Tucker-Lewis Index (TLI)                          0.991

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                 -3490.818
  Loglikelihood unrestricted model (H1)         -3487.265

  Akaike (AIC)                                   7001.636
  Bayesian (BIC)                                 7044.403
  Sample-size adjusted Bayesian (BIC)            7012.660

Root Mean Square Error of Approximation:

  RMSEA                                             0.028
  90 Percent confidence interval - lower            0.000
  90 Percent confidence interval - upper            0.071
  P-value RMSEA <= 0.05                             0.756

Standardized Root Mean Square Residual:

  SRMR                                              0.019

Parameter Estimates:

  Standard errors                                Standard
  Information                                    Expected
  Information saturated (h1) model             Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C05 =~
    R_C05D00Q3     1.000                                0.399    0.404
    C05D00Q6       1.785    0.227    7.854    0.000     0.712    0.721
    C05D00Q7       1.758    0.224    7.834    0.000     0.701    0.711
    C05D00Q1       1.445    0.196    7.388    0.000     0.576    0.584
    C05D00Q18      1.329    0.186    7.145    0.000     0.530    0.537

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .R_C05D00Q3    0.815    0.053   15.308    0.000     0.815    0.837
   .C05D00Q6      0.467    0.045   10.464    0.000     0.467    0.480
   .C05D00Q7      0.482    0.045   10.793    0.000     0.482    0.495
   .C05D00Q1      0.642    0.047   13.594    0.000     0.642    0.659
   .C05D00Q18     0.693    0.049   14.199    0.000     0.693    0.712
    C05           0.159    0.037    4.241    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.996

Final model:

```
C05 =~ R_C05D00Q3 +  C05D00Q6 + C05D00Q7 + C05D00Q1 + C05D00Q18
```

Note: No item removal

C06 Agent's Personality
Definition: The combination of characteristics or qualities that form an individual's distinctive character

Initial set:

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                27.105
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                               530.459
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.958
  Tucker-Lewis Index (TLI)                       0.915

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3487.230
  Loglikelihood unrestricted model (H1)      -3473.678

  Akaike (AIC)                                6994.461
  Bayesian (BIC)                              7037.227
  Sample-size adjusted Bayesian (BIC)         7005.484

Root Mean Square Error of Approximation:

  RMSEA                                          0.091
  90 Percent confidence interval - lower         0.059
  90 Percent confidence interval - upper         0.126
  P-value RMSEA <= 0.05                          0.018

Standardized Root Mean Square Residual:

  SRMR                                           0.037

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C06D01 =~
    C06D01Q1         1.000                                0.611    0.619
    R_C06D01Q6       1.148    0.102   11.230    0.000     0.701    0.711
    R_C06D01Q13      1.126    0.101   11.154    0.000     0.688    0.698
    C06D01Q8         0.840    0.091    9.246    0.000     0.513    0.520
    C06D01Q11        0.704    0.088    8.032    0.000     0.430    0.436

Variances:
```

	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
.C06D01Q1	0.600	0.046	13.004	0.000	0.600	0.617
.R_C06D01Q6	0.482	0.045	10.811	0.000	0.482	0.495
.R_C06D01Q13	0.500	0.045	11.196	0.000	0.500	0.513
.C06D01Q8	0.710	0.049	14.373	0.000	0.710	0.729
.C06D01Q11	0.789	0.052	15.094	0.000	0.789	0.810
C06D01	0.373	0.055	6.833	0.000	1.000	1.000

SEQUENTIAL ACTION	CFI
INITIAL	0.958
REMOVE R_C06D01Q13	1.0

C06D01 Agent's Personality Presence

Definition: To what extent the user believes that the agent has a personality

Final model:
```
C06D01 =~ C06D01Q1 + R_C06D01Q6 + C06D01Q8 + C06D01Q11
```

CFA result:
```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8


  Number of observations                           532

Model Test User Model:

  Test statistic                                 1.571
  Degrees of freedom                                 2
  P-value (Chi-square)                           0.456

Model Test Baseline Model:

  Test statistic                               298.790
  Degrees of freedom                                 6
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.004

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2842.517
  Loglikelihood unrestricted model (H1)      -2841.731

  Akaike (AIC)                                5701.034
  Bayesian (BIC)                              5735.247
  Sample-size adjusted Bayesian (BIC)         5709.852

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.080
  P-value RMSEA <= 0.05                          0.779


Standardized Root Mean Square Residual:
```

```
   SRMR                                        0.012

Parameter Estimates:

  Standard errors                           Standard
  Information                               Expected
  Information saturated (h1) model          Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C06D01 =~
    C06D01Q1       1.000                                0.687    0.696
    R_C06D01Q6     0.852    0.095    8.979    0.000      0.585    0.593
    C06D01Q8       0.843    0.094    8.950    0.000      0.579    0.587
    C06D01Q11      0.637    0.084    7.557    0.000      0.438    0.444

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C06D01Q1      0.501    0.056    9.036    0.000      0.501    0.515
   .R_C06D01Q6    0.631    0.052   12.046    0.000      0.631    0.648
   .C06D01Q8      0.638    0.052   12.189    0.000      0.638    0.655
   .C06D01Q11     0.782    0.054   14.475    0.000      0.782    0.803
    C06D01        0.472    0.069    6.849    0.000      1.000    1.000
```
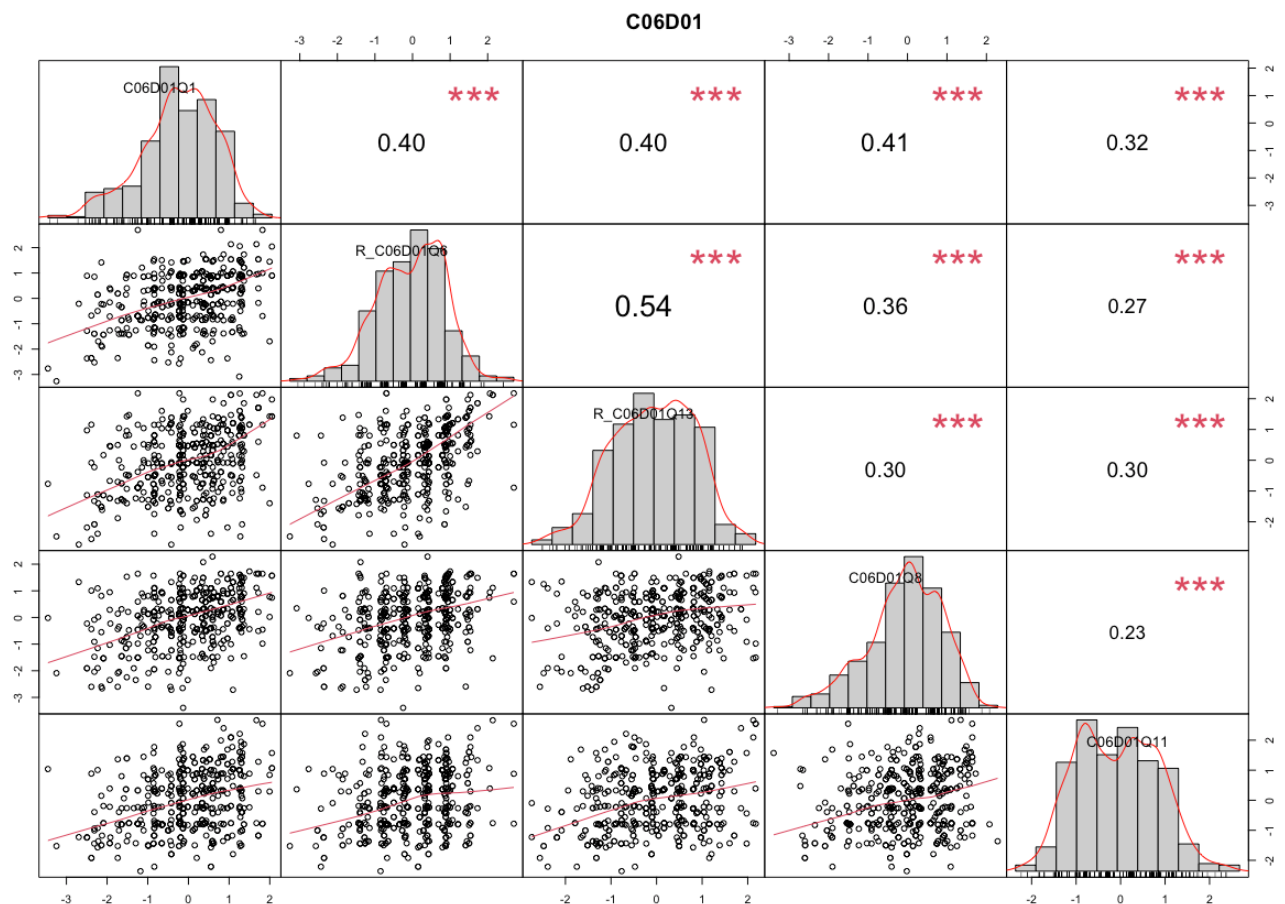
C06D01

No.	ITEMID	ITEMQ
1.	C06D01Q1	[The agent] has a distinctive character
2.	C06D01Q6	[R] [The agent] is characterless
~~3.~~	~~C06D01Q13~~	~~[R] [The agent] lacks character~~
4.	C06D01Q8	[The agent] has a coherent identity
5.	C06D01Q11	[The agent] is an individual

Exclusion reasoning:

Four judges agreed to optimize the items in C06D01 towards the word 'character' (in C06D01Q1, C06D01Q6 and C06D01Q13) and decided to remove C06D01Q13. The meaning presented by C06D01Q13 is very similar with C06D01Q06. The two items might be pulling the entire construct together and by removing one of them, we could keep aiming for the definition of the construct.

C07 User Acceptance of the Agent

Definition: The willingness of the user to interact with the agent

Initial set:

```
lavaan 0.6-8 ended normally after 18 iterations

  Estimator                                        ML
  Optimization method                          NLMINB
  Number of model parameters                       10

  Number of observations                          532

Model Test User Model:

  Test statistic                               10.388
  Degrees of freedom                                5
  P-value (Chi-square)                          0.065

Model Test Baseline Model:

  Test statistic                              593.229
  Degrees of freedom                               10
  P-value                                       0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                   0.991
  Tucker-Lewis Index (TLI)                      0.982

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -3447.487
  Loglikelihood unrestricted model (H1)     -3442.293

  Akaike (AIC)                               6914.975
  Bayesian (BIC)                             6957.741
  Sample-size adjusted Bayesian (BIC)        6925.998

Root Mean Square Error of Approximation:

  RMSEA                                         0.045
  90 Percent confidence interval - lower        0.000
  90 Percent confidence interval - upper        0.084
  P-value RMSEA <= 0.05                         0.524

Standardized Root Mean Square Residual:

  SRMR                                          0.022

Parameter Estimates:

  Standard errors                            Standard
  Information                                Expected
  Information saturated (h1) model         Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C07 =~
    C07D00Q0          1.000                               0.728    0.737
    C07D00Q11         0.997    0.074   13.435    0.000     0.726    0.735
```

	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
C07D00Q13	0.769	0.069	11.120	0.000	0.559	0.567
R_C07D00Q15	0.560	0.068	8.280	0.000	0.407	0.413
C07D00Q14	0.856	0.070	12.190	0.000	0.623	0.631

Variances:
	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
.C07D00Q0	0.444	0.041	10.746	0.000	0.444	0.456
.C07D00Q11	0.447	0.041	10.806	0.000	0.447	0.459
.C07D00Q13	0.661	0.047	14.171	0.000	0.661	0.679
.R_C07D00Q15	0.808	0.052	15.397	0.000	0.808	0.830
.C07D00Q14	0.586	0.044	13.280	0.000	0.586	0.602
C07	0.529	0.062	8.599	0.000	1.000	1.000

SEQUENTIAL ACTION	CFI
INITIAL	0.991

Final model:

```
C07 =~ C07D00Q0 + C07D00Q11 + C07D00Q13 + R_C07D00Q15 +  C07D00Q14
```

Note: no item removal

C08 Agent's Enjoyability

Definition: The extent to which a user finds interacting with the agent enjoyable

Initial set:

```
lavaan 0.6-8 ended normally after 20 iterations

  Estimator                                       ML
  Optimization method                        NLMINB
  Number of model parameters                     10

  Number of observations                        532

Model Test User Model:

  Test statistic                             30.444
  Degrees of freedom                              5
  P-value (Chi-square)                        0.000

Model Test Baseline Model:

  Test statistic                            600.102
  Degrees of freedom                             10
  P-value                                     0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                 0.957
  Tucker-Lewis Index (TLI)                    0.914

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)           -3454.079
  Loglikelihood unrestricted model (H1)   -3438.857

  Akaike (AIC)                             6928.157
  Bayesian (BIC)                           6970.924
  Sample-size adjusted Bayesian (BIC)      6939.181

Root Mean Square Error of Approximation:

  RMSEA                                       0.098
  90 Percent confidence interval - lower      0.066
  90 Percent confidence interval - upper      0.133
  P-value RMSEA <= 0.05                       0.008
```

```
Standardized Root Mean Square Residual:

  SRMR                                        0.037

Parameter Estimates:

  Standard errors                           Standard
  Information                               Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C08 =~
    R_C08D00Q3        1.000                                0.670    0.679
    C08D00Q4          0.986    0.083   11.885    0.000     0.661    0.670
    R_C08D00Q10       1.008    0.084   12.041    0.000     0.676    0.685
    C08D00Q0          0.695    0.077    9.011    0.000     0.466    0.472
    R_C08D00Q9        0.894    0.081   11.097    0.000     0.599    0.607

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .R_C08D00Q3       0.525    0.043   12.070    0.000     0.525    0.539
   .C08D00Q4         0.537    0.044   12.288    0.000     0.537    0.552
   .R_C08D00Q10      0.517    0.043   11.940    0.000     0.517    0.531
   .C08D00Q0         0.757    0.051   14.926    0.000     0.757    0.777
   .R_C08D00Q9       0.615    0.046   13.451    0.000     0.615    0.632
    C08              0.449    0.058    7.721    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.957

Final model:
```
C08 =~ R_C08D00Q3 + C08D00Q4 + R_C08D00Q10 + C08D00Q0 + R_C08D00Q9
```

Note: no item removal.

C09 User's Engagement

Definition: The extent to which the user feels involved in the interaction with the agent

Initial set:
```
lavaan 0.6-8 ended normally after 21 iterations

  Estimator                                      ML
  Optimization method                        NLMINB
  Number of model parameters                     12

  Number of observations                        532

Model Test User Model:

  Test statistic                             34.958
  Degrees of freedom                              9
  P-value (Chi-square)                        0.000

Model Test Baseline Model:

  Test statistic                            470.793
  Degrees of freedom                             15
  P-value                                     0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                 0.943
  Tucker-Lewis Index (TLI)                    0.905
```

```
Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                -4268.771
  Loglikelihood unrestricted model (H1)        -4251.293

  Akaike (AIC)                                  8561.543
  Bayesian (BIC)                                8612.863
  Sample-size adjusted Bayesian (BIC)           8574.771

Root Mean Square Error of Approximation:

  RMSEA                                            0.074
  90 Percent confidence interval - lower           0.049
  90 Percent confidence interval - upper           0.100
  P-value RMSEA <= 0.05                            0.057

Standardized Root Mean Square Residual:

  SRMR                                             0.045

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model              Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C09 =~
    C09D00Q4        1.000                                0.644    0.653
    C09D00Q5        0.519    0.081    6.398    0.000     0.334    0.338
    C09D00Q10       1.088    0.099   10.960    0.000     0.701    0.710
    C09D00Q3        0.542    0.081    6.654    0.000     0.349    0.353
    C09D00Q1        0.977    0.092   10.565    0.000     0.629    0.637
    R_C09D00Q9      0.551    0.082    6.753    0.000     0.355    0.359

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C09D00Q4       0.559    0.047   11.818    0.000     0.559    0.574
   .C09D00Q5       0.862    0.055   15.566    0.000     0.862    0.886
   .C09D00Q10      0.483    0.047   10.188    0.000     0.483    0.496
   .C09D00Q3       0.852    0.055   15.487    0.000     0.852    0.875
   .C09D00Q1       0.578    0.047   12.185    0.000     0.578    0.594
   .R_C09D00Q9     0.848    0.055   15.455    0.000     0.848    0.871
    C09            0.415    0.059    7.056    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.943
REMOVE C09D00Q5 (STD.ALL = .34)	0.974
REMOVE C09D00Q3 (STD.ALL = .35)	0.993

Final model:

```
C09 =~ C09D00Q4 + C09D00Q10 +  C09D00Q1 + R_C09D00Q9
```

CFA result:

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8

  Number of observations                           532

Model Test User Model:
```

```
   Test statistic                                    4.419
   Degrees of freedom                                    2
   P-value (Chi-square)                              0.110


Model Test Baseline Model:

   Test statistic                                  349.627
   Degrees of freedom                                    6
   P-value                                           0.000

User Model versus Baseline Model:

   Comparative Fit Index (CFI)                       0.993
   Tucker-Lewis Index (TLI)                          0.979

Loglikelihood and Information Criteria:

   Loglikelihood user model (H0)                 -2818.522
   Loglikelihood unrestricted model (H1)         -2816.313

   Akaike (AIC)                                   5653.044
   Bayesian (BIC)                                 5687.258
   Sample-size adjusted Bayesian (BIC)            5661.863

Root Mean Square Error of Approximation:

   RMSEA                                             0.048
   90 Percent confidence interval - lower            0.000
   90 Percent confidence interval - upper            0.109
   P-value RMSEA <= 0.05                             0.426

Standardized Root Mean Square Residual:

   SRMR                                              0.020

Parameter Estimates:

   Standard errors                               Standard
   Information                                   Expected
   Information saturated (h1) model            Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   C09 =~
     C09D00Q4       1.000                                0.638    0.647
     C09D00Q10      1.074    0.105   10.200    0.000     0.685    0.694
     C09D00Q1       1.011    0.100   10.130    0.000     0.645    0.654
     R_C09D00Q9     0.604    0.085    7.078    0.000     0.385    0.391

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C09D00Q4      0.566    0.050   11.400    0.000     0.566    0.582
    .C09D00Q10     0.504    0.051    9.945    0.000     0.504    0.518
    .C09D00Q1      0.557    0.050   11.195    0.000     0.557    0.572
    .R_C09D00Q9    0.825    0.054   15.150    0.000     0.825    0.847
     C09           0.407    0.060    6.768    0.000     1.000    1.000
```
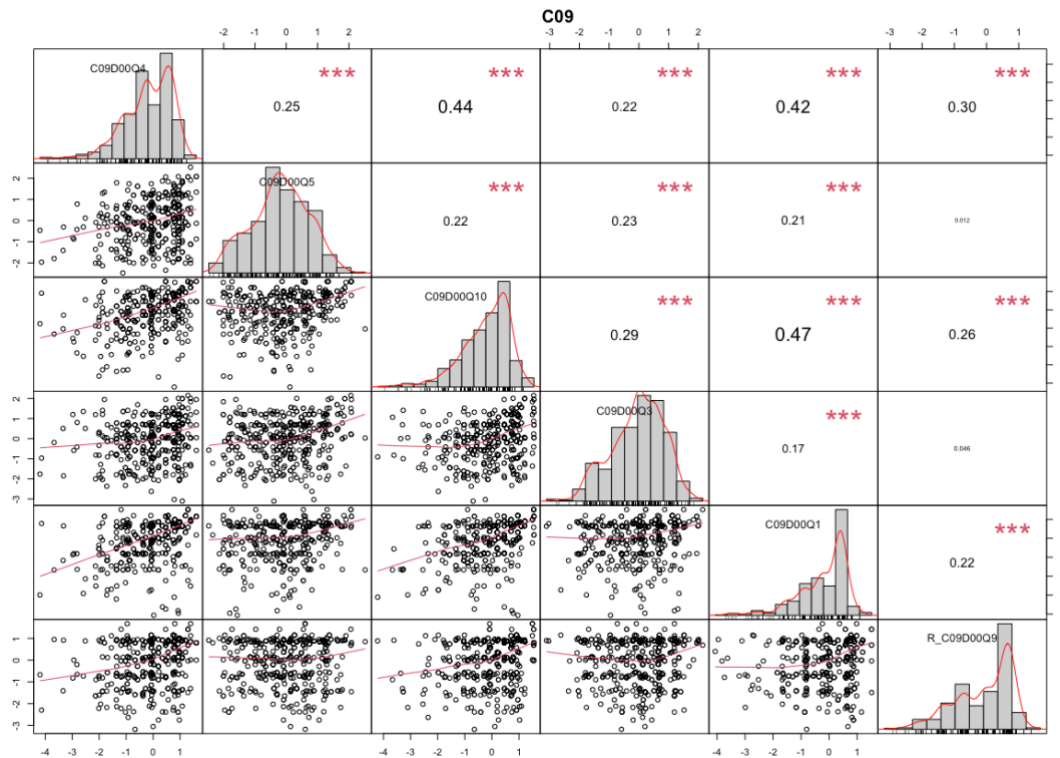
C09

No.	ITEMID	ITEMQ
1.	C09D00Q4	[I / The user] was concentrated during the interaction with [the agent]
2.	~~C09D00Q5~~	~~[I / The user] forgot about [my / their] surroundings when interacting with [the agent]~~
3.	C09D00Q10	The interaction captured [my / the user's] attention
4.	~~C09D00Q3~~	~~Interacting with [the agent] was absorbing~~
5.	C09D00Q1	[I / The user] was alert during the interaction with [the agent]
6.	C09D00Q9	[R] [I / The user] was looking for distractions during the interaction with [the agent]

Exclusion reasoning:

Four judges agreed to remove C09D00Q5 as the item might be relevant for interaction with agents in a virtual reality environment (i.e. forgetting about the surroundings) and might be problematic when the interaction involves other types of agents and robots. The judges also agreed to remove C09D00Q3 because the word "absorbing" might be confusing. Further the judges agreed not to remove C09D00Q9, although the loading is < .40 and the total number of item is > 3.

C10 User's Trust

Definition: The extent to which a user believes in the reliability, truthfulness, and ability of the agent (for future interactions)

Initial set:

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                      ML
  Optimization method                        NLMINB
  Number of model parameters                     10

  Number of observations                        532

Model Test User Model:

  Test statistic                             15.485
  Degrees of freedom                              5
  P-value (Chi-square)                        0.008
```

```
Model Test Baseline Model:

  Test statistic                          517.843
  Degrees of freedom                           10
  P-value                                   0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)               0.979
  Tucker-Lewis Index (TLI)                  0.959

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)         -3487.729
  Loglikelihood unrestricted model (H1) -3479.986

  Akaike (AIC)                           6995.458
  Bayesian (BIC)                         7038.224
  Sample-size adjusted Bayesian (BIC)    7006.481

Root Mean Square Error of Approximation:

  RMSEA                                     0.063
  90 Percent confidence interval - lower    0.029
  90 Percent confidence interval - upper    0.100
  P-value RMSEA <= 0.05                     0.234

Standardized Root Mean Square Residual:

  SRMR                                      0.029

Parameter Estimates:

  Standard errors                        Standard
  Information                            Expected
  Information saturated (h1) model     Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C10 =~
    C10D00Q1        1.000                               0.601    0.609
    C10D00Q6        0.922    0.096    9.565    0.000     0.554    0.562
    C10D00Q10       0.886    0.095    9.299    0.000     0.532    0.540
    C10D00Q16       1.035    0.101   10.294    0.000     0.622    0.630
    C10D00Q18       1.131    0.105   10.749    0.000     0.680    0.689

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C10D00Q1       0.612    0.047   13.023    0.000     0.612    0.629
   .C10D00Q6       0.666    0.048   13.760    0.000     0.666    0.685
   .C10D00Q10      0.690    0.049   14.044    0.000     0.690    0.709
   .C10D00Q16      0.587    0.046   12.627    0.000     0.587    0.603
   .C10D00Q18      0.512    0.045   11.262    0.000     0.512    0.526
    C10            0.361    0.054    6.646    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.979

Final model:

```
C10 =~ C10D00Q1 + C10D00Q6 + C10D00Q10 + C10D00Q16 + C10D00Q18
```

Note: no item removal

C11 User-Agent Alliance

Definition: The extent to which a beneficial association is formed

Model with C11 construct and two dimensions C11D01 and C11D02 gives warning messages:
```
Warning messages:
1: In lav_model_vcov(lavmodel = lavmodel, lavsamplestats = lavsamplestats,
:
  lavaan WARNING:
    Could not compute standard errors! The information matrix could
    not be inverted. This may be a symptom that the model is not
    identified.
2: In lav_object_post_check(object) :
  lavaan WARNING: some estimated lv variances are negative
```

Alternative solutions:
1. Separated: as not one construct with two dimensions, but the dimensions as two separate constructs
   The consideration is that theoretically, although the two dimensions are similar, from a user perspective they don't necessarily form a construct (i.e. in task performing setting and social setting). Both settings are viewed independent.
2. Combination: as to combine 5 items in C11D01 and 5 items in C11D02
   The consideration is that the alliance of user-agent is relevant for any kind of settings.

Decision:
Four judges agreed to combine C11D01 and C11D02 into one construct.

Initial set:
```
lavaan 0.6-8 ended normally after 23 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        20

  Number of observations                           532

Model Test User Model:

  Test statistic                               165.390
  Degrees of freedom                                35
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                              1418.160
  Degrees of freedom                                45
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.905
  Tucker-Lewis Index (TLI)                       0.878

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -6851.430
  Loglikelihood unrestricted model (H1)      -6768.736

  Akaike (AIC)                               13742.861
  Bayesian (BIC)                             13828.394
  Sample-size adjusted Bayesian (BIC)        13764.908

Root Mean Square Error of Approximation:

  RMSEA                                          0.084
```

```
    90 Percent confidence interval - lower           0.071
    90 Percent confidence interval - upper           0.097
    P-value RMSEA <= 0.05                            0.000


Standardized Root Mean Square Residual:

  SRMR                                               0.051


Parameter Estimates:

  Standard errors                              Standard
  Information                                  Expected
  Information saturated (h1) model            Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C11 =~
    C11D01Q6         1.000                                0.662    0.671
    C11D01Q9         0.812    0.074   10.926    0.000     0.538    0.545
    C11D01Q10        0.928    0.076   12.288    0.000     0.615    0.623
    C11D01Q11        0.856    0.075   11.453    0.000     0.567    0.574
    C11D01Q14        0.789    0.074   10.648    0.000     0.522    0.529
    C11D02Q1         0.678    0.073    9.269    0.000     0.449    0.455
    C11D02Q3         0.919    0.075   12.182    0.000     0.609    0.617
    C11D02Q4         0.900    0.075   11.959    0.000     0.596    0.604
    C11D02Q7         0.935    0.076   12.366    0.000     0.619    0.628
    C11D02Q8         0.817    0.074   10.985    0.000     0.541    0.548


Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C11D01Q6        0.535    0.039   13.758    0.000     0.535    0.550
   .C11D01Q9        0.685    0.046   15.001    0.000     0.685    0.703
   .C11D01Q10       0.596    0.042   14.337    0.000     0.596    0.612
   .C11D01Q11       0.652    0.044   14.780    0.000     0.652    0.670
   .C11D01Q14       0.701    0.046   15.102    0.000     0.701    0.720
   .C11D02Q1        0.772    0.050   15.502    0.000     0.772    0.793
   .C11D02Q3        0.603    0.042   14.401    0.000     0.603    0.620
   .C11D02Q4        0.619    0.043   14.528    0.000     0.619    0.636
   .C11D02Q7        0.590    0.041   14.288    0.000     0.590    0.606
   .C11D02Q8        0.681    0.045   14.978    0.000     0.681    0.700
    C11.            0.439    0.054    8.110    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.905
C11D01Q6 ~~ C11D02Q3 (MI = 25.619)	0.922
C11D01Q9 ~~ C11D01Q11 (MI = 19.676)	0.934
C11D01Q9 ~~ C11D01Q10 (MI = 9.637)	0.942
C11D02Q3 ~~ C11D02Q8 (MI = 9.882)	0.949
C11D02Q3 ~~ C11D02Q7 (MI = 9.467)	0.956

Final model:
```
C11 =~ C11D01Q6 + C11D01Q9 + C11D01Q10 +  C11D01Q11 + C11D01Q14 +  C11D02Q3 +
C11D02Q4 + C11D02Q7 + C11D02Q8 + C11D02Q1
C11D01Q6 ~~ C11D02Q3
C11D01Q9 ~~ C11D01Q11
C11D01Q9 ~~ C11D01Q10
C11D02Q3 ~~ C11D02Q8
```

CFA result:
```
lavaan 0.6-8 ended normally after 25 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        25
```

```
   Number of observations                            532

Model Test User Model:

  Test statistic                                  90.676
  Degrees of freedom                                  30
  P-value (Chi-square)                             0.000

Model Test Baseline Model:

  Test statistic                                1418.160
  Degrees of freedom                                  45
  P-value                                          0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                      0.956
  Tucker-Lewis Index (TLI)                         0.934

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)               -6814.074
  Loglikelihood unrestricted model (H1)       -6768.736

  Akaike (AIC)                                13678.147
  Bayesian (BIC)                              13785.063
  Sample-size adjusted Bayesian (BIC)         13705.706

Root Mean Square Error of Approximation:

  RMSEA                                            0.062
  90 Percent confidence interval - lower           0.047
  90 Percent confidence interval - upper           0.076
  P-value RMSEA <= 0.05                            0.088

Standardized Root Mean Square Residual:

  SRMR                                             0.039

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model            Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C11 =~
    C11D01Q6        1.000                                0.631    0.639
    C11D01Q9        0.799    0.083    9.596    0.000     0.504    0.511
    C11D01Q10       0.974    0.085   11.445    0.000     0.614    0.623
    C11D01Q11       0.864    0.083   10.417    0.000     0.545    0.553
    C11D01Q14       0.867    0.083   10.480    0.000     0.547    0.555
    C11D02Q3        0.836    0.073   11.471    0.000     0.528    0.535
    C11D02Q4        0.964    0.085   11.389    0.000     0.608    0.616
    C11D02Q7        0.992    0.085   11.640    0.000     0.626    0.635
    C11D02Q8        0.818    0.082    9.975    0.000     0.516    0.523
    C11D02Q1        0.761    0.081    9.389    0.000     0.480    0.486

Covariances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
 .C11D01Q6 ~~
   .C11D02Q3        0.166    0.032    5.141    0.000     0.166    0.262
 .C11D01Q9 ~~
   .C11D01Q11       0.147    0.034    4.318    0.000     0.147    0.211
   .C11D01Q10       0.099    0.032    3.068    0.002     0.099    0.151
 .C11D02Q3 ~~
   .C11D02Q8        0.122    0.032    3.811    0.000     0.122    0.174
```

```
   .C11D02Q7              0.095    0.030    3.120     0.002    0.095    0.149

Variances:
                      Estimate  Std.Err  z-value   P(>|z|)  Std.lv   Std.all
   .C11D01Q6             0.576    0.042   13.650     0.000    0.576    0.591
   .C11D01Q9             0.720    0.049   14.743     0.000    0.720    0.739
   .C11D01Q10            0.596    0.043   13.831     0.000    0.596    0.612
   .C11D01Q11            0.676    0.046   14.596     0.000    0.676    0.695
   .C11D01Q14            0.674    0.046   14.624     0.000    0.674    0.692
   .C11D02Q3             0.693    0.048   14.409     0.000    0.693    0.713
   .C11D02Q4             0.604    0.043   13.980     0.000    0.604    0.620
   .C11D02Q7             0.582    0.042   13.718     0.000    0.582    0.597
   .C11D02Q8             0.708    0.048   14.872     0.000    0.708    0.727
   .C11D02Q1             0.743    0.049   15.137     0.000    0.743    0.763
    C11                  0.398    0.053    7.456     0.000    1.000    1.000
```

Note: no item removal

C12 Agent's Attentiveness

Definition: The extent to which the user believes that the agent is aware of and has attention for the user

Initial set:

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                33.707
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                               412.801
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.929
  Tucker-Lewis Index (TLI)                       0.857

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3549.361
  Loglikelihood unrestricted model (H1)      -3532.507

  Akaike (AIC)                                7118.722
  Bayesian (BIC)                              7161.488
  Sample-size adjusted Bayesian (BIC)         7129.745

Root Mean Square Error of Approximation:

  RMSEA                                          0.104
  90 Percent confidence interval - lower         0.072
  90 Percent confidence interval - upper         0.138
  P-value RMSEA <= 0.05                          0.003

Standardized Root Mean Square Residual:

  SRMR                                           0.055
```

```
Parameter Estimates:

  Standard errors                          Standard
  Information                              Expected
  Information saturated (h1) model         Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C12 =~
    C12D00Q0        1.000                                0.698    0.708
    C12D00Q1        0.932    0.087   10.754    0.000     0.651    0.660
    C12D00Q8        0.413    0.074    5.600    0.000     0.288    0.292
    R_C12D00Q6      0.431    0.074    5.838    0.000     0.301    0.305
    C12D00Q13       0.941    0.087   10.780    0.000     0.657    0.666

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C12D00Q0       0.486    0.049    9.926    0.000     0.486    0.499
   .C12D00Q1       0.550    0.048   11.407    0.000     0.550    0.565
   .C12D00Q8       0.891    0.057   15.755    0.000     0.891    0.915
   .R_C12D00Q6     0.883    0.056   15.698    0.000     0.883    0.907
   .C12D00Q13      0.542    0.048   11.231    0.000     0.542    0.557
    C12            0.488    0.065    7.537    0.000     1.000    1.000
```

Removing both R_C12D00Q8 and C12 D00Q8 resulted:
```
Warning message:
In lav_model_vcov(lavmodel = lavmodel, lavsamplestats = lavsamplestats,  :
 lavaan WARNING:
    Could not compute standard errors! The information matrix could
    not be inverted. This may be a symptom that the model is not
    identified.

 lavaan ERROR: could not compute modification indices; information matrix
is singular
```

SEQUENTIAL ACTION	CFI
INITIAL	0.929
REMOVE R_C12D00Q6 (STD.ALL = .29)	0.990

SEQUENTIAL ACTION	CFI
INITIAL	0.929
REMOVE C12D00Q8 (STD.ALL = .31)	0.982
R_C12D00Q6 ~~ C12D00Q13	0.994

Final model
:
```
C12 =~ C12D00Q0 +  C12D00Q1 + R_C12D00Q6 + C12D00Q13
```

CFA result:
```
lavaan 0.6-8 ended normally after 21 iterations

  Estimator                                     ML
  Optimization method                       NLMINB
  Number of model parameters                     9

  Number of observations                       532

Model Test User Model:

  Test statistic                             3.220
  Degrees of freedom                             1
  P-value (Chi-square)                       0.073
```

```
Model Test Baseline Model:

  Test statistic                                 353.868
  Degrees of freedom                                   6
  P-value                                          0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                      0.994
  Tucker-Lewis Index (TLI)                         0.962

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                -2815.802
  Loglikelihood unrestricted model (H1)        -2814.192

  Akaike (AIC)                                  5649.605
  Bayesian (BIC)                                5688.095
  Sample-size adjusted Bayesian (BIC)           5659.526

Root Mean Square Error of Approximation:

  RMSEA                                            0.065
  90 Percent confidence interval - lower           0.000
  90 Percent confidence interval - upper           0.149
  P-value RMSEA <= 0.05                            0.262

Standardized Root Mean Square Residual:

  SRMR                                             0.016

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model            Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C12 =~
    C12D00Q0          1.000                                0.712    0.722
    C12D00Q1          0.950    0.092   10.345    0.000     0.677    0.686
    R_C12D00Q6        0.334    0.076    4.414    0.000     0.238    0.241
    C12D00Q13         0.879    0.086   10.242    0.000     0.626    0.635

Covariances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
 .R_C12D00Q6 ~~
   .C12D00Q13         0.084    0.038    2.198    0.028     0.084    0.115

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C12D00Q0         0.466    0.052    8.916    0.000     0.466    0.479
   .C12D00Q1         0.516    0.051   10.192    0.000     0.516    0.530
   .R_C12D00Q6       0.917    0.058   15.809    0.000     0.917    0.942
   .C12D00Q13        0.581    0.049   11.753    0.000     0.581    0.597
    C12              0.507    0.068    7.431    0.000     1.000    1.000
```
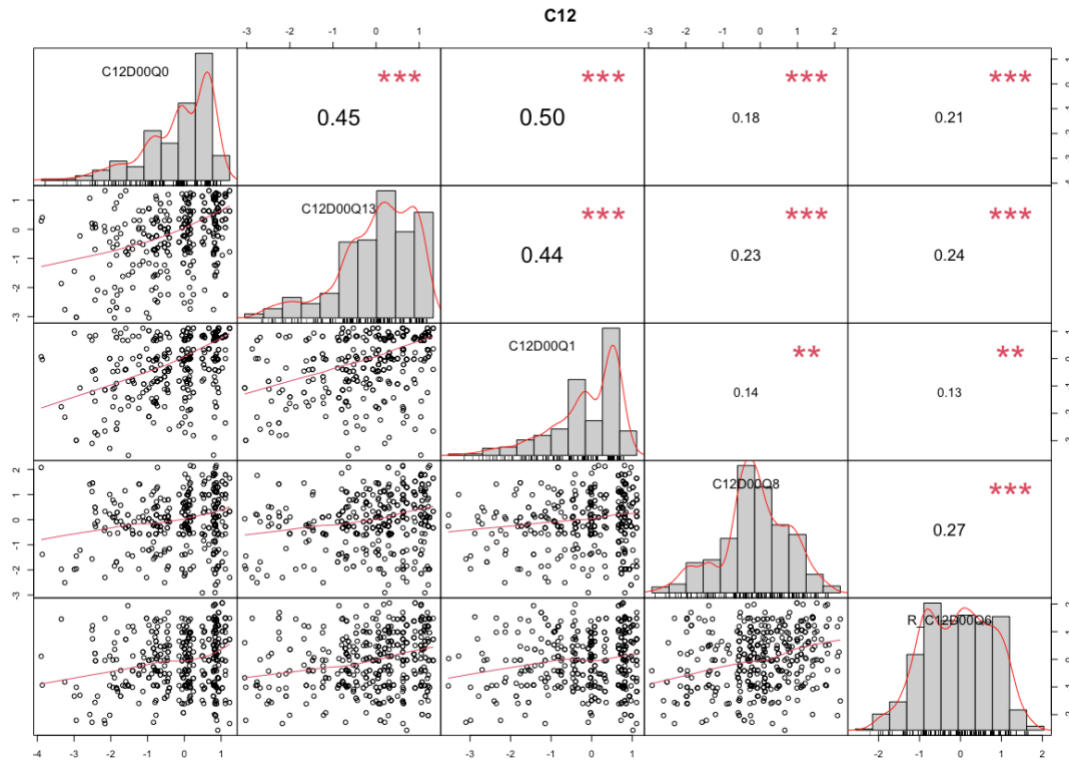
No.	ITEMID	ITEMQ
1.	C12D00Q0	[The agent] remains focused on [me / the user] throughout the interaction
2.	C12D00Q13	[The agent] is attentive
3.	C12D00Q1	[I / The user] receives [the agent]'s full attention throughout the interaction
4.	~~C12D00Q8~~	~~[The agent] notices if [I leave / the user leaves]~~
5.	C12D00Q6	[R] [The agent] does not notice what happens around it

Exclusion reasoning:
Four judges agreed to remove C12D00Q8 as perhaps the user might not leave.

C13 Agent's Coherence
Definition: The extent to which the agent is perceived as being logical and consistent

Initial set:
```
lavaan 0.6-8 ended normally after 20 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                 6.551
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.256

Model Test Baseline Model:

  Test statistic                               387.864
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

```

```
    Comparative Fit Index (CFI)                          0.996
    Tucker-Lewis Index (TLI)                             0.992

Loglikelihood and Information Criteria:

    Loglikelihood user model (H0)            -3548.251
    Loglikelihood unrestricted model (H1)    -3544.976

    Akaike (AIC)                              7116.503
    Bayesian (BIC)                            7159.269
    Sample-size adjusted Bayesian (BIC)       7127.526

Root Mean Square Error of Approximation:

    RMSEA                                        0.024
    90 Percent confidence interval - lower       0.000
    90 Percent confidence interval - upper       0.068
    P-value RMSEA <= 0.05                         0.793

Standardized Root Mean Square Residual:

    SRMR                                         0.020

Parameter Estimates:

    Standard errors                           Standard
    Information                               Expected
    Information saturated (h1) model          Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C13 =~
    R_C13D00Q3       1.000                                0.738    0.748
    C13D00Q7         0.542    0.072    7.532    0.000     0.400    0.406
    R_C13D00Q11      0.871    0.084   10.386    0.000     0.643    0.652
    R_C13D00Q6       0.636    0.074    8.607    0.000     0.470    0.476
    R_C13D00Q15      0.606    0.073    8.276    0.000     0.447    0.453

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .R_C13D00Q3      0.428    0.052    8.272    0.000     0.428    0.440
   .C13D00Q7        0.813    0.054   15.113    0.000     0.813    0.835
   .R_C13D00Q11     0.560    0.049   11.339    0.000     0.560    0.575
   .R_C13D00Q6      0.753    0.052   14.504    0.000     0.753    0.774
   .R_C13D00Q15     0.773    0.053   14.722    0.000     0.773    0.794
    C13             0.545    0.070    7.817    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.996

Final model:
```
C13 =~ R_C13D00Q3 + C13D00Q7 + R_C13D00Q11 + R_C13D00Q6 + R_C13D00Q15
```

Note: No item removal.

C14 Agent's Intentionality
Definition: The extent to which the agent is perceived as being deliberate and has deliberations

Initial set:
```
lavaan 0.6-8 ended normally after 27 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10
```

```
   Number of observations                           532

Model Test User Model:

  Test statistic                                   6.323
  Degrees of freedom                                   5
  P-value (Chi-square)                             0.276

Model Test Baseline Model:

  Test statistic                                 439.254
  Degrees of freedom                                  10
  P-value                                          0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                      0.997
  Tucker-Lewis Index (TLI)                         0.994

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                -3522.442
  Loglikelihood unrestricted model (H1)        -3519.281

  Akaike (AIC)                                  7064.884
  Bayesian (BIC)                                7107.651
  Sample-size adjusted Bayesian (BIC)           7075.908

Root Mean Square Error of Approximation:

  RMSEA                                            0.022
  90 Percent confidence interval - lower           0.000
  90 Percent confidence interval - upper           0.067
  P-value RMSEA <= 0.05                            0.807

Standardized Root Mean Square Residual:

  SRMR                                             0.020

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model            Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C14 =~
    C14D00Q0       1.000                                0.474    0.481
    C14D00Q10      1.708    0.187    9.140    0.000     0.810    0.821
    R_C14D00Q13    1.302    0.147    8.882    0.000     0.617    0.626
    C14D00Q15      0.930    0.126    7.359    0.000     0.441    0.447
    C14D00Q16      0.916    0.126    7.288    0.000     0.434    0.440

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C14D00Q0      0.749    0.051   14.767    0.000     0.749    0.769
   .C14D00Q10     0.318    0.051    6.186    0.000     0.318    0.326
   .R_C14D00Q13   0.593    0.047   12.582    0.000     0.593    0.609
   .C14D00Q15     0.779    0.052   15.050    0.000     0.779    0.800
   .C14D00Q16     0.785    0.052   15.099    0.000     0.785    0.806
    C14           0.225    0.044    5.133    0.000     1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.997

Final model:

```
C14 =~ C14D00Q0 + C14D00Q10 +  R_C14D00Q13 + C14D00Q15 + C14D00Q16
```

Note: no item removal.

C15 Attitude

Definition: A favourable or unfavourable evaluation toward the interaction with the agent

Initial set:
```
lavaan 0.6-8 ended normally after 17 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                52.223
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                               814.000
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.941
  Tucker-Lewis Index (TLI)                       0.883

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3358.019
  Loglikelihood unrestricted model (H1)      -3331.908

  Akaike (AIC)                                6736.039
  Bayesian (BIC)                              6778.805
  Sample-size adjusted Bayesian (BIC)         6747.062

Root Mean Square Error of Approximation:

  RMSEA                                          0.133
  90 Percent confidence interval - lower         0.102
  90 Percent confidence interval - upper         0.167
  P-value RMSEA <= 0.05                          0.000

Standardized Root Mean Square Residual:

  SRMR                                           0.052

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C15 =~
    C15D00Q10         1.000                               0.782    0.792
    C15D00Q11         0.978    0.061   16.146    0.000    0.765    0.775
    C15D00Q8          0.708    0.059   12.009    0.000    0.554    0.561
    C15D00Q12         0.746    0.059   12.656    0.000    0.583    0.591
```

```
    R_C15D00Q15        0.776    0.059   13.181    0.000    0.607    0.615

Variances:
                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C15D00Q10          0.362    0.036   10.192    0.000    0.362    0.372
   .C15D00Q11          0.389    0.036   10.815    0.000    0.389    0.399
   .C15D00Q8           0.667    0.045   14.711    0.000    0.667    0.685
   .C15D00Q12          0.634    0.044   14.438    0.000    0.634    0.651
   .R_C15D00Q15        0.606    0.043   14.179    0.000    0.606    0.622
    C15                0.611    0.062    9.865    0.000    1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.941
C15D00Q8 ~~ C15D00Q12 (MI = 48.406)	0.999

Final model:

```
C15 =~ C15D00Q10 + C15D00Q11 + C15D00Q8 + C15D00Q12 + R_C15D00Q15
C15D00Q8 ~~  C15D00Q12
```

CFA result:

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        11

  Number of observations                           532

Model Test User Model:

  Test statistic                                 5.043
  Degrees of freedom                                 4
  P-value (Chi-square)                           0.283

Model Test Baseline Model:

  Test statistic                               814.000
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.999
  Tucker-Lewis Index (TLI)                       0.997

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3334.429
  Loglikelihood unrestricted model (H1)      -3331.908

  Akaike (AIC)                                6690.859
  Bayesian (BIC)                              6737.902
  Sample-size adjusted Bayesian (BIC)         6702.984

Root Mean Square Error of Approximation:

  RMSEA                                          0.022
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.072
  P-value RMSEA <= 0.05                          0.771

Standardized Root Mean Square Residual:

  SRMR                                           0.014

Parameter Estimates:
```

```
   Standard errors                                      Standard
   Information                                          Expected
   Information saturated (h1) model              Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C15 =~
    C15D00Q10        1.000                                0.797    0.807
    C15D00Q11        0.969    0.061   15.856    0.000     0.772    0.782
    C15D00Q8         0.634    0.059   10.821    0.000     0.505    0.512
    C15D00Q12        0.675    0.058   11.564    0.000     0.538    0.545
    R_C15D00Q15      0.773    0.058   13.330    0.000     0.616    0.624

Covariances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  .C15D00Q8 ~~
    .C15D00Q12       0.222    0.036    6.210    0.000     0.222    0.316

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C15D00Q10       0.339    0.037    9.143    0.000     0.339    0.348
    .C15D00Q11       0.378    0.037   10.158    0.000     0.378    0.388
    .C15D00Q8        0.719    0.048   14.973    0.000     0.719    0.738
    .C15D00Q12       0.684    0.046   14.734    0.000     0.684    0.703
    .R_C15D00Q15     0.594    0.042   13.988    0.000     0.594    0.610
     C15             0.635    0.064    9.946    0.000     1.000    1.000
```

Note: no item removal

C16 Social Presence
Definition: The degree to which the user perceives the presence of a social entity in the interaction

Initial set:
```
lavaan 0.6-8 ended normally after 20 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                90.306
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                               687.963
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.874
  Tucker-Lewis Index (TLI)                       0.748

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3440.079
  Loglikelihood unrestricted model (H1)      -3394.926

  Akaike (AIC)                                6900.159
  Bayesian (BIC)                              6942.925
```

```
     Sample-size adjusted Bayesian (BIC)         6911.182

Root Mean Square Error of Approximation:

  RMSEA                                             0.179
  90 Percent confidence interval - lower            0.148
  90 Percent confidence interval - upper            0.212
  P-value RMSEA <= 0.05                             0.000

Standardized Root Mean Square Residual:

  SRMR                                              0.068

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model              Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C16 =~
    C16D00Q11       1.000                                0.629   0.637
    C16D00Q13       1.158    0.094   12.271    0.000     0.728   0.738
    C16D00Q12       1.122    0.093   12.102    0.000     0.706   0.715
    C16D00Q16       0.896    0.086   10.400    0.000     0.563   0.571
    C16D00Q17       0.742    0.083    8.924    0.000     0.466   0.473

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C16D00Q11      0.578    0.044   13.179    0.000     0.578   0.594
   .C16D00Q13      0.443    0.041   10.760    0.000     0.443   0.455
   .C16D00Q12      0.476    0.042   11.439    0.000     0.476   0.489
   .C16D00Q16      0.657    0.046   14.121    0.000     0.657   0.674
   .C16D00Q17      0.756    0.050   15.022    0.000     0.756   0.777
    C16            0.395    0.055    7.246    0.000     1.000   1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.874
C16D00Q11 ~~ C16D00Q16 (MI = 93.192)	1.000

Final model:
```
C16 =~ C16D00Q11 + C16D00Q13 +  C16D00Q12 +  C16D00Q16 + C16D00Q17
C16D00Q11 ~~ C16D00Q16
```

CFA result:
```
lavaan 0.6-8 ended normally after 29 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        11

  Number of observations                           532

Model Test User Model:

  Test statistic                                 3.289
  Degrees of freedom                                 4
  P-value (Chi-square)                           0.511

Model Test Baseline Model:

  Test statistic                               687.963
  Degrees of freedom                                10
  P-value                                        0.000
```

```
User Model versus Baseline Model:

  Comparative Fit Index (CFI)                        1.000
  Tucker-Lewis Index (TLI)                           1.003

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -3396.571
  Loglikelihood unrestricted model (H1)     -3394.926

  Akaike (AIC)                               6815.141
  Bayesian (BIC)                             6862.185
  Sample-size adjusted Bayesian (BIC)        6827.267

Root Mean Square Error of Approximation:

  RMSEA                                              0.000
  90 Percent confidence interval - lower             0.000
  90 Percent confidence interval - upper             0.060
  P-value RMSEA <= 0.05                              0.895

Standardized Root Mean Square Residual:

  SRMR                                               0.016

Parameter Estimates:

  Standard errors                            Standard
  Information                                Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C16 =~
    C16D00Q11         1.000                                0.535    0.542
    C16D00Q13         1.438    0.136   10.570    0.000     0.769    0.780
    C16D00Q12         1.367    0.130   10.542    0.000     0.732    0.741
    C16D00Q16         0.851    0.080   10.664    0.000     0.455    0.461
    C16D00Q17         0.918    0.108    8.500    0.000     0.491    0.498

Covariances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
 .C16D00Q11 ~~
   .C16D00Q16         0.312    0.039    7.975    0.000     0.312    0.429

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C16D00Q11        0.687    0.048   14.292    0.000     0.687    0.706
   .C16D00Q13        0.382    0.045    8.470    0.000     0.382    0.392
   .C16D00Q12        0.438    0.044    9.894    0.000     0.438    0.450
   .C16D00Q16        0.766    0.051   14.959    0.000     0.766    0.787
   .C16D00Q17        0.732    0.050   14.763    0.000     0.732    0.752
    C16              0.286    0.048    5.939    0.000     1.000    1.000
```

Note: no item removal.

C17 Interaction Impact on Self-Image

Definition: How the user believes others perceive the user because of the interaction with the agent

Initial set:

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10
```

```
    Number of observations                          532

Model Test User Model:

  Test statistic                               32.857
  Degrees of freedom                                5
  P-value (Chi-square)                          0.000

Model Test Baseline Model:

  Test statistic                              512.647
  Degrees of freedom                               10
  P-value                                       0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                   0.945
  Tucker-Lewis Index (TLI)                      0.889

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -3499.013
  Loglikelihood unrestricted model (H1)     -3482.584

  Akaike (AIC)                               7018.025
  Bayesian (BIC)                             7060.791
  Sample-size adjusted Bayesian (BIC)        7029.048

Root Mean Square Error of Approximation:

  RMSEA                                         0.102
  90 Percent confidence interval - lower        0.071
  90 Percent confidence interval - upper        0.137
  P-value RMSEA <= 0.05                         0.004

Standardized Root Mean Square Residual:

  SRMR                                          0.043

Parameter Estimates:

  Standard errors                            Standard
  Information                                Expected
  Information saturated (h1) model         Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C17 =~
    C17D00Q2       1.000                               0.670    0.679
    C17D00Q3       1.018    0.089   11.425    0.000    0.682    0.691
    C17D00Q8       0.654    0.079    8.310    0.000    0.438    0.444
    C17D00Q9       0.768    0.081    9.508    0.000    0.515    0.522
    C17D00Q10      0.916    0.085   10.824    0.000    0.614    0.622

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C17D00Q2      0.525    0.046   11.460    0.000    0.525    0.539
   .C17D00Q3      0.509    0.046   11.126    0.000    0.509    0.522
   .C17D00Q8      0.782    0.052   14.963    0.000    0.782    0.803
   .C17D00Q9      0.709    0.050   14.243    0.000    0.709    0.728
   .C17D00Q10     0.597    0.047   12.765    0.000    0.597    0.613
    C17           0.449    0.060    7.487    0.000    1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.945
C17D00Q2 ~~ C17D00Q3 (MI = 31.429)	0.999

Final model:

```
C17 =~ C17D00Q2 + C17D00Q3 + C17D00Q8 + C17D00Q9 + C17D00Q10
C17D00Q2 ~~ C17D00Q3
```

CFA result:

```
lavaan 0.6-8 ended normally after 29 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        11

  Number of observations                           532

Model Test User Model:

  Test statistic                                 4.464
  Degrees of freedom                                 4
  P-value (Chi-square)                           0.347

Model Test Baseline Model:

  Test statistic                               512.647
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.999
  Tucker-Lewis Index (TLI)                       0.998

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3484.816
  Loglikelihood unrestricted model (H1)      -3482.584

  Akaike (AIC)                                6991.632
  Bayesian (BIC)                              7038.675
  Sample-size adjusted Bayesian (BIC)         7003.758

Root Mean Square Error of Approximation:

  RMSEA                                          0.015
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.069
  P-value RMSEA <= 0.05                          0.815

Standardized Root Mean Square Residual:

  SRMR                                           0.015

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C17 =~
    C17D00Q2          1.000                                0.543    0.550
    C17D00Q3          1.030    0.097   10.614    0.000     0.559    0.566
    C17D00Q8          0.904    0.117    7.735    0.000     0.491    0.497
    C17D00Q9          1.012    0.123    8.242    0.000     0.549    0.556
    C17D00Q10         1.276    0.146    8.715    0.000     0.692    0.702

Covariances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
```

```
  .C17D00Q2 ~~
    .C17D00Q3          0.216    0.042    5.179    0.000    0.216    0.322

Variances:
                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C17D00Q2          0.679    0.053   12.823    0.000    0.679    0.698
    .C17D00Q3          0.661    0.053   12.566    0.000    0.661    0.679
    .C17D00Q8          0.733    0.052   14.018    0.000    0.733    0.753
    .C17D00Q9          0.672    0.051   13.133    0.000    0.672    0.690
    .C17D00Q10         0.494    0.053    9.351    0.000    0.494    0.508
     C17               0.294    0.054    5.467    0.000    1.000    1.000
```

Note: no item removal

C18 Emotional Experience

Definition: A self-contained phenomenal experience. They are subjective, evaluative, and independent of the sensations, thoughts, or images evoking them

Model with C18 construct and two dimensions C18D01 and C18D03 gives a warning message:
```
Warning message:
In lav_model_vcov(lavmodel = lavmodel, lavsamplestats = lavsamplestats,  :
  lavaan WARNING:
    Could not compute standard errors! The information matrix could
    not be inverted. This may be a symptom that the model is not
    identified.
```

Decision:
Four judges agreed to separate C18D01 and C18D03 into two individual constructs. This makes theoretically sense as the agent's and user's emotion presence are independent.

Initial set:
```
 lavaan 0.6-8 ended normally after 32 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        21

  Number of observations                           532

Model Test User Model:

  Test statistic                                92.621
  Degrees of freedom                                34
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                              1697.368
  Degrees of freedom                                45
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.965
  Tucker-Lewis Index (TLI)                       0.953

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -6675.442
  Loglikelihood unrestricted model (H1)      -6629.131

  Akaike (AIC)                               13392.884
  Bayesian (BIC)                             13482.693
  Sample-size adjusted Bayesian (BIC)        13416.033
```

```
Root Mean Square Error of Approximation:

  RMSEA                                         0.057
  90 Percent confidence interval - lower        0.043
  90 Percent confidence interval - upper        0.071
  P-value RMSEA <= 0.05                         0.193

Standardized Root Mean Square Residual:

  SRMR                                          0.045

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model            Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C18D01 =~
    C18D01Q2         1.000                               0.755    0.765
    C18D01Q3         1.006    0.058   17.445    0.000    0.760    0.770
    R_C18D01Q5       1.016    0.058   17.611    0.000    0.767    0.777
    C18D01Q8         0.955    0.058   16.521    0.000    0.721    0.731
    R_C18D01Q14      0.912    0.058   15.729    0.000    0.689    0.698
  C18D03 =~
    C18D03Q0         1.000                               0.469    0.475
    C18D03Q1         1.134    0.146    7.760    0.000    0.532    0.539
    C18D03Q2         1.095    0.144    7.620    0.000    0.513    0.520
    C18D03Q9         1.290    0.157    8.233    0.000    0.605    0.613
    C18D03Q12        1.287    0.156    8.224    0.000    0.603    0.611

Covariances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C18D01 ~~
    C18D03           0.203    0.030    6.894    0.000    0.575    0.575

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C18D01Q2        0.403    0.031   12.828    0.000    0.403    0.414
   .C18D01Q3        0.396    0.031   12.719    0.000    0.396    0.407
   .R_C18D01Q5      0.385    0.031   12.547    0.000    0.385    0.396
   .C18D01Q8        0.453    0.034   13.492    0.000    0.453    0.465
   .R_C18D01Q14     0.499    0.036   13.984    0.000    0.499    0.512
   .C18D03Q0        0.754    0.052   14.506    0.000    0.754    0.774
   .C18D03Q1        0.691    0.050   13.766    0.000    0.691    0.710
   .C18D03Q2        0.710    0.051   14.006    0.000    0.710    0.729
   .C18D03Q9        0.608    0.048   12.545    0.000    0.608    0.624
   .C18D03Q12       0.610    0.048   12.577    0.000    0.610    0.626
    C18D01          0.570    0.058    9.884    0.000    1.000    1.000
    C18D03          0.220    0.045    4.925    0.000    1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.965
REMOVE C18D03Q9 (C18D01 =~ C18D03Q9, MI = 14.315)	0.981

Final model:
```
C18D01 =~ C18D01Q2 + C18D01Q3 +  R_C18D01Q5 + C18D01Q8 + R_C18D01Q14
C18D03 =~ C18D03Q0 + C18D03Q1 + C18D03Q2 +  C18D03Q12
```

CFA result:
```
lavaan 0.6-8 ended normally after 27 iterations

  Estimator                                     ML
  Optimization method                        NLMINB
```

```
   Number of model parameters                        19

   Number of observations                           532

Model Test User Model:

  Test statistic                                  54.537
  Degrees of freedom                                  26
  P-value (Chi-square)                             0.001

Model Test Baseline Model:

  Test statistic                                1510.684
  Degrees of freedom                                  36
  P-value                                          0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                      0.981
  Tucker-Lewis Index (TLI)                         0.973

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                -6001.960
  Loglikelihood unrestricted model (H1)        -5974.692

  Akaike (AIC)                                 12041.921
  Bayesian (BIC)                               12123.177
  Sample-size adjusted Bayesian (BIC)          12062.865

Root Mean Square Error of Approximation:

  RMSEA                                            0.045
  90 Percent confidence interval - lower           0.028
  90 Percent confidence interval - upper           0.062
  P-value RMSEA <= 0.05                            0.649

Standardized Root Mean Square Residual:

  SRMR                                             0.033

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model            Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C18D01 =~
    C18D01Q2       1.000                               0.753    0.764
    C18D01Q3       1.011    0.058   17.395    0.000    0.761    0.772
    R_C18D01Q5     1.019    0.058   17.537    0.000    0.768    0.778
    C18D01Q8       0.954    0.058   16.379    0.000    0.719    0.728
    R_C18D01Q14    0.918    0.058   15.740    0.000    0.692    0.701
  C18D03 =~
    C18D03Q0       1.000                               0.530    0.537
    C18D03Q1       1.113    0.136    8.162    0.000    0.590    0.598
    C18D03Q2       0.976    0.127    7.694    0.000    0.518    0.525
    C18D03Q12      1.042    0.131    7.950    0.000    0.553    0.560

Covariances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C18D01 ~~
    C18D03         0.205    0.031    6.662    0.000    0.512    0.512

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
```

.C18D01Q2	0.406	0.032	12.815	0.000	0.406	0.417
.C18D01Q3	0.394	0.031	12.628	0.000	0.394	0.405
.R_C18D01Q5	0.384	0.031	12.475	0.000	0.384	0.395
.C18D01Q8	0.457	0.034	13.501	0.000	0.457	0.470
.R_C18D01Q14	0.495	0.036	13.909	0.000	0.495	0.508
.C18D03Q0	0.692	0.053	13.055	0.000	0.692	0.711
.C18D03Q1	0.625	0.053	11.826	0.000	0.625	0.642
.C18D03Q2	0.706	0.053	13.273	0.000	0.706	0.725
.C18D03Q12	0.668	0.053	12.634	0.000	0.668	0.686
C18D01	0.568	0.058	9.840	0.000	1.000	1.000
C18D03	0.281	0.053	5.342	0.000	1.000	1.000

Note: item removal occurs only in C18D03 (see below)

C18D03 User's Emotion Presence

Definition: To what extent the user believes that his/her emotional state is caused by the interaction or the agent
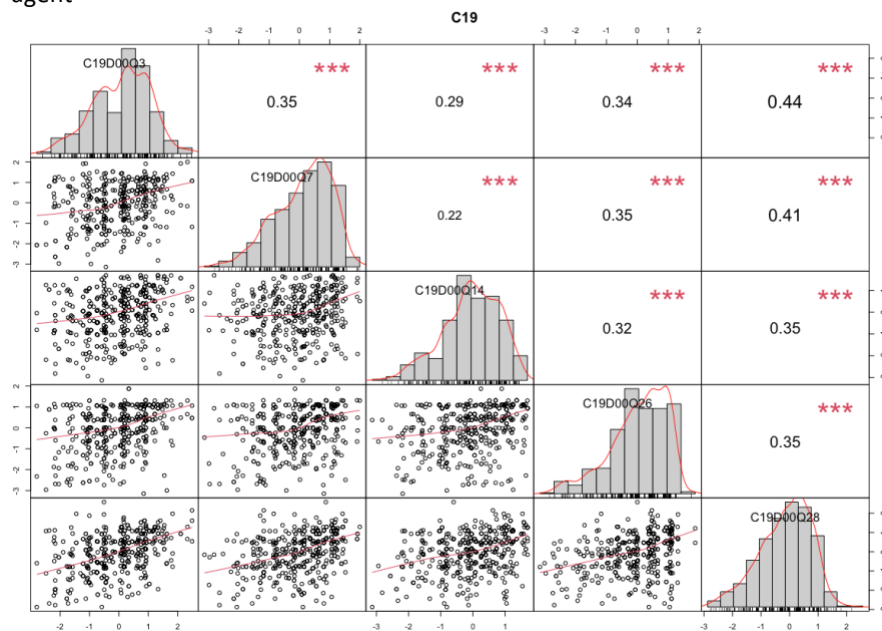
No.	ITEMID	ITEMQ
1.	C18D03Q0	[The agent]'s attitudes influences how [I feel / the user feels]
2.	C18D03Q1	[I am / The user is] influenced by [the agent]'s moods
3.	C18D03Q2	The emotions [I feel / the user feels] during the interaction are caused by [the agent]
4.	~~C18D03Q9~~	~~[My / The user's] interaction with [the agent] is an emotional experience~~
5.	C18D03Q12	[My / The user's] interaction with [the agent] gives [me / them] an emotional sensation

Removal reasoning:
Four judges agreed to remove C18D03Q9. The modification indices shows that this item is correlated with C18D01. Further the item does not make explicit for whom this is an emotional experience (the user or the agent).

C19 User-Agent Interplay

Definition: The extent to which the user and the agent have an effect on each other

Initial set:

```
lavaan 0.6-8 ended normally after 24 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10
```

```
   Number of observations                             532

Model Test User Model:

  Test statistic                                  10.236
  Degrees of freedom                                   5
  P-value (Chi-square)                             0.069

Model Test Baseline Model:

  Test statistic                                 459.321
  Degrees of freedom                                  10
  P-value                                          0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                      0.988
  Tucker-Lewis Index (TLI)                         0.977

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)               -3514.365
  Loglikelihood unrestricted model (H1)       -3509.247

  Akaike (AIC)                                  7048.730
  Bayesian (BIC)                                7091.496
  Sample-size adjusted Bayesian (BIC)           7059.753

Root Mean Square Error of Approximation:

  RMSEA                                            0.044
  90 Percent confidence interval - lower           0.000
  90 Percent confidence interval - upper           0.083
  P-value RMSEA <= 0.05                            0.534

Standardized Root Mean Square Residual:

  SRMR                                             0.024

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model            Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C19 =~
    C19D00Q3       1.000                                0.613    0.622
    C19D00Q7       0.917    0.096    9.563    0.000      0.563    0.570
    C19D00Q14      0.778    0.092    8.494    0.000      0.477    0.484
    C19D00Q26      0.893    0.095    9.393    0.000      0.548    0.555
    C19D00Q28      1.121    0.106   10.564    0.000      0.687    0.697

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C19D00Q3      0.598    0.048   12.485    0.000      0.598    0.614
   .C19D00Q7      0.657    0.049   13.414    0.000      0.657    0.675
   .C19D00Q14     0.746    0.051   14.497    0.000      0.746    0.766
   .C19D00Q26     0.674    0.049   13.638    0.000      0.674    0.692
   .C19D00Q28     0.501    0.047   10.603    0.000      0.501    0.515
    C19           0.376    0.056    6.681    0.000      1.000    1.000
```

SEQUENTIAL ACTION	CFI
INITIAL	0.988

Final model:

```
C19 =~ C19D00Q3 + C19D00Q7 + C19D00Q14 + C19D00Q26 + C19D00Q28
```

Note: no item removal.

Appendix G The EFA Result of Predicted Latent Scores

Data description of the predicted latent scores:

CONSTRUCT ID	N	M	SD	MIN	MAX
C01D01	532	-2,62E-17	0,67	-2,33	2,36
C01D02	532	2,84E-18	0,60	-1,83	1,66
C01D03	532	1,76E-17	0,48	-1,69	1,46
C01D04	532	-9,65E-18	0,29	-0,90	0,78
C01D05	532	-2,80E-17	0,56	-1,99	1,21
C02	532	-7,25E-18	0,64	-2,36	1,28
C03	532	-4,24E-17	0,63	-2,09	1,29
C04	532	-5,31E-17	0,55	-2,32	1,23
C05	532	-2,85E-18	0,35	-0,96	0,99
C06D01	532	3,09E-18	0,57	-2,16	1,67
C07	532	3,13E-17	0,65	-2,24	1,43
C08	532	-2,69E-17	0,59	-2,00	1,11
C09	532	-6,82E-17	0,54	-1,90	1,06
C10	532	-5,51E-18	0,52	-1,53	1,32
C11	532	1,33E-17	0,57	-2,01	1,27
C12	532	2,04E-18	0,61	-2,34	0,99
C13	532	-4,69E-18	0,63	-2,17	1,24
C14	532	-1,11E-17	0,42	-1,41	0,89
C15	532	-1,74E-17	0,72	-2,37	1,74
C16	532	1,35E-17	0,47	-1,16	1,35
C17	532	1,27E-17	0,46	-1,53	1,40
C18D01	532	-3,27E-17	0,71	-2,17	3,01
C18D03	532	2.24E-17	0,44	-1,32	1,39
C19	532	8,20E-18	0,53	-1,70	1,17

Parallel Analysis Scree Plots
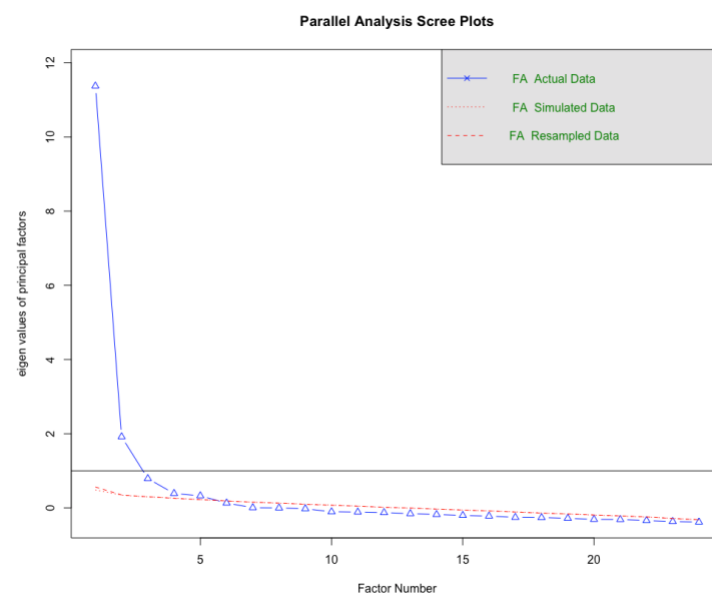
Parallel analysis suggests that the number of factors = 5 and the number of components = NA

EFA results (Number of factors = 5, estimator = maximum likelihood, rotation = promax)

```
Factor Analysis using method =  ml
Call: fa(r = data_cor, nfactors = nfactors, rotate = "promax", SMC = FALSE,
    max.iter = 100, fm = "ml")
```

```
Standardized loadings (pattern matrix) based upon correlation matrix
        item    ML3   ML4   ML1   ML5   ML2   h2    u2    com
C03         7  0.89 -0.14  0.05 -0.06  0.04 0.69 0.307 1.1
C13        17  0.77 -0.31 -0.01  0.14  0.12 0.52 0.482 1.4
C07        11  0.74  0.04 -0.05  0.23 -0.06 0.69 0.308 1.2
C15        19  0.71  0.03 -0.10  0.27 -0.07 0.64 0.363 1.3
C12        16  0.71  0.07 -0.01 -0.16 -0.03 0.47 0.526 1.1
C09        13  0.65  0.09 -0.19  0.04 -0.04 0.39 0.615 1.2
C10        14  0.64  0.04  0.15 -0.07  0.04 0.56 0.437 1.2
C02         6  0.63  0.01  0.04  0.00 -0.03 0.43 0.573 1.0
C08        12  0.54  0.00 -0.06  0.50  0.06 0.76 0.243 2.0
C01D05      5  0.53 -0.14  0.31  0.16 -0.11 0.48 0.522 2.1
C17        21  0.50  0.23 -0.02  0.16 -0.04 0.52 0.478 1.6
C14        18  0.47  0.22  0.08 -0.09  0.15 0.53 0.468 1.8
C18D01     22 -0.34  0.97  0.02  0.09 -0.03 0.68 0.318 1.3
C18D03     23  0.01  0.82 -0.01  0.01 -0.09 0.59 0.408 1.0
C19        24  0.21  0.68 -0.04 -0.14 -0.04 0.55 0.448 1.3
C16        20  0.01  0.64  0.08  0.07  0.07 0.60 0.402 1.1
C05         9  0.08  0.53  0.18  0.13  0.07 0.67 0.331 1.5
C06D01     10  0.03  0.52  0.04  0.20  0.08 0.52 0.482 1.4
C11        15  0.44  0.46  0.08 -0.08  0.06 0.76 0.240 2.1
C01D03      3 -0.02  0.10  0.97  0.01 -0.07 0.99 0.010 1.0
C01D01      1 -0.06  0.02  0.90 -0.10  0.07 0.78 0.218 1.0
C01D04      4 -0.05  0.12  0.64  0.09  0.41 0.97 0.027 1.8
C01D02      2 -0.03  0.03  0.59  0.03  0.57 1.00 0.005 2.0
C04         8  0.28  0.21  0.02  0.54  0.00 0.72 0.284 1.9

                          ML3   ML4   ML1   ML5   ML2
SS loadings               6.06  4.01  3.21  1.31  0.92
Proportion Var            0.25  0.17  0.13  0.05  0.04
Cumulative Var            0.25  0.42  0.55  0.61  0.65
Proportion Explained      0.39  0.26  0.21  0.08  0.06
Cumulative Proportion     0.39  0.65  0.86  0.94  1.00

 With factor correlations of
     ML3  ML4  ML1  ML5  ML2
ML3 1.00 0.63 0.53 0.42 0.44
ML4 0.63 1.00 0.61 0.35 0.57
ML1 0.53 0.61 1.00 0.36 0.43
ML5 0.42 0.35 0.36 1.00 0.21
ML2 0.44 0.57 0.43 0.21 1.00

Mean item complexity =  1.4
Test of the hypothesis that 5 factors are sufficient.

The degrees of freedom for the null model are  276  and the objective function
was  20.65
The degrees of freedom for the model are 166  and the objective function was
1.23

The root mean square of the residuals (RMSR) is  0.03
The df corrected root mean square of the residuals is  0.04

Fit based upon off diagonal values = 1
Measures of factor score adequacy
                                                   ML3  ML4  ML1  ML5  ML2
Correlation of (regression) scores with factors   0.97 0.96 1.00 0.87 0.99
Multiple R square of scores with factors          0.94 0.92 0.99 0.75 0.98
Minimum correlation of possible factor scores     0.87 0.83 0.98 0.50 0.95
```

With the factor loading cut-off .40, based on the EFA result, there are four groups of constructs*:
1. ML 1 (4 constructs): These constructs are composed with items that describe how believable the agent and its behavior is.
   C01D01, C01D02, C01D03, C01D04
2. ML3 (13 constructs): The constructs are composed with items more related to users (or the rater), how the agent impacts/affects the user (i.e. more of a judgement)

C01D05, C02, C03, C07, C08, C09, C10, C11, C12, C13, C14, C15, C17
3. ML4 (7 constructs): These constructs are composed with items that describe the socio-emotional of the agent and the interaction with the agent. They measure less about the user or the agent.
C05, C06D01, C11, C16, C18D01, C18D03, C19
4. ML5 (2 constructs): These constructs are composed with items that measure the user (or the rater)'s opinion about the agent
C04, C08

Note: the factor ML2 contains two constructs that are overlapped with the factor ML1

Appendix H The CFA Results of Discriminant Validity Analysis

Establishing Convergent and Admissible Models

ML1
4 constructs: C01D01, C01D02, C01D03, C01D04

```
lavaan 0.6-8 ended normally after 57 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        40

  Number of observations                           532

Model Test User Model:

  Test statistic                               171.190
  Degrees of freedom                               113
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                              3527.588
  Degrees of freedom                               136
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.983
  Tucker-Lewis Index (TLI)                       0.979

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -11034.087
  Loglikelihood unrestricted model (H1)     -10948.492

  Akaike (AIC)                               22148.174
  Bayesian (BIC)                             22319.240
  Sample-size adjusted Bayesian (BIC)        22192.268

Root Mean Square Error of Approximation:

  RMSEA                                          0.031
  90 Percent confidence interval - lower         0.021
  90 Percent confidence interval - upper         0.040
  P-value RMSEA <= 0.05                          1.000

Standardized Root Mean Square Residual:
```

```
    SRMR                                            0.033

Parameter Estimates:

  Standard errors                           Standard
  Information                               Expected
  Information saturated (h1) model          Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)  Std.lv   Std.all
  C01D01 =~
    C01D01Q3        1.000                                0.721    0.730
    C01D01Q10       1.067    0.064   16.561    0.000     0.769    0.779
    C01D01Q13       0.974    0.064   15.208    0.000     0.702    0.711
    C01D01Q15       1.007    0.064   15.707    0.000     0.726    0.736
  C01D02 =~
    C01D02Q7        1.000                                0.637    0.646
    C01D02Q10       0.925    0.077   12.038    0.000     0.590    0.597
    C01D02Q0        1.137    0.080   14.270    0.000     0.725    0.734
    C01D02Q1        1.209    0.081   14.959    0.000     0.771    0.781
    C01D02Q9        1.236    0.081   15.206    0.000     0.788    0.799
  C01D03 =~
    C01D03Q7        1.000                                0.541    0.548
    C01D03Q9        1.153    0.110   10.514    0.000     0.624    0.632
    C01D03Q11       1.334    0.117   11.404    0.000     0.722    0.731
    C01D03Q10       0.846    0.100    8.496    0.000     0.458    0.464
    C01D03Q12       1.096    0.108   10.181    0.000     0.593    0.601
  C01D04 =~
    C01D04Q0        1.000                                0.310    0.314
    C01D04Q13       2.380    0.353    6.735    0.000     0.738    0.747
    C01D04Q15       2.168    0.327    6.623    0.000     0.672    0.681

Covariances:
                  Estimate  Std.Err  z-value  P(>|z|)  Std.lv   Std.all
  C01D01 ~~
    C01D02          0.334    0.035    9.474    0.000     0.728    0.728
    C01D03          0.301    0.035    8.700    0.000     0.772    0.772
    C01D04          0.139    0.024    5.662    0.000     0.620    0.620
  C01D02 ~~
    C01D03          0.236    0.029    8.040    0.000     0.686    0.686
    C01D04          0.179    0.030    6.016    0.000     0.908    0.908
  C01D03 ~~
    C01D04          0.137    0.024    5.657    0.000     0.815    0.815

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)  Std.lv   Std.all
   .C01D01Q3       0.454    0.034   13.276    0.000     0.454    0.467
   .C01D01Q10      0.382    0.031   12.180    0.000     0.382    0.393
   .C01D01Q13      0.481    0.035   13.600    0.000     0.481    0.494
   .C01D01Q15      0.447    0.034   13.177    0.000     0.447    0.459
   .C01D02Q7       0.567    0.038   14.834    0.000     0.567    0.583
   .C01D02Q10      0.626    0.041   15.169    0.000     0.626    0.643
   .C01D02Q0       0.448    0.032   13.874    0.000     0.448    0.461
   .C01D02Q1       0.380    0.029   13.034    0.000     0.380    0.390
   .C01D02Q9       0.353    0.028   12.612    0.000     0.353    0.362
   .C01D03Q7       0.681    0.046   14.863    0.000     0.681    0.699
   .C01D03Q9       0.584    0.042   14.039    0.000     0.584    0.600
   .C01D03Q11      0.453    0.037   12.293    0.000     0.453    0.465
   .C01D03Q10      0.764    0.050   15.393    0.000     0.764    0.785
   .C01D03Q12      0.622    0.043   14.396    0.000     0.622    0.639
   .C01D04Q0       0.878    0.055   16.007    0.000     0.878    0.901
```

.C01D04Q13	0.430	0.037	11.466	0.000	0.430	0.441
.C01D04Q15	0.522	0.039	13.349	0.000	0.522	0.537
C01D01	0.519	0.056	9.203	0.000	1.000	1.000
C01D02	0.406	0.051	7.958	0.000	1.000	1.000
C01D03	0.293	0.047	6.274	0.000	1.000	1.000
C01D04	0.096	0.028	3.440	0.001	1.000	1.000

Findings:

Model is convergence with 40 parameters, CFI .983 and the highest correlation between constructs is .908

ML3

Initial

13 constructs: C01D05, C02, C03, C07, C08, C09, C10, C11, C12, C13, C14, C15, C17

```
Warning message:
In lav_object_post_check(object) :
  lavaan WARNING: covariance matrix of latent variables
                 is not positive definite;
                 use lavInspect(fit, "cov.lv") to investigate.
```

Correlation Matrix between Predicted-Latent Constructs:

	C01D05	C02	C03	C07	C08	C09	C10	C11	C12	C13	C14	C15	C17
C01D05	1.000												
C02	0.643	1.000											
C03	0.622	0.688	1.000										
C07	0.647	0.703	0.822	1.000									
C08	0.611	0.632	0.763	0.923	1.000								
C09	0.602	0.564	0.621	0.703	0.643	1.000							
C10	0.523	0.591	0.835	0.814	0.658	0.426	1.000						
C11	0.436	0.605	0.787	0.722	0.720	0.513	0.826	1.000					
C12	0.558	0.628	0.672	0.673	0.623	0.718	0.629	0.695	1.000				
C13	0.635	0.607	0.779	0.739	0.811	0.554	0.647	0.573	0.670	1.000			
C14	0.524	0.666	0.714	0.696	0.706	0.466	0.830	0.885	0.745	0.663	1.000		
C15	0.643	0.629	0.808	1.003	0.941	0.697	0.746	0.724	0.695	0.696	0.642	1.000	
C17	0.496	0.588	0.804	0.907	0.808	0.547	0.809	0.784	0.591	0.606	0.672	0.880	1.000

Findings:
- o Ultra Heywood case: correlation scores between C07 and C15 is > 1.0
- o Checking correlation scores between items of C03, C07, C08, C10, C15 and C17 found the correlation scores C07D00Q14 with two items in C15 are the highest. This item also correlates highly with an item in C08.
- o Removing items in C15 (that highly correlates with C07) does not reduce the correlation score between the latent construct sC07 and C15

Solution: remove C07D00Q14

After Removing C07D00Q14

```
Warning message:
In lav_object_post_check(object) :
  lavaan WARNING: covariance matrix of latent variables
                 is not positive definite;
                 use lavInspect(fit, "cov.lv") to investigate.
```

Correlation Matrix between Predicted-Latent Constructs:

	C01D05	C02	C03	C07	C08	C09	C10	C11	C12	C13	C14	C15	C17
C01D05	1.000												
C02	0.644	1.000											
C03	0.622	0.688	1.000										
C07	0.679	0.722	0.833	1.000									
C08	0.611	0.632	0.763	0.925	1.000								
C09	0.602	0.565	0.621	0.692	0.642	1.000							

```
C10    0.524  0.591 0.835 0.831 0.657 0.426 1.000
C11    0.436  0.605 0.787 0.722 0.720 0.513 0.826 1.000
C12    0.558  0.629 0.672 0.686 0.623 0.718 0.629 0.695 1.000
C13    0.635  0.608 0.779 0.778 0.811 0.554 0.647 0.574 0.670 1.000
C14    0.524  0.666 0.714 0.723 0.706 0.466 0.830 0.885 0.745 0.663 1.000
C15    0.646  0.630 0.810 0.981 0.941 0.696 0.749 0.727 0.697 0.697 0.646 1.000
C17    0.496  0.588 0.804 0.899 0.807 0.547 0.809 0.784 0.591 0.606 0.672 0.882 1.000
```

Findings:
  o More than one Heywood cases with correlation scores between latent constructs > .90
  o Correlation scores between the latent constructs C07 and C15 is still the highest
  o Checking correlation scores between items in C03, C07, C08, C10, C15 and C17 found the correlation score between C07D00Q13 and an item in C15 is the highest.
  o Removing an item in C15 (that highly correlates with C07) does not reduce the correlation score between the latent constructs C07 and C15

Solution: remove C07D00Q13

After Removing C07D00Q13

```
Warning message:
In lav_object_post_check(object) :
  lavaan WARNING: covariance matrix of latent variables
                 is not positive definite;
                 use lavInspect(fit, "cov.lv") to investigate.
```

Correlation Matrix between Predicted-Latent Constructs:
```
        C01D05 C02    C03    C07    C08    C09    C10    C11    C12    C13    C14
C15     C17
C01D05  1.000
C02     0.643  1.000
C03     0.622  0.688 1.000
C07     0.555  0.650 0.748 1.000
C08     0.610  0.632 0.763 0.813 1.000
C09     0.601  0.565 0.621 0.641 0.643 1.000
C10     0.524  0.591 0.836 0.781 0.658 0.426 1.000
C11     0.435  0.604 0.786 0.630 0.719 0.512 0.826 1.000
C12     0.558  0.629 0.672 0.660 0.623 0.718 0.630 0.695 1.000
C13     0.635  0.608 0.780 0.701 0.810 0.554 0.648 0.573 0.670 1.000
C14     0.524  0.665 0.714 0.654 0.706 0.466 0.830 0.884 0.745 0.663 1.000
C15     0.645  0.629 0.810 0.908 0.942 0.697 0.749 0.726 0.696 0.697 0.645
1.000
C17     0.496  0.588 0.804 0.849 0.808 0.547 0.809 0.784 0.591 0.606 0.672
0.882 1.000
```

Findings:
  o More than one Heywood cases with correlation scores between latent constructs > .90
  o Correlation scores between the latent constructs C08 and C15 is still the highest
  o Checking correlation scores between items in C07, C08, C13 and C15 found the correlation scores between C08D00Q0 and two items in C15 is the highest.
  o Removing items in C15 (that highly correlates with C08) does not reduce the correlation score between the latent constructs C08 and C15

Solution: remove C08D00Q0

After Removing C08D00Q0

```
lavaan 0.6-8 ended normally after 133 iterations

  Estimator                                      ML
  Optimization method                        NLMINB
  Number of model parameters                    208

  Number of observations                        532
```

```
Model Test User Model:

  Test statistic                            3929.703
  Degrees of freedom                            1937
  P-value (Chi-square)                         0.000

Model Test Baseline Model:

  Test statistic                           15127.891
  Degrees of freedom                            2080
  P-value                                      0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                  0.847
  Tucker-Lewis Index (TLI)                     0.836

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)           -43006.707
  Loglikelihood unrestricted model (H1)   -41041.855

  Akaike (AIC)                             86429.413
  Bayesian (BIC)                           87318.955
  Sample-size adjusted Bayesian (BIC)      86658.700

Root Mean Square Error of Approximation:

  RMSEA                                        0.044
  90 Percent confidence interval - lower       0.042
  90 Percent confidence interval - upper       0.046
  P-value RMSEA <= 0.05                         1.000

Standardized Root Mean Square Residual:

  SRMR                                         0.054

Parameter Estimates:

  Standard errors                           Standard
  Information                               Expected
  Information saturated (h1) model          Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C01D05 =~
    C01D05Q0         1.000                                0.623    0.631
    C01D05Q2         1.050    0.086   12.181    0.000     0.654    0.663
    C01D05Q9         1.154    0.089   13.012    0.000     0.718    0.728
    C01D05Q11        0.920    0.084   10.994    0.000     0.573    0.580
    C01D05Q12        1.043    0.086   12.120    0.000     0.649    0.658
  C02 =~
    C02D00Q1         1.000                                0.760    0.770
    C02D00Q2         0.839    0.062   13.432    0.000     0.637    0.646
    C02D00Q8         0.818    0.062   13.115    0.000     0.621    0.630
    R_C02D00Q15      0.666    0.062   10.733    0.000     0.506    0.513
  C03 =~
    C03D01Q7         1.000                                0.704    0.713
    C03D01Q5         0.935    0.065   14.366    0.000     0.658    0.667
    C03D01Q6         0.771    0.065   11.884    0.000     0.543    0.550
    C03D01Q12        0.774    0.065   11.927    0.000     0.545    0.552
    C03D02Q5         0.797    0.065   12.290    0.000     0.561    0.569
    C03D02Q10        0.946    0.065   14.536    0.000     0.666    0.675
  C07 =~
    C07D00Q0         1.000                                0.726    0.736
    C07D00Q11        1.001    0.063   15.958    0.000     0.727    0.737
    R_C07D00Q15      0.598    0.063    9.490    0.000     0.434    0.440
```

```
C08  =~
  R_C08D00Q3      1.000                               0.636   0.645
  C08D00Q4        1.074   0.081   13.328   0.000      0.684   0.693
  R_C08D00Q10     1.071   0.081   13.295   0.000      0.682   0.691
  R_C08D00Q9      0.942   0.079   11.973   0.000      0.599   0.607
C09  =~
  C09D00Q4        1.000                               0.637   0.645
  C09D00Q10       1.113   0.089   12.530   0.000      0.709   0.718
  C09D00Q1        0.986   0.085   11.566   0.000      0.628   0.637
  R_C09D00Q9      0.580   0.079    7.385   0.000      0.369   0.374
C10  =~
  C10D00Q1        1.000                               0.627   0.636
  C10D00Q6        0.878   0.079   11.098   0.000      0.551   0.558
  C10D00Q10       0.861   0.079   10.910   0.000      0.540   0.547
  C10D00Q16       0.958   0.080   11.935   0.000      0.601   0.609
  C10D00Q18       1.070   0.082   13.039   0.000      0.671   0.680
C11  =~
  C11D01Q6        1.000                               0.626   0.634
  C11D01Q9        0.832   0.077   10.762   0.000      0.521   0.528
  C11D01Q10       1.007   0.080   12.645   0.000      0.631   0.639
  C11D01Q11       0.818   0.077   10.605   0.000      0.512   0.519
  C11D01Q14       0.898   0.078   11.485   0.000      0.562   0.569
  C11D02Q3        0.940   0.079   11.944   0.000      0.589   0.596
  C11D02Q4        0.967   0.079   12.226   0.000      0.605   0.613
  C11D02Q7        1.035   0.080   12.927   0.000      0.648   0.657
  C11D02Q8        0.806   0.077   10.460   0.000      0.504   0.511
  C11D02Q1        0.818   0.077   10.603   0.000      0.512   0.519
C12  =~
  C12D00Q0        1.000                               0.652   0.660
  C12D00Q1        0.967   0.080   12.136   0.000      0.630   0.638
  R_C12D00Q6      0.450   0.074    6.092   0.000      0.293   0.297
  C12D00Q13       1.101   0.082   13.375   0.000      0.717   0.727
C13  =~
  R_C13D00Q3      1.000                               0.721   0.731
  C13D00Q7        0.658   0.066   10.000   0.000      0.474   0.481
  R_C13D00Q11     0.816   0.066   12.316   0.000      0.588   0.596
  R_C13D00Q6      0.690   0.066   10.478   0.000      0.498   0.504
  R_C13D00Q15     0.613   0.066    9.328   0.000      0.442   0.448
C14  =~
  C14D00Q0        1.000                               0.501   0.508
  C14D00Q10       1.430   0.131   10.940   0.000      0.717   0.726
  R_C14D00Q13     1.213   0.121   10.040   0.000      0.608   0.616
  C14D00Q15       1.097   0.116    9.458   0.000      0.550   0.557
  C14D00Q16       0.863   0.107    8.047   0.000      0.433   0.439
C15  =~
  C15D00Q10       1.000                               0.692   0.701
  C15D00Q11       0.979   0.066   14.847   0.000      0.677   0.686
  C15D00Q8        0.973   0.066   14.767   0.000      0.673   0.682
  C15D00Q12       0.996   0.066   15.100   0.000      0.689   0.698
  R_C15D00Q15     0.807   0.066   12.311   0.000      0.558   0.566
C17  =~
  C17D00Q2        1.000                               0.684   0.693
  C17D00Q3        1.018   0.070   14.539   0.000      0.696   0.705
  C17D00Q8        0.673   0.068    9.857   0.000      0.460   0.466
  C17D00Q9        0.733   0.069   10.707   0.000      0.501   0.508
  C17D00Q10       0.837   0.069   12.141   0.000      0.572   0.580

Covariances:
                  Estimate  Std.Err  z-value  P(>|z|)  Std.lv   Std.all
  C01D05  ~~
    C02           0.304   0.035    8.625   0.000      0.643   0.643
    C03           0.272   0.032    8.414   0.000      0.621   0.621
    C07           0.251   0.032    7.758   0.000      0.555   0.555
    C08           0.241   0.030    7.960   0.000      0.609   0.609
    C09           0.238   0.031    7.749   0.000      0.601   0.601
    C10           0.205   0.028    7.268   0.000      0.524   0.524
    C11           0.170   0.025    6.658   0.000      0.435   0.435
    C12           0.226   0.030    7.523   0.000      0.558   0.558
```

C13	0.285	0.034	8.377	0.000	0.635	0.635
C14	0.163	0.024	6.712	0.000	0.523	0.523
C15	0.278	0.032	8.568	0.000	0.645	0.645
C17	0.211	0.029	7.181	0.000	0.496	0.496
C02 ~~						
C03	0.368	0.039	9.537	0.000	0.688	0.688
C07	0.359	0.039	9.104	0.000	0.650	0.650
C08	0.293	0.035	8.389	0.000	0.606	0.606
C09	0.273	0.035	7.832	0.000	0.565	0.565
C10	0.282	0.034	8.206	0.000	0.591	0.591
C11	0.287	0.034	8.536	0.000	0.604	0.604
C12	0.311	0.037	8.516	0.000	0.629	0.629
C13	0.333	0.039	8.644	0.000	0.608	0.608
C14	0.253	0.032	7.901	0.000	0.665	0.665
C15	0.331	0.037	9.015	0.000	0.629	0.629
C17	0.305	0.036	8.424	0.000	0.588	0.588
C03 ~~						
C07	0.382	0.039	9.841	0.000	0.748	0.748
C08	0.334	0.036	9.342	0.000	0.746	0.746
C09	0.278	0.034	8.287	0.000	0.621	0.621
C10	0.369	0.038	9.776	0.000	0.836	0.836
C11	0.346	0.036	9.654	0.000	0.786	0.786
C12	0.308	0.035	8.809	0.000	0.672	0.672
C13	0.396	0.040	9.995	0.000	0.780	0.780
C14	0.252	0.031	8.099	0.000	0.714	0.714
C15	0.395	0.039	10.229	0.000	0.810	0.810
C17	0.387	0.039	10.017	0.000	0.804	0.804
C07 ~~						
C08	0.353	0.037	9.412	0.000	0.763	0.763
C09	0.296	0.036	8.334	0.000	0.641	0.641
C10	0.356	0.038	9.462	0.000	0.781	0.781
C11	0.286	0.033	8.603	0.000	0.630	0.630
C12	0.312	0.036	8.621	0.000	0.660	0.660
C13	0.367	0.039	9.323	0.000	0.701	0.701
C14	0.238	0.031	7.725	0.000	0.654	0.654
C15	0.456	0.042	10.823	0.000	0.908	0.908
C17	0.421	0.041	10.289	0.000	0.848	0.848
C08 ~~						
C09	0.241	0.031	7.744	0.000	0.596	0.596
C10	0.258	0.031	8.234	0.000	0.647	0.647
C11	0.280	0.032	8.746	0.000	0.702	0.702
C12	0.255	0.032	8.004	0.000	0.616	0.616
C13	0.376	0.039	9.683	0.000	0.819	0.819
C14	0.230	0.029	7.826	0.000	0.722	0.722
C15	0.382	0.038	9.962	0.000	0.868	0.868
C17	0.330	0.036	9.231	0.000	0.759	0.759
C09 ~~						
C10	0.170	0.028	6.181	0.000	0.426	0.426
C11	0.204	0.028	7.232	0.000	0.512	0.512
C12	0.298	0.035	8.508	0.000	0.718	0.718
C13	0.255	0.034	7.561	0.000	0.555	0.555
C14	0.149	0.024	6.157	0.000	0.466	0.466
C15	0.307	0.035	8.809	0.000	0.697	0.697
C17	0.238	0.032	7.493	0.000	0.547	0.547
C10 ~~						
C11	0.324	0.035	9.305	0.000	0.825	0.825
C12	0.257	0.032	8.061	0.000	0.630	0.630
C13	0.293	0.035	8.485	0.000	0.648	0.648
C14	0.261	0.032	8.193	0.000	0.829	0.829
C15	0.325	0.035	9.280	0.000	0.750	0.750
C17	0.347	0.037	9.453	0.000	0.809	0.809
C11 ~~						
C12	0.283	0.033	8.666	0.000	0.695	0.695
C13	0.258	0.032	8.080	0.000	0.572	0.572
C14	0.277	0.033	8.434	0.000	0.884	0.884
C15	0.315	0.034	9.298	0.000	0.727	0.727
C17	0.335	0.035	9.461	0.000	0.784	0.784
C12 ~~						

```
          C13            0.315    0.036    8.651    0.000    0.670    0.670
          C14            0.243    0.031    7.893    0.000    0.745    0.745
          C15            0.314    0.035    8.962    0.000    0.697    0.697
          C17            0.263    0.033    7.982    0.000    0.591    0.591
        C13 ~~
          C14            0.240    0.031    7.743    0.000    0.663    0.663
          C15            0.347    0.037    9.355    0.000    0.696    0.696
          C17            0.299    0.036    8.389    0.000    0.606    0.606
        C14 ~~
          C15            0.224    0.029    7.740    0.000    0.646    0.646
          C17            0.230    0.030    7.754    0.000    0.672    0.672
        C15 ~~
          C17            0.417    0.040   10.410    0.000    0.882    0.882

Variances:
                       Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
         .C01D05Q0        0.586    0.042   14.093    0.000    0.586    0.602
         .C01D05Q2        0.546    0.040   13.681    0.000    0.546    0.561
         .C01D05Q9        0.458    0.037   12.500    0.000    0.458    0.470
         .C01D05Q11       0.646    0.044   14.615    0.000    0.646    0.663
         .C01D05Q12       0.552    0.040   13.744    0.000    0.552    0.567
         .C02D00Q1        0.396    0.037   10.726    0.000    0.396    0.407
         .C02D00Q2        0.568    0.042   13.619    0.000    0.568    0.583
         .C02D00Q8        0.588    0.042   13.846    0.000    0.588    0.603
         .R_C02D00Q15     0.717    0.048   14.988    0.000    0.717    0.737
         .C03D01Q7        0.478    0.034   14.010    0.000    0.478    0.491
         .C03D01Q5        0.540    0.037   14.561    0.000    0.540    0.555
         .C03D01Q6        0.679    0.044   15.387    0.000    0.679    0.698
         .C03D01Q12       0.677    0.044   15.376    0.000    0.677    0.695
         .C03D02Q5        0.658    0.043   15.287    0.000    0.658    0.676
         .C03D02Q10       0.530    0.037   14.478    0.000    0.530    0.544
         .C07D00Q0        0.446    0.035   12.577    0.000    0.446    0.458
         .C07D00Q11       0.445    0.035   12.549    0.000    0.445    0.457
         .R_C07D00Q15     0.785    0.050   15.685    0.000    0.785    0.807
         .R_C08D00Q3      0.569    0.039   14.401    0.000    0.569    0.584
         .C08D00Q4        0.506    0.037   13.776    0.000    0.506    0.520
         .R_C08D00Q10     0.509    0.037   13.809    0.000    0.509    0.523
         .R_C08D00Q9      0.615    0.042   14.764    0.000    0.615    0.631
         .C09D00Q4        0.568    0.043   13.266    0.000    0.568    0.583
         .C09D00Q10       0.471    0.040   11.688    0.000    0.471    0.484
         .C09D00Q1        0.579    0.043   13.410    0.000    0.579    0.595
         .R_C09D00Q9      0.837    0.054   15.636    0.000    0.837    0.860
         .C10D00Q1        0.580    0.040   14.560    0.000    0.580    0.596
         .C10D00Q6        0.670    0.044   15.176    0.000    0.670    0.688
         .C10D00Q10       0.682    0.045   15.243    0.000    0.682    0.701
         .C10D00Q16       0.613    0.041   14.806    0.000    0.613    0.629
         .C10D00Q18       0.524    0.037   14.031    0.000    0.524    0.538
         .C11D01Q6        0.582    0.039   15.042    0.000    0.582    0.598
         .C11D01Q9        0.702    0.045   15.588    0.000    0.702    0.721
         .C11D01Q10       0.576    0.038   15.009    0.000    0.576    0.592
         .C11D01Q11       0.711    0.046   15.622    0.000    0.711    0.731
         .C11D01Q14       0.658    0.043   15.412    0.000    0.658    0.676
         .C11D02Q3        0.627    0.041   15.274    0.000    0.627    0.644
         .C11D02Q4        0.607    0.040   15.176    0.000    0.607    0.624
         .C11D02Q7        0.554    0.037   14.878    0.000    0.554    0.569
         .C11D02Q8        0.719    0.046   15.651    0.000    0.719    0.739
         .C11D02Q1        0.711    0.046   15.622    0.000    0.711    0.731
         .C12D00Q0        0.549    0.041   13.437    0.000    0.549    0.564
         .C12D00Q1        0.577    0.042   13.774    0.000    0.577    0.593
         .R_C12D00Q6      0.888    0.056   15.966    0.000    0.888    0.912
         .C12D00Q13       0.459    0.038   12.018    0.000    0.459    0.471
         .R_C13D00Q3      0.454    0.038   11.998    0.000    0.454    0.466
         .C13D00Q7        0.749    0.049   15.275    0.000    0.749    0.769
         .R_C13D00Q11     0.628    0.044   14.367    0.000    0.628    0.645
         .R_C13D00Q6      0.726    0.048   15.132    0.000    0.726    0.746
         .R_C13D00Q15     0.779    0.050   15.451    0.000    0.779    0.800
         .C14D00Q0        0.723    0.047   15.423    0.000    0.723    0.742
         .C14D00Q10       0.460    0.035   13.046    0.000    0.460    0.473
```

```
    .R_C14D00Q13      0.604    0.041   14.675    0.000    0.604    0.620
    .C14D00Q15        0.671    0.044   15.140    0.000    0.671    0.689
    .C14D00Q16        0.786    0.050   15.713    0.000    0.786    0.808
    .C15D00Q10        0.495    0.034   14.605    0.000    0.495    0.509
    .C15D00Q11        0.515    0.035   14.755    0.000    0.515    0.529
    .C15D00Q8         0.520    0.035   14.791    0.000    0.520    0.534
    .C15D00Q12        0.499    0.034   14.634    0.000    0.499    0.512
    .R_C15D00Q15      0.662    0.043   15.527    0.000    0.662    0.680
    .C17D00Q2         0.507    0.037   13.846    0.000    0.507    0.520
    .C17D00Q3         0.489    0.036   13.640    0.000    0.489    0.503
    .C17D00Q8         0.762    0.049   15.628    0.000    0.762    0.783
    .C17D00Q9         0.722    0.047   15.448    0.000    0.722    0.742
    .C17D00Q10        0.646    0.043   15.028    0.000    0.646    0.663
     C01D05           0.388    0.052    7.444    0.000    1.000    1.000
     C02              0.578    0.061    9.434    0.000    1.000    1.000
     C03              0.496    0.055    9.034    0.000    1.000    1.000
     C07              0.528    0.058    9.147    0.000    1.000    1.000
     C08              0.405    0.052    7.805    0.000    1.000    1.000
     C09              0.406    0.055    7.442    0.000    1.000    1.000
     C10              0.393    0.051    7.683    0.000    1.000    1.000
     C11              0.392    0.050    7.812    0.000    1.000    1.000
     C12              0.425    0.054    7.795    0.000    1.000    1.000
     C13              0.520    0.059    8.857    0.000    1.000    1.000
     C14              0.251    0.043    5.865    0.000    1.000    1.000
     C15              0.478    0.054    8.932    0.000    1.000    1.000
     C17              0.467    0.055    8.568    0.000    1.000    1.000
```

Finding:

- The model is convergence with 208 parameters, CFI is .847 and the highest correlation between latent constructs is .904
- The factor loading of two items are below the cut-off .40

ML4

7 constructs: C05, C06D01, C11, C16, C18D01, C18D03 and C19

```
lavaan 0.6-8 ended normally after 83 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        97

  Number of observations                           532

Model Test User Model:

  Test statistic                             1442.427
  Degrees of freedom                              644
  P-value (Chi-square)                          0.000

Model Test Baseline Model:

  Test statistic                             7899.616
  Degrees of freedom                              703
  P-value                                       0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                   0.889
  Tucker-Lewis Index (TLI)                      0.879

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)            -25187.104
  Loglikelihood unrestricted model (H1)    -24465.891

  Akaike (AIC)                              50568.208
  Bayesian (BIC)                            50983.042
```

```
    Sample-size adjusted Bayesian (BIC)          50675.135


Root Mean Square Error of Approximation:

  RMSEA                                           0.048
  90 Percent confidence interval - lower          0.045
  90 Percent confidence interval - upper          0.052
  P-value RMSEA <= 0.05                           0.800


Standardized Root Mean Square Residual:

  SRMR                                            0.051


Parameter Estimates:

  Standard errors                              Standard
  Information                                  Expected
  Information saturated (h1) model           Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C05 =~
    R_C05D00Q3     1.000                                0.408    0.414
    C05D00Q6       1.621    0.183    8.877    0.000     0.662    0.670
    C05D00Q7       1.544    0.177    8.716    0.000     0.630    0.638
    C05D00Q1       1.565    0.179    8.761    0.000     0.639    0.647
    C05D00Q18      1.442    0.170    8.478    0.000     0.588    0.596
  C06D01 =~
    C06D01Q1       1.000                                0.620    0.629
    R_C06D01Q6     0.992    0.087   11.451    0.000     0.615    0.623
    C06D01Q8       0.826    0.083    9.908    0.000     0.513    0.520
    C06D01Q11      0.868    0.084   10.319    0.000     0.539    0.546
  C11 =~
    C11D01Q6       1.000                                0.674    0.683
    C11D01Q9       0.729    0.069   10.574    0.000     0.491    0.498
    C11D01Q10      0.887    0.070   12.718    0.000     0.598    0.606
    C11D01Q11      0.800    0.069   11.549    0.000     0.539    0.546
    C11D01Q14      0.760    0.069   10.998    0.000     0.512    0.519
    C11D02Q3       0.967    0.070   13.767    0.000     0.652    0.660
    C11D02Q4       0.887    0.070   12.717    0.000     0.598    0.606
    C11D02Q7       0.920    0.070   13.153    0.000     0.620    0.628
    C11D02Q8       0.842    0.069   12.119    0.000     0.568    0.575
    C11D02Q1       0.643    0.069    9.377    0.000     0.433    0.439
  C16 =~
    C16D00Q11      1.000                                0.596    0.604
    C16D00Q13      1.201    0.093   12.973    0.000     0.716    0.725
    C16D00Q12      1.198    0.093   12.951    0.000     0.714    0.723
    C16D00Q16      0.959    0.087   11.009    0.000     0.571    0.579
    C16D00Q17      0.848    0.085    9.979    0.000     0.505    0.512
  C18D01 =~
    C18D01Q2       1.000                                0.749    0.760
    C18D01Q3       1.014    0.058   17.599    0.000     0.760    0.770
    R_C18D01Q5     1.029    0.058   17.873    0.000     0.771    0.781
    C18D01Q8       0.966    0.058   16.708    0.000     0.724    0.734
    R_C18D01Q14    0.918    0.058   15.813    0.000     0.688    0.697
  C18D03 =~
    C18D03Q0       1.000                                0.574    0.582
    C18D03Q1       1.024    0.099   10.330    0.000     0.588    0.596
    C18D03Q2       0.798    0.093    8.584    0.000     0.458    0.465
    C18D03Q12      0.966    0.097    9.918    0.000     0.555    0.563
  C19 =~
    C19D00Q3       1.000                                0.603    0.611
    C19D00Q7       0.907    0.086   10.493    0.000     0.547    0.554
    C19D00Q14      0.825    0.085    9.720    0.000     0.497    0.504
    C19D00Q26      0.966    0.088   11.028    0.000     0.582    0.590
    C19D00Q28      1.105    0.091   12.175    0.000     0.666    0.675


Covariances:
```

	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
C05 ~~						
C06D01	0.210	0.029	7.209	0.000	0.831	0.831
C11	0.251	0.033	7.686	0.000	0.914	0.914
C16	0.225	0.030	7.391	0.000	0.924	0.924
C18D01	0.221	0.030	7.419	0.000	0.721	0.721
C18D03	0.160	0.024	6.574	0.000	0.682	0.682
C19	0.181	0.026	6.951	0.000	0.734	0.734
C06D01 ~~						
C11	0.308	0.035	8.902	0.000	0.736	0.736
C16	0.296	0.034	8.693	0.000	0.802	0.802
C18D01	0.347	0.037	9.310	0.000	0.746	0.746
C18D03	0.253	0.032	7.780	0.000	0.708	0.708
C19	0.236	0.031	7.657	0.000	0.630	0.630
C11 ~~						
C16	0.317	0.034	9.214	0.000	0.790	0.790
C18D01	0.333	0.035	9.453	0.000	0.659	0.659
C18D03	0.252	0.031	8.011	0.000	0.652	0.652
C19	0.322	0.035	9.181	0.000	0.792	0.792
C16 ~~						
C18D01	0.289	0.033	8.745	0.000	0.647	0.647
C18D03	0.253	0.031	8.057	0.000	0.740	0.740
C19	0.259	0.031	8.309	0.000	0.722	0.722
C18D01 ~~						
C18D03	0.221	0.031	7.175	0.000	0.514	0.514
C19	0.268	0.032	8.268	0.000	0.594	0.594
C18D03 ~~						
C19	0.312	0.036	8.673	0.000	0.902	0.902

Variances:

	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
.R_C05D00Q3	0.807	0.051	15.940	0.000	0.807	0.829
.C05D00Q6	0.536	0.037	14.586	0.000	0.536	0.550
.C05D00Q7	0.577	0.039	14.905	0.000	0.577	0.592
.C05D00Q1	0.566	0.038	14.827	0.000	0.566	0.581
.C05D00Q18	0.628	0.041	15.224	0.000	0.628	0.645
.C06D01Q1	0.589	0.043	13.683	0.000	0.589	0.605
.R_C06D01Q6	0.595	0.043	13.763	0.000	0.595	0.611
.C06D01Q8	0.711	0.048	14.898	0.000	0.711	0.730
.C06D01Q11	0.683	0.047	14.673	0.000	0.683	0.702
.C11D01Q6	0.519	0.036	14.539	0.000	0.519	0.533
.C11D01Q9	0.732	0.047	15.651	0.000	0.732	0.752
.C11D01Q10	0.616	0.041	15.144	0.000	0.616	0.633
.C11D01Q11	0.683	0.044	15.456	0.000	0.683	0.701
.C11D01Q14	0.712	0.046	15.572	0.000	0.712	0.731
.C11D02Q3	0.549	0.037	14.747	0.000	0.549	0.564
.C11D02Q4	0.616	0.041	15.144	0.000	0.616	0.633
.C11D02Q7	0.589	0.039	14.996	0.000	0.589	0.605
.C11D02Q8	0.652	0.043	15.317	0.000	0.652	0.669
.C11D02Q1	0.786	0.050	15.833	0.000	0.786	0.807
.C16D00Q11	0.619	0.042	14.864	0.000	0.619	0.636
.C16D00Q13	0.462	0.034	13.413	0.000	0.462	0.474
.C16D00Q12	0.464	0.035	13.446	0.000	0.464	0.477
.C16D00Q16	0.647	0.043	15.044	0.000	0.647	0.665
.C16D00Q17	0.718	0.047	15.426	0.000	0.718	0.738
.C18D01Q2	0.412	0.031	13.318	0.000	0.412	0.423
.C18D01Q3	0.396	0.030	13.109	0.000	0.396	0.407
.R_C18D01Q5	0.379	0.029	12.863	0.000	0.379	0.389
.C18D01Q8	0.450	0.033	13.758	0.000	0.450	0.462
.R_C18D01Q14	0.500	0.035	14.246	0.000	0.500	0.514
.C18D03Q0	0.644	0.046	14.045	0.000	0.644	0.661
.C18D03Q1	0.628	0.045	13.851	0.000	0.628	0.645
.C18D03Q2	0.763	0.050	15.159	0.000	0.763	0.784
.C18D03Q12	0.666	0.047	14.290	0.000	0.666	0.684
.C19D00Q3	0.610	0.042	14.418	0.000	0.610	0.627
.C19D00Q7	0.675	0.045	14.925	0.000	0.675	0.693
.C19D00Q14	0.726	0.048	15.255	0.000	0.726	0.746
.C19D00Q26	0.634	0.043	14.622	0.000	0.634	0.652

```
    .C19D00Q28            0.530    0.039   13.580   0.000    0.530    0.544
     C05                  0.166    0.035    4.748   0.000    1.000    1.000
     C06D01               0.385    0.053    7.262   0.000    1.000    1.000
     C11                  0.454    0.053    8.567   0.000    1.000    1.000
     C16                  0.355    0.049    7.217   0.000    1.000    1.000
     C18D01               0.562    0.057    9.861   0.000    1.000    1.000
     C18D03               0.330    0.050    6.537   0.000    1.000    1.000
     C19                  0.363    0.051    7.188   0.000    1.000    1.000
```

Findings:
- o   Model convergence with 97 parameters, CFI = .889 and the highest correlation between latent constructs is .924

ML5

2 constructs: C04 and C08
Note: Initially the model has been convergence with 21 parameters, CFI 949 and the correlation between latent constructs is .914, C08 is also one of constructs in ML3

After Removing C08D00Q0 (based on ML3):
```
lavaan 0.6-8 ended normally after 28 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        19

  Number of observations                           532

Model Test User Model:

  Test statistic                               122.792
  Degrees of freedom                                26
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                              1878.374
  Degrees of freedom                                36
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.947
  Tucker-Lewis Index (TLI)                       0.927

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -5852.243
  Loglikelihood unrestricted model (H1)      -5790.847

  Akaike (AIC)                               11742.486
  Bayesian (BIC)                             11823.742
  Sample-size adjusted Bayesian (BIC)        11763.430

Root Mean Square Error of Approximation:

  RMSEA                                          0.084
  90 Percent confidence interval - lower         0.069
  90 Percent confidence interval - upper         0.099
  P-value RMSEA <= 0.05                          0.000

Standardized Root Mean Square Residual:

  SRMR                                           0.044
```

```
Parameter Estimates:

  Standard errors                              Standard
  Information                                  Expected
  Information saturated (h1) model             Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)  Std.lv  Std.all
  C04 =~
    C04D00Q1        1.000                                0.596   0.604
    C04D00Q10       1.421    0.097   14.635    0.000     0.846   0.858
    R_C04D00Q11     1.359    0.095   14.291    0.000     0.810   0.820
    C04D00Q4        0.759    0.082    9.216    0.000     0.452   0.458
    C04D00Q12       1.024    0.087   11.751    0.000     0.610   0.618
  C08 =~
    R_C08D00Q3      1.000                                0.708   0.717
    C08D00Q4        0.933    0.067   13.928    0.000     0.660   0.669
    R_C08D00Q9      0.834    0.067   12.525    0.000     0.590   0.598
    R_C08D00Q10     0.903    0.067   13.507    0.000     0.639   0.648

Covariances:
                  Estimate  Std.Err  z-value  P(>|z|)  Std.lv  Std.all
  C04 ~~
    C08             0.385    0.039    9.874    0.000     0.913   0.913

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)  Std.lv  Std.all
   .C04D00Q1       0.619    0.041   15.127    0.000     0.619   0.636
   .C04D00Q10      0.258    0.025   10.373    0.000     0.258   0.265
   .R_C04D00Q11    0.318    0.027   11.882    0.000     0.318   0.327
   .C04D00Q4       0.769    0.049   15.765    0.000     0.769   0.790
   .C04D00Q12      0.601    0.040   15.031    0.000     0.601   0.618
   .R_C08D00Q3     0.473    0.036   13.053    0.000     0.473   0.486
   .C08D00Q4       0.538    0.039   13.867    0.000     0.538   0.552
   .R_C08D00Q9     0.625    0.043   14.661    0.000     0.625   0.642
   .R_C08D00Q10    0.565    0.040   14.147    0.000     0.565   0.581
    C04            0.355    0.049    7.305    0.000     1.000   1.000
    C08            0.501    0.057    8.860    0.000     1.000   1.000
```

Refinement of Models's CFI

Sequential Action	Reasoning	CFI			
		ML1	ML3	ML4	ML5
Initial		.983	.847	.889	.947
Remove R_C12D00Q6	Std.all = .30		.852		
Remove R_C09D00Q9	Std.all = .37 Note: C09 left with 3 items		.856		
Remove C11 from ML3 **Remove C11D02Q1**	C13 =~ C11D02Q1, MI = 63.807 After removing C11D02Q1, the EFA result of predicted latent scores shows that C11 doesn't belong to ML3 anymore (cut-off .40) and appears only in ML4. Removing C11 from ML3 makes its CFI higher than removing only C11D02Q1 from ML3.		.875	.895	
Add C03D01Q5 ~~ C03D01Q6	MI = 50.811		.880		
Remove C14D00Q15	C13 =~ C14D00Q15, MI = 32.517		.884		
Remove C08 from ML3 **Remove R_C08D00Q10**	C13 =~ R_C08D00Q10, MI 31.208 After removal R_C08D00Q10, the EFA result of predicted latent scores shows that C08 doesn't		.898		.957

	belong to ML3 anymore (cut-off .40) and appears only in ML5. Removing C08 from ML3 makes its CFI higher than removing only R_C08D00Q10 from ML3.		
Remove C01D05Q11	C09 =~ C01D05Q11, MI=29.598	.901	
Remove C10D00Q1	C07 =~ C10D00Q1, MI = 29.451 Note: C07 left with 3 items	.905	
Remove C13D00Q7	C10 =~ C13D00Q7, MI = 31.650	.908	
Remove C15D00Q12	C10 =~ C15D00Q12, MI = 26.284	.915	
Remove C15D00Q8	C17 =~ C15D00Q8, MI = 62.157 Note: C15 left with 3 items	.921	
Remove C03D01Q6	C10 =~ C03D01Q6, MI = 21.121 Due to this removal, C03D01Q5 ~~ C03D01Q6 has to be removed too.	.925	
Remove C03D01Q5	C10 =~ C03D01Q5, MI = 23.916	.926	
Remove R_C02D00Q15	C13 =~ R_C02D00Q15, MI = 16.582 Note: C02 left with 3 items	.929	
Remove R_C13D00Q3	C02D00Q8 ~~ R_C13D00Q3 MI = 15.857 Note: C13 left with 3 items	.932	
Remove C03D02Q5	C10 =~ C03D02Q5, MI = 15.509 Note: C03 left with 3 items	.937	
Remove C17D00Q8	C15 =~ C17D00Q8, MI =. 13.989	.940	
Add C17D00Q9 ~~ C17D00Q10	MI = 12.818	.942	
Add C12D00Q0 ~~ C12D00Q1	MI = 12.249	.944	
Remove R_C14D00Q13	C13 =~ R_C14D00Q13, MI = 11.597 Note: C14 left with 3 items	.947	
Remove C01D05Q12	C01D05Q12 ~~ C03D01Q7, MI = 10.797	.948	
Remove C10D00Q10	C10D00Q10 ~~ R_C15D00Q15, MI = 10.698	.953	
Add C16D00Q11 ~~ C16D00Q16	MI = 75.460		.906
Remove C05D00Q18	C18D01 =~ C05D00Q18, MI 34.048		.910
Remove C11D02Q3	C18D01 =~ C11D02Q3, MI = 43.704		.914
Remove C11 from ML4 Move back C11 to ML3 and Remove C11D02Q8	C18D01 =~ C11D02Q8, MI 27.450 After removal C11D02Q8 from ML4, the EFA result of predicted latent scores shows that C11 doesn't belong to ML4 anymore (cut-off .40) and appears only in ML3. Removing C11 from ML4 makes its CFI higher than removing only C11D02Q8 from ML4.	.944	.927
Add C11D01Q9 ~~ C11D01Q11	MI = 25.676	.948	
Remove C11D01Q6	C03 =~ C11D01Q6, MI=19.682 Note: C11 is combination of dimensions C11D01 (left with 4 items) and C11D02 (left with 2 items). For the sake of item variation, no more removal from C11D02	.950	
Add C11D01Q9 ~~ C11D01Q10	MI = 13.502 Note: Although C15 =~ C11D01Q11 MI = 14.517, but removing C11D01Q11 yields a non-positive covariance matrix error	.951	
Remove C06D01Q8	C06D01Q8 ~~ C19D00Q26 22.453 Note: Removing C06D01Q8 yields higher CFI than removing C19D00Q26 Note: C06 left with 3 items		.935

Remove C19D00Q3	C18D01 =~ C19D00Q3, MI = 19.249	.939
Remove C16D00Q16	C18D03 =~ C16D00Q16, MI = 21.067	.944
Remove C16D00Q11	C18D03 =~ C16D00Q11, MI = 17.239	.947
	Note: C16 left with 3 items	
Remove R_C05D00Q3	R_C05D00Q3 ~~ R_C06D01Q6, MI = 17.433	.959
Add R_C14D00Q13 and R_C13D00Q3	This has to be done because the cronbach's alpha score for C13 and C14 with 3 items are < .60 (unacceptable)	.946
C14D00Q10 ~~ C14D00Q16		.947
C07D00Q11 ~~ R_C07D00Q15	MI = 5.457	.947
C11D01Q9 ~~ C11D02Q7	MI = 5.325	.947
C11D01Q11 ~~ C11D02Q7	MI = 4.690	.948
C07D00Q0 ~~ R_C07D00Q15	MI = 4.648	.948
C11D01Q10 ~~ C11D02Q7	MI = 4.500	.949
R_C13D00Q15 ~~ R_C13D00Q3	MI = 3.649	.949
C14D00Q10 ~~ R_C14D00Q13	MI = 3.903	.950
C11D01Q10 ~~ C11D02Q4	MI = 3.534	.950
C11D01Q10 ~~ C11D01Q11	MI = 3.044	.951

Note: MI = modification indices; operations in MI: "=~" (i.e. this item should be assigned to this construct) and "~~" (i.e. their residual errors should be correlate with), std.all = standardized factor loading score

Four Judges Decisions

ML1

C01D01 Human-Like Appearance
Definition: The extent to which a user believes that the social agent appears like a human

No.	ITEMID	ITEMQ
1.	C01D01Q3	[The agent]'s appearance is human
2.	C01D01Q10	[The agent] has the appearance of a human
3.	C01D01Q13	[The agent] has a human-like outside
4.	C01D01Q15	[The agent]'s appearance makes me think of a human

Decision:
Four judges decided to keep the remaining items.

C01D02 Human-Like Behavior
Definition: The extent to which a user believes that the social agent behaves like a human

No.	ITEMID	ITEMQ
1.	C01D02Q7	A human would behave like [the agent]
2.	C01D02Q10	[The agent]'s manners is consistent with that of people
3.	C01D02Q0	[The agent] behavior makes me think of human behavior
4.	C01D02Q1	[The agent] behaves like a real person

5.	C01D02Q9	[The agent] has a human-like manner

Decision:
Four judges decided to keep the remaining items.

C01D03 Natural Appearance

Definition: The extent to which a user believes that the social agent's appearance could exist in or be derived from nature

No.	ITEMID	ITEMQ
1.	C01D03Q7	[The agent] appears like something that could exist in nature
2.	C01D03Q9	[The agent] has a natural physique
3.	C01D03Q10	[The agent]'s resemblance has an organic origin
4.	C01D03Q11	[The agent] seems natural from its outward appearance
5.	C01D03Q12	How [the agent] is represented is realistic

Decision:
Four judges decided to keep the remaining items.

C01D04 Natural Behavior

Definition: The extent to which a user believes that the social agent's behaviour could exist in or be derived from nature

No.	ITEMID	ITEMQ
1.	C01D04Q0	[The agent] is alive
2.	C01D04Q13	[The agent] acts naturally
3.	C01D04Q15	[The agent] reacts like a living organism

Decision:
Four judges decided to keep the remaining items.

ML3

C01D05 Agent's Appearance Suitability

Definition: The extent to which the agent's appearance is suitable for its role

No.	ITEMID	ITEMQ
1.	C01D05Q2	[The agent]'s appearance is appropriate
2.	C01D05Q9	[The agent]'s physique is suitable for its role
3.	~~C01D05Q11~~	~~[The agent]'s appearance is functional~~
4.	~~C01D05Q12~~	~~[The agent]'s physique is fit for purpose~~
5.	C01D05Q0	[The agent]'s appearance was suitable

Decision:
Four judges agreed to remove C01D05Q11 because the term of 'functional' referring to an appearance might be problematic. The judges also agreed to remove C01D05Q12 because the meaning of the item has been represented by (or it has a similar meaning with) C01D05Q09.

C02 Agent's Usability

Definition: The extent to which a user believes that using an agent will be free from effort (future process)

No.	ITEMID	ITEMQ
1.	C02D00Q1	[The agent] is easy to use
2.	C02D00Q2	Learning to work with [the agent] is easy
3.	C02D00Q8	Learning how to communicate with [the agent] is quick

4.	C02D00Q15	[R] [The agent] is difficult to use

Decision:
Four judges agreed to remove C02D00Q15 as its meaning (in reverse) has been represented by C02D00Q1.

C03 Performance
Definition: The extent to which a task was well performed (past performance)

No.	ITEMID	ITEMQ
1.	C03D01Q7	[The agent] does its task well
2.	C03D01Q5	[The agent] enhances [my / the user's] effectiveness on the task
3.	C03D01Q6	[The agent] allows [me / the user] to get [my / the user's] task done more quickly
4.	C03D01Q12	[The agent] does not hinder [me / the user]
5.	C03D02Q5	[I am / The user is] able to carry out the task well
6.	C03D02Q10	[I am / The user is] capable of succeeding with [the agent]

Decision:
Four judges agreed to remove C03D01Q5 and C03D01Q6, because it might be difficult to measure the effectiveness and the time to do a certain task. The judges also agreed to remove C02D01Q5 because (as mentioned before) it might not be relevant to measure how well a user did. As IVA researchers, we are interested in the agent's performance (in combination with the user) but not only the user.

C07 User Acceptance of the Agent
Definition: The willingness of the user to interact with the agent

No.	ITEMID	ITEMQ
1.	C07D00Q0	[I / The user] will use [the agent] again in the future
2.	C07D00Q11	[I / The user] can see [myself / themselves] using [the agent] in the future
3.	C07D00Q13	[The agent] is acceptable
4.	C07D00Q15	[R] [I oppose / The user opposes] further interaction with [the agent]
5.	C07D00Q14	[I am / The user is] positive about future interactions with [the agent]

Decision:
Four judges agreed to remove C07D00Q13 as the term 'acceptable' might be ambiguous and it doesn't show the willingness of the user to interact with the agent. The judges also agreed to remove C07D00Q13 as the meaning has been represented by C07D00Q11.

C09 User's Engagement
Definition: The extent to which the user feels involved in the interaction with the agent

No.	ITEMID	ITEMQ
1.	C09D00Q4	[I / The user] was concentrated during the interaction with [the agent]
2.	C09D00Q10	The interaction captured [my / the user's] attention
3.	C09D00Q1	[I / The user] was alert during the interaction with [the agent]
4.	C09D00Q9	[R] [I / The user] was looking for distractions during the interaction with [the agent]

Decision:
Four judges agreed to remove C09D00Q9 because the item seems implicitly blaming the fault of the user during the interaction.

C10 User's Trust
Definition: The extent to which a user believes in the reliability, truthfulness, and ability of the agent (for future interactions)

No.	ITEMID	ITEMQ
~~1.~~	~~C10D00Q1~~	~~[I am / The user is] confident that the information provided by [the agent] is trustworthy~~
2.	C10D00Q6	[The agent] always gives good advice
~~3.~~	~~C10D00Q10~~	~~[The agent] is an expert in the topic discussed~~
4.	C10D00Q16	[The agent] acts truthfully
5.	C10D00Q18	[I / The user] can rely on [the agent]

Decision:

Four judges agreed to remove C10D00Q1 and C10D00Q10 because the agent's domain or task might not include providing an information or discussing any topic.

C11 User-Agent Alliance

Definition: The extent to which a beneficial association is formed

No.	ITEMID	ITEMQ
~~1.~~	~~C11D01Q6~~	~~[The agent] appreciates [my / the user's] efforts~~
2.	C11D01Q9	[The agent] and [I / the user] have a strategic alliance
3.	C11D01Q10	Collaborating with [the agent] is like a joint venture
4.	C11D01Q11	[The agent] joins [me / the user] for mutual benefit
5.	C11D01Q14	[The agent] can collaborate in a productive way
~~6.~~	~~C11D02Q1~~	~~[I / The user] can understand [the agent]~~
~~7.~~	~~C11D02Q3~~	~~[The agent] cares about [me / the user]~~
8.	C11D02Q4	[The agent] and [I / the user] are in sync with each other
9.	C11D02Q7	[The agent] understands [me / the user]
~~10.~~	~~C11D02Q8~~	~~[The agent] and [I / the user] are close~~

Decision:

Four judges agreed to C11D01Q6 and C11D01Q3 because the items measure the interaction in one direction: from the agent to the user, which might not appropriate with the construct's definition. The judges also agreed to remove C11D02Q8 as the term 'close' might be confusing: is it measuring the distance literary or emotionally? Further, the judges also agree to remove C11D02Q1 as the user might see it as an evaluation of themselves, while the other items are an evaluation about the agent and/or the interaction.

C12 Agent's Attentiveness

Definition: The extent to which the user believes that the agent is aware of and has attention for the user

No.	ITEMID	ITEMQ
1.	C12D00Q0	[The agent] remains focused on [me / the user] throughout the interaction
2.	C12D00Q13	[The agent] is attentive
3.	C12D00Q1	[I / The user] receives [the agent]'s full attention throughout the interaction
~~4.~~	~~C12D00Q6~~	~~[R] [The agent] does not notice what happens around it~~

Decision:

Four judges agreed to remove C12D00Q6 because the item doesn't measure the agent's attentiveness for the user.

C13 Agent's Coherence

Definition: The extent to which the agent is perceived as being logical and consistent

No.	ITEMID	ITEMQ
1.	C13D00Q3	[R] [The agent]'s behavior does not make sense
~~2.~~	~~C13D00Q7~~	~~[The agent] is logical~~
3.	C13D00Q11	[R] [The agent]'s behavior is irrational
4.	C13D00Q6	[R] [The agent] is inconsistent
5.	C13D00Q15	[R] [The agent] appears confused

Decision:
Four judges agreed to remove C13D00Q7 because the item doesn't mention specifically in what way the agent is logical. It might be not related to its behavior.

C14 Agent's Intentionality

Definition: The extent to which the agent is perceived as being deliberate and has deliberations

No.	ITEMID	ITEMQ
1.	C14D00Q0	[The agent] acts intentionally
2.	C14D00Q10	[The agent] knows what it is doing
3.	C14D00Q13	[R] [The agent] has no clue of what it is doing
4.	~~C14D00Q15~~	~~I can understand [the agent]'s reasoning~~
5.	C14D00Q16	[The agent] can make its own decision

Decision:
Four judges agreed to remove C14D00Q15 because as the user might see it as an evaluation of themselves, while the other items are an evaluation about the agent. The judges agreed to keep C14D00Q13 because the item can represent the definition of the construct.

C15 Attitude

Definition: A favourable or unfavourable evaluation toward the interaction with the agent

No.	ITEMID	ITEMQ
1.	C15D00Q10	[I see / The user sees] the interaction with [the agent] as something positive
2.	C15D00Q11	[I view / The user views] the interaction as something favorable
3.	~~C15D00Q8~~	~~Interacting with [the agent] is rewarding~~
4.	~~C15D00Q12~~	~~Engaging with [the agent] is a good thing~~
5.	C15D00Q15	[R] [I think / The user thinks] negatively of the interaction with [the agent]

Decision:
Four judges agreed to remove C15D00Q8 because it might be difficult to measure whether or not the interaction is rewarding or what kind reward the user receives from the interaction with the agent. The judges also agreed to remove C15D00Q12 because its meaning has been represented by C15D00Q10 and C15D00Q11.

C17 Interaction Impact on Self-Image

Definition: How the user believes others perceive the user because of the interaction with the agent

No.	ITEMID	ITEMQ
1.	C17D00Q2	[My / The user's] friends would recommend [me / them] to use [the agent]
2.	C17D00Q3	Others would encourage [me / the user] to use [the agent]
3.	~~C17D00Q8~~	~~[I feel / The user feels] cool when others see [me / them] interacting with [the agent]~~
4.	C17D00Q9	[The agent] makes [me / the user] look good
5.	C17D00Q10	People would look favorably at [me / the user] because of [my / their] interaction with [the agent]

Decision:
Four judges agreed to remove C17D00Q8 because using the word 'cool' in the item might be not appropriate for some users.

ML4

C05 Agent's Sociability

Definition: The agent's quality or state of being sociable

No.	ITEMID	ITEMQ
~~1.~~	~~C05D00Q3~~	~~[R] interacting with [the agent] is awkward~~
2.	C05D00Q6	[The agent] can easily mix socially
3.	C05D00Q7	It is easy to mingle with [the agent]
4.	C05D00Q1	[The agent] interacts socially with [me / the user]
~~5.~~	~~C05D00Q18~~	~~[The agent] is empathic~~

Decision:
Four judges agreed to remove C05D00Q3 and C05D0018 because perhaps being 'awkward' or 'empathic' does not mean 'sociable' to some users.

C06 Agent's Personality
Definition: The combination of characteristics or qualities that form an individual's distinctive character

C06D01 Agent's Personality Presence
Definition: To what extent the user believes that the agent has a personality

No.	ITEMID	ITEMQ
1.	C06D01Q1	[The agent] has a distinctive character
2.	C06D01Q6	[R] [The agent] is characterless
~~3.~~	~~C06D01Q8~~	~~[The agent] has a coherent identity~~
4.	C06D01Q11	[The agent] is an individual

Decision:
Four judges agreed to remove C06D01Q8 because the words 'coherent identity' might be hard to understand.

C16 Social Presence
Definition: The degree to which the user perceives the presence of a social entity in the interaction

No.	ITEMID	ITEMQ
~~1.~~	~~C16D00Q11~~	~~During the interaction [I perceive / the user perceives] [the agent] as a social entity~~
2.	C16D00Q12	[The agent] has a social presence
3.	C16D00Q13	[The agent] is a social entity
~~4.~~	~~C16D00Q16~~	~~[I behave / The user behaves] as if [the agent] is a social entity~~
5.	C16D00Q17	[I have / The user has] the same social presence as [the agent]

Decision:
Four judges agreed to remove C16D00Q11 and C16D00Q16 because as the user might see it as an evaluation of themselves, while the other items are an evaluation about the agent.

C18D01 Agent's Emotional Intelligence Presence
Definition: To what extent the user believes that the agent has an emotional experience and can convey its emotions

No.	ITEMID	ITEMQ
1.	C18D01Q2	[The agent] is emotional
2.	C18D01Q3	[The agent] experiences emotions
3.	C18D01Q5	[R] [The agent] is emotionless
4.	C18D01Q8	[The agent] can express its feelings
5.	C18D01Q14	[R] [The agent] cannot experience emotions

Decision:
Four judges decided to keep the remaining items.

C18D03 User's Emotion Presence

Definition: To what extent the user believes that his/her emotional state is caused by the interaction or the agent

No.	ITEMID	ITEMQ
1.	C18D03Q0	[The agent]'s attitudes influences how [I feel / the user feels]
2.	C18D03Q1	[I am / The user is] influenced by [the agent]'s moods
3.	C18D03Q2	The emotions [I feel / the user feels] during the interaction are caused by [the agent]
4.	C18D03Q12	[My / The user's] interaction with [the agent] gives [me / them] an emotional sensation

Decision:
Four judges decided to keep the remaining items.

C19 User-Agent Interplay

Definition: The extent to which the user and the agent have an effect on each other

No.	ITEMID	ITEMQ
1.	~~C19D00Q3~~	~~[The agent]'s emotions change to what [I do / the user does]~~
2.	C19D00Q7	[My / The user's] emotions influence the mood of the interaction
3.	C19D00Q14	[The agent] reciprocates [my / the user's] actions
4.	C19D00Q26	[The agent]'s and [my / the user's] behaviors are in direct response to each other's behavior
5.	C19D00Q28	[The agent]'s and [my / the user's] emotions change to what [we / they] do to each other

Decision:
Four judges agreed to remove C19D00Q3 as the meaning has been represented by C19D00Q28 and C19D00Q28 can better represent the definition of the construct than C19D00Q3

ML5

C04 Agent's Likeability

Definition: The agent's qualities that bring about a favourable regard

No.	ITEMID	ITEMQ
1.	C04D00Q1	[The agent]'s appearance is pleasing
2.	C04D00Q10	I like [the agent]
3.	C04D00Q11	[R] I dislike [the agent]
4.	C04D00Q4	[The agent] is cooperative
5.	C04D00Q12	I want to hang out with [the agent]

Decision:
Four judges decided to keep the remaining items.

C08 Agent's Enjoyability

Definition: The extent to which a user finds interacting with the agent enjoyable

Sequential Action	Reasoning	CFI			
		ML1	ML3	ML4	ML5
Initial		.983	.951	.959	.957
Include C08D00Q0	Previously C08D00Q0 was removed (see Appendix H section Establishing Convergent Models subsection ML3).				.958

No.	ITEMID	ITEMQ
1.	C08D00Q3	[R] [The agent] is boring
2.	C08D00Q4	It is interesting to interact with [the agent]
~~3.~~	~~C08D00Q10~~	~~[R] [The agent] is terrible to cope with~~
4.	C08D00Q0	[I enjoy / The user enjoys] interacting with [the agent]
5.	C08D00Q9	[R] [The agent] is unpleasant to deal with

Decision:
Four judges decided to keep C08D00Q0 because it seems the item is the only item that can represent the definition of the construct fully. On the other hands, the four judges agreed to remove C08D00Q10 as the words 'terrible to cope with' might difficult to understand and measure.

CFA Results of Four EFA-based Models

EFA result of the predicted latent constructs (Final Models):

```
Factor Analysis using method =  ml
Call: fa(r = data_cor, nfactors = nfactors, rotate = "Promax", SMC = FALSE,
    max.iter = 100, fm = "ml")
Standardized loadings (pattern matrix) based upon correlation matrix
        item   ML3   ML2   ML4   ML1   h2     u2 com
C03       7   0.99 -0.06  0.04 -0.01 0.94 0.0621 1.0
C13      13   0.93 -0.26  0.04  0.05 0.71 0.2876 1.2
C12      12   0.91  0.06 -0.01 -0.09 0.80 0.1981 1.0
C07       8   0.88 -0.03 -0.08  0.10 0.79 0.2107 1.0
C02       6   0.85  0.01  0.01 -0.04 0.70 0.2969 1.0
C09       9   0.84  0.09 -0.17 -0.02 0.63 0.3657 1.1
C15      15   0.83  0.00 -0.14  0.14 0.72 0.2839 1.1
C17      16   0.83  0.07  0.00  0.08 0.84 0.1582 1.0
C11      11   0.82  0.15  0.12 -0.09 0.88 0.1187 1.1
C10      10   0.81  0.03  0.15 -0.03 0.81 0.1874 1.1
C14      14   0.75  0.12  0.19 -0.09 0.81 0.1945 1.2
C01D05    5   0.68 -0.13  0.03  0.16 0.53 0.4737 1.2
C16      19  -0.03  0.99  0.01  0.02 0.97 0.0313 1.0
C05      17   0.03  0.96  0.02  0.00 0.98 0.0179 1.0
C06D01   18  -0.09  0.92  0.05  0.08 0.89 0.1114 1.0
C18D01   20  -0.20  0.79  0.10  0.09 0.63 0.3673 1.2
C18D03   21   0.25  0.71 -0.03 -0.06 0.69 0.3114 1.3
C19      22   0.26  0.70 -0.03 -0.09 0.68 0.3234 1.3
C01D02    2   0.04  0.05  0.91  0.00 0.94 0.0617 1.0
C01D04    4   0.02  0.09  0.87  0.08 0.96 0.0352 1.0
C01D01    1   0.02 -0.02  0.84 -0.08 0.65 0.3525 1.0
C01D03    3   0.00  0.05  0.82  0.05 0.76 0.2354 1.0
C04      23   0.17  0.08  0.05  0.81 0.98 0.0202 1.1
C08      24   0.22  0.07  0.03  0.80 0.99 0.0061 1.2

                       ML3  ML2  ML4  ML1
SS loadings           9.25 4.89 3.42 1.73
Proportion Var        0.39 0.20 0.14 0.07
Cumulative Var        0.39 0.59 0.73 0.80
Proportion Explained  0.48 0.25 0.18 0.09
Cumulative Proportion 0.48 0.73 0.91 1.00

 With factor correlations of
     ML3  ML2  ML4  ML1
ML3 1.00 0.60 0.54 0.59
ML2 0.60 1.00 0.69 0.47
ML4 0.54 0.69 1.00 0.40
ML1 0.59 0.47 0.40 1.00

Mean item complexity =  1.1
Test of the hypothesis that 4 factors are sufficient.
```

```
The degrees of freedom for the null model are  276  and the objective function
was  57.26
The degrees of freedom for the model are 186  and the objective function was
23.59

The root mean square of the residuals (RMSR) is  0.04
The df corrected root mean square of the residuals is  0.05

Fit based upon off diagonal values = 1
Measures of factor score adequacy
                                                 ML3  ML2  ML4  ML1
Correlation of (regression) scores with factors  0.99 0.99 0.99 1.00
Multiple R square of scores with factors         0.98 0.99 0.98 0.99
Minimum correlation of possible factor scores    0.96 0.98 0.95 0.98
```

ML1

Final Model:

```
C01D01 =~   C01D01Q10 + C01D01Q13 + C01D01Q15 + C01D01Q3
C01D02 =~   C01D02Q10 + C01D02Q0 + C01D02Q1  + C01D02Q9 +C01D02Q7
C01D03 =~  C01D03Q9 +  C01D03Q11 + C01D03Q10 + C01D03Q12 + C01D03Q7
C01D04 =~  C01D04Q13 +  C01D04Q15 + C01D04Q0
```

CFA result:

```
lavaan 0.6-8 ended normally after 44 iterations

  Estimator                                      ML
  Optimization method                        NLMINB
  Number of model parameters                     40

  Number of observations                        532

Model Test User Model:

  Test statistic                            171.190
  Degrees of freedom                            113
  P-value (Chi-square)                        0.000

Model Test Baseline Model:

  Test statistic                           3527.588
  Degrees of freedom                            136
  P-value                                     0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                 0.983
  Tucker-Lewis Index (TLI)                    0.979

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)          -11034.087
  Loglikelihood unrestricted model (H1)  -10948.492

  Akaike (AIC)                            22148.174
  Bayesian (BIC)                          22319.240
  Sample-size adjusted Bayesian (BIC)     22192.268

Root Mean Square Error of Approximation:

  RMSEA                                       0.031
  90 Percent confidence interval - lower      0.021
  90 Percent confidence interval - upper      0.040
  P-value RMSEA <= 0.05                       1.000

Standardized Root Mean Square Residual:

  SRMR                                        0.033
```

```
Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model        Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C01D01 =~
    C01D01Q10        1.000                                0.769    0.779
    C01D01Q13        0.912    0.057   16.097    0.000     0.702    0.711
    C01D01Q15        0.944    0.057   16.689    0.000     0.726    0.736
    C01D01Q3         0.937    0.057   16.561    0.000     0.721    0.730
  C01D02 =~
    C01D02Q10        1.000                                0.590    0.597
    C01D02Q0         1.229    0.093   13.172    0.000     0.725    0.734
    C01D02Q1         1.307    0.095   13.708    0.000     0.771    0.781
    C01D02Q9         1.337    0.096   13.898    0.000     0.788    0.799
    C01D02Q7         1.081    0.090   12.038    0.000     0.637    0.646
  C01D03 =~
    C01D03Q9         1.000                                0.624    0.632
    C01D03Q11        1.156    0.088   13.075    0.000     0.722    0.731
    C01D03Q10        0.734    0.080    9.125    0.000     0.458    0.464
    C01D03Q12        0.950    0.084   11.320    0.000     0.593    0.601
    C01D03Q7         0.867    0.082   10.514    0.000     0.541    0.548
  C01D04 =~
    C01D04Q13        1.000                                0.738    0.747
    C01D04Q15        0.911    0.062   14.766    0.000     0.672    0.681
    C01D04Q0         0.420    0.062    6.735    0.000     0.310    0.314

Covariances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C01D01 ~~
    C01D02           0.330    0.035    9.330    0.000     0.728    0.728
    C01D03           0.370    0.039    9.613    0.000     0.772    0.772
    C01D04           0.352    0.039    9.029    0.000     0.620    0.620
  C01D02 ~~
    C01D03           0.252    0.030    8.320    0.000     0.686    0.686
    C01D04           0.395    0.040    9.961    0.000     0.908    0.908
  C01D03 ~~
    C01D04           0.375    0.039    9.555    0.000     0.815    0.815

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C01D01Q10        0.382    0.031   12.180    0.000     0.382    0.393
   .C01D01Q13        0.481    0.035   13.600    0.000     0.481    0.494
   .C01D01Q15        0.447    0.034   13.177    0.000     0.447    0.459
   .C01D01Q3         0.454    0.034   13.276    0.000     0.454    0.467
   .C01D02Q10        0.626    0.041   15.169    0.000     0.626    0.643
   .C01D02Q0         0.448    0.032   13.874    0.000     0.448    0.461
   .C01D02Q1         0.380    0.029   13.034    0.000     0.380    0.390
   .C01D02Q9         0.353    0.028   12.612    0.000     0.353    0.362
   .C01D02Q7         0.567    0.038   14.834    0.000     0.567    0.583
   .C01D03Q9         0.584    0.042   14.039    0.000     0.584    0.600
   .C01D03Q11        0.453    0.037   12.293    0.000     0.453    0.465
   .C01D03Q10        0.764    0.050   15.393    0.000     0.764    0.785
   .C01D03Q12        0.622    0.043   14.396    0.000     0.622    0.639
   .C01D03Q7         0.681    0.046   14.863    0.000     0.681    0.699
   .C01D04Q13        0.430    0.037   11.466    0.000     0.430    0.441
   .C01D04Q15        0.522    0.039   13.349    0.000     0.522    0.537
   .C01D04Q0         0.878    0.055   16.007    0.000     0.878    0.901
    C01D01           0.591    0.059   10.068    0.000     1.000    1.000
    C01D02           0.348    0.048    7.215    0.000     1.000    1.000
    C01D03           0.389    0.052    7.454    0.000     1.000    1.000
    C01D04           0.544    0.060    9.092    0.000     1.000    1.000
```

```
   C01D01 C01D02 C01D03 C01D04
```

```
C01D01 1.000
C01D02 0.728  1.000
C01D03 0.772  0.686  1.000
C01D04 0.620  0.908  0.815  1.000
```

ML3
Final Model:
```
C01D05 =~ C01D05Q0 + C01D05Q2 + C01D05Q9
C02 =~ C02D00Q1 + C02D00Q2 + C02D00Q8
C03 =~ C03D01Q7   + C03D01Q12  + C03D02Q10
C07 =~  C07D00Q0 + C07D00Q11 +  R_C07D00Q15
C09 =~  C09D00Q4 + C09D00Q10 +  C09D00Q1
C10 =~  C10D00Q6  + C10D00Q16 + C10D00Q18
C11 =~  C11D01Q9 + C11D01Q10  + C11D01Q14 + C11D01Q11 + C11D02Q4 + C11D02Q7
C12 =~ C12D00Q0  +  C12D00Q1  +  C12D00Q13
C13 =~  R_C13D00Q11 + R_C13D00Q6 + R_C13D00Q15 + R_C13D00Q3
C14 =~ C14D00Q0 + C14D00Q10   + C14D00Q16 +  R_C14D00Q13
C15 =~ C15D00Q10 + C15D00Q11   + R_C15D00Q15
C17 =~  C17D00Q2 + C17D00Q3  + C17D00Q9 + C17D00Q10
C17D00Q9 ~~   C17D00Q10
C12D00Q0 ~~    C12D00Q1
C11D01Q9 ~~   C11D01Q11
C11D01Q9 ~~   C11D01Q10
C14D00Q10 ~~   C14D00Q16
C07D00Q11 ~~ R_C07D00Q15
C11D01Q9 ~~    C11D02Q7
C11D01Q11 ~~    C11D02Q7
C07D00Q0 ~~ R_C07D00Q15
C11D01Q10 ~~    C11D02Q7
C14D00Q10 ~~ R_C14D00Q13
R_C13D00Q15 ~~  R_C13D00Q3
C11D01Q10 ~~    C11D02Q4
C11D01Q10 ~~    C11D01Q11
```

CFA result:
```
lavaan 0.6-8 ended normally after 117 iterations

  Estimator                                     ML
  Optimization method                       NLMINB
  Number of model parameters                   164

  Number of observations                       532

Model Test User Model:

  Test statistic                          1111.491
  Degrees of freedom                           739
  P-value (Chi-square)                       0.000

Model Test Baseline Model:

  Test statistic                          8401.871
  Degrees of freedom                           861
  P-value                                    0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                0.951
  Tucker-Lewis Index (TLI)                   0.942

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)         -27761.635
  Loglikelihood unrestricted model (H1) -27205.889
```

```
   Akaike (AIC)                                    55851.270
   Bayesian (BIC)                                  56552.639
   Sample-size adjusted Bayesian (BIC)             56032.054


Root Mean Square Error of Approximation:

  RMSEA                                               0.031
  90 Percent confidence interval - lower              0.027
  90 Percent confidence interval - upper              0.034
  P-value RMSEA <= 0.05                               1.000

Standardized Root Mean Square Residual:

  SRMR                                                0.038

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model            Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C01D05 =~
    C01D05Q0        1.000                                0.634    0.643
    C01D05Q2        1.089    0.092   11.812    0.000     0.691    0.700
    C01D05Q9        1.105    0.093   11.894    0.000     0.701    0.710
  C02 =~
    C02D00Q1        1.000                                0.764    0.774
    C02D00Q2        0.833    0.064   13.085    0.000     0.636    0.645
    C02D00Q8        0.807    0.063   12.718    0.000     0.616    0.625
  C03 =~
    C03D01Q7        1.000                                0.695    0.704
    C03D01Q12       0.771    0.067   11.558    0.000     0.536    0.543
    C03D02Q10       0.974    0.067   14.446    0.000     0.677    0.686
  C07 =~
    C07D00Q0        1.000                                0.752    0.762
    C07D00Q11       0.979    0.062   15.893    0.000     0.736    0.746
    R_C07D00Q15     0.668    0.068    9.775    0.000     0.502    0.509
  C09 =~
    C09D00Q4        1.000                                0.617    0.626
    C09D00Q10       1.157    0.095   12.140    0.000     0.714    0.724
    C09D00Q1        1.029    0.091   11.313    0.000     0.635    0.644
  C10 =~
    C10D00Q6        1.000                                0.550    0.558
    C10D00Q16       1.137    0.108   10.550    0.000     0.625    0.634
    C10D00Q18       1.277    0.113   11.270    0.000     0.703    0.712
  C11 =~
    C11D01Q9        1.000                                0.495    0.502
    C11D01Q10       1.276    0.118   10.819    0.000     0.632    0.639
    C11D01Q14       1.200    0.124    9.706    0.000     0.594    0.602
    C11D01Q11       0.886    0.095    9.309    0.000     0.438    0.444
    C11D02Q4        1.208    0.124    9.727    0.000     0.598    0.606
    C11D02Q7        1.337    0.133   10.038    0.000     0.662    0.671
  C12 =~
    C12D00Q0        1.000                                0.611    0.619
    C12D00Q1        0.974    0.079   12.310    0.000     0.595    0.603
    C12D00Q13       1.182    0.096   12.328    0.000     0.722    0.732
  C13 =~
    R_C13D00Q11     1.000                                0.611    0.620
    R_C13D00Q6      0.793    0.085    9.281    0.000     0.485    0.491
    R_C13D00Q15     0.806    0.093    8.703    0.000     0.493    0.499
    R_C13D00Q3      1.246    0.103   12.127    0.000     0.762    0.772
  C14 =~
    C14D00Q0        1.000                                0.515    0.522
    C14D00Q10       1.370    0.129   10.634    0.000     0.705    0.715
    C14D00Q16       0.790    0.105    7.504    0.000     0.407    0.412
    R_C14D00Q13     1.156    0.119    9.691    0.000     0.595    0.603
```

```
  C15 =~
    C15D00Q10        1.000                                    0.782    0.792
    C15D00Q11        0.990    0.056   17.575    0.000         0.774    0.784
    R_C15D00Q15      0.811    0.057   14.328    0.000         0.634    0.642
  C17 =~
    C17D00Q2         1.000                                    0.696    0.705
    C17D00Q3         1.054    0.071   14.847    0.000         0.733    0.743
    C17D00Q9         0.663    0.069    9.662    0.000         0.462    0.468
    C17D00Q10        0.772    0.069   11.187    0.000         0.537    0.544

Covariances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
 .C17D00Q9 ~~
   .C17D00Q10        0.115    0.035    3.337    0.001    0.115    0.160
 .C12D00Q0 ~~
   .C12D00Q1         0.118    0.034    3.492    0.000    0.118    0.194
 .C11D01Q9 ~~
   .C11D01Q11        0.203    0.037    5.569    0.000    0.203    0.269
   .C11D01Q10        0.098    0.033    2.941    0.003    0.098    0.151
 .C14D00Q10 ~~
   .C14D00Q16        0.077    0.033    2.370    0.018    0.077    0.125
 .C07D00Q11 ~~
   .R_C07D00Q15     -0.108    0.035   -3.068    0.002   -0.108   -0.194
 .C11D01Q9 ~~
   .C11D02Q7        -0.040    0.031   -1.292    0.196   -0.040   -0.064
 .C11D01Q11 ~~
   .C11D02Q7         0.052    0.032    1.623    0.105    0.052    0.080
 .C07D00Q0 ~~
   .R_C07D00Q15     -0.083    0.036   -2.319    0.020   -0.083   -0.152
 .C11D01Q10 ~~
   .C11D02Q7        -0.074    0.031   -2.418    0.016   -0.074   -0.133
 .C14D00Q10 ~~
   .R_C14D00Q13      0.089    0.036    2.493    0.013    0.089    0.164
 .R_C13D00Q15 ~~
   .R_C13D00Q3      -0.067    0.034   -1.953    0.051   -0.067   -0.124
 .C11D01Q10 ~~
   .C11D02Q4        -0.058    0.030   -1.942    0.052   -0.058   -0.098
   .C11D01Q11        0.053    0.033    1.592    0.111    0.053    0.079
  C01D05 ~~
    C02              0.299    0.037    8.165    0.000    0.616    0.616
    C03              0.266    0.034    7.810    0.000    0.602    0.602
    C07              0.254    0.034    7.522    0.000    0.532    0.532
    C09              0.223    0.031    7.222    0.000    0.569    0.569
    C10              0.155    0.026    5.956    0.000    0.445    0.445
    C11              0.136    0.023    5.887    0.000    0.432    0.432
    C12              0.206    0.030    6.863    0.000    0.531    0.531
    C13              0.215    0.030    7.112    0.000    0.555    0.555
    C14              0.148    0.025    5.843    0.000    0.453    0.453
    C15              0.254    0.034    7.428    0.000    0.511    0.511
    C17              0.208    0.031    6.699    0.000    0.470    0.470
  C02 ~~
    C03              0.374    0.040    9.346    0.000    0.705    0.705
    C07              0.358    0.040    9.018    0.000    0.623    0.623
    C09              0.279    0.035    7.876    0.000    0.591    0.591
    C10              0.236    0.032    7.274    0.000    0.561    0.561
    C11              0.244    0.032    7.737    0.000    0.646    0.646
    C12              0.314    0.037    8.459    0.000    0.673    0.673
    C13              0.252    0.034    7.424    0.000    0.540    0.540
    C14              0.253    0.033    7.594    0.000    0.645    0.645
    C15              0.333    0.039    8.469    0.000    0.557    0.557
    C17              0.326    0.038    8.586    0.000    0.613    0.613
  C03 ~~
    C07              0.381    0.040    9.616    0.000    0.729    0.729
    C09              0.285    0.035    8.202    0.000    0.664    0.664
    C10              0.303    0.035    8.529    0.000    0.791    0.791
    C11              0.287    0.034    8.385    0.000    0.833    0.833
    C12              0.295    0.035    8.357    0.000    0.694    0.694
    C13              0.336    0.038    8.908    0.000    0.791    0.791
```

C14	0.246	0.032	7.644	0.000	0.687	0.687
C15	0.388	0.040	9.667	0.000	0.714	0.714
C17	0.381	0.039	9.682	0.000	0.788	0.788
C07 ~~						
C09	0.291	0.035	8.255	0.000	0.628	0.628
C10	0.283	0.034	8.218	0.000	0.684	0.684
C11	0.230	0.030	7.628	0.000	0.618	0.618
C12	0.305	0.036	8.475	0.000	0.665	0.665
C13	0.299	0.036	8.369	0.000	0.651	0.651
C14	0.229	0.031	7.310	0.000	0.591	0.591
C15	0.468	0.044	10.746	0.000	0.797	0.797
C17	0.421	0.041	10.174	0.000	0.805	0.805
C09 ~~						
C10	0.130	0.025	5.291	0.000	0.382	0.382
C11	0.176	0.026	6.842	0.000	0.575	0.575
C12	0.278	0.034	8.156	0.000	0.737	0.737
C13	0.185	0.028	6.534	0.000	0.489	0.489
C14	0.142	0.025	5.741	0.000	0.448	0.448
C15	0.316	0.037	8.584	0.000	0.655	0.655
C17	0.244	0.032	7.526	0.000	0.568	0.568
C10 ~~						
C11	0.224	0.030	7.580	0.000	0.824	0.824
C12	0.211	0.029	7.187	0.000	0.626	0.626
C13	0.183	0.027	6.710	0.000	0.545	0.545
C14	0.227	0.030	7.472	0.000	0.800	0.800
C15	0.236	0.032	7.363	0.000	0.549	0.549
C17	0.287	0.034	8.331	0.000	0.748	0.748
C11 ~~						
C12	0.228	0.030	7.640	0.000	0.752	0.752
C13	0.165	0.025	6.660	0.000	0.545	0.545
C14	0.234	0.031	7.562	0.000	0.918	0.918
C15	0.235	0.031	7.651	0.000	0.606	0.606
C17	0.266	0.033	8.161	0.000	0.774	0.774
C12 ~~						
C13	0.232	0.031	7.453	0.000	0.622	0.622
C14	0.235	0.031	7.541	0.000	0.746	0.746
C15	0.302	0.036	8.359	0.000	0.633	0.633
C17	0.259	0.033	7.788	0.000	0.609	0.609
C13 ~~						
C14	0.174	0.027	6.551	0.000	0.553	0.553
C15	0.278	0.035	7.967	0.000	0.581	0.581
C17	0.239	0.032	7.462	0.000	0.561	0.561
C14 ~~						
C15	0.185	0.029	6.323	0.000	0.459	0.459
C17	0.239	0.032	7.573	0.000	0.667	0.667
C15 ~~						
C17	0.383	0.040	9.618	0.000	0.704	0.704

Variances:

	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
.C01D05Q0	0.571	0.044	12.864		0.571	0.587
.C01D05Q2	0.496	0.043	11.555	0.000	0.496	0.510
.C01D05Q9	0.482	0.043	11.269	0.000	0.482	0.495
.C02D00Q1	0.390	0.039	9.976	0.000	0.390	0.401
.C02D00Q2	0.569	0.043	13.372	0.000	0.569	0.584
.C02D00Q8	0.594	0.043	13.682	0.000	0.594	0.610
.C03D01Q7	0.490	0.037	13.162	0.000	0.490	0.504
.C03D01Q12	0.686	0.045	15.194	0.000	0.686	0.705
.C03D02Q10	0.516	0.038	13.552	0.000	0.516	0.529
.C07D00Q0	0.408	0.036	11.219	0.000	0.408	0.419
.C07D00Q11	0.432	0.037	11.786	0.000	0.432	0.444
.R_C07D00Q15	0.721	0.052	13.913	0.000	0.721	0.741
.C09D00Q4	0.593	0.044	13.471	0.000	0.593	0.609
.C09D00Q10	0.464	0.041	11.303	0.000	0.464	0.476
.C09D00Q1	0.570	0.043	13.172	0.000	0.570	0.586
.C10D00Q6	0.671	0.046	14.578	0.000	0.671	0.689
.C10D00Q16	0.583	0.043	13.638	0.000	0.583	0.598
.C10D00Q18	0.480	0.040	11.925	0.000	0.480	0.493

```
   .C11D01Q9         0.729    0.048   15.208    0.000     0.729    0.748
   .C11D01Q10        0.577    0.042   13.584    0.000     0.577    0.591
   .C11D01Q14        0.621    0.041   14.987    0.000     0.621    0.638
   .C11D01Q11        0.781    0.050   15.513    0.000     0.781    0.803
   .C11D02Q4         0.616    0.042   14.680    0.000     0.616    0.632
   .C11D02Q7         0.536    0.039   13.568    0.000     0.536    0.550
   .C12D00Q0         0.600    0.045   13.449    0.000     0.600    0.617
   .C12D00Q1         0.620    0.045   13.663    0.000     0.620    0.636
   .C12D00Q13        0.452    0.041   11.151    0.000     0.452    0.464
   .R_C13D00Q11      0.600    0.044   13.706    0.000     0.600    0.616
   .R_C13D00Q6       0.739    0.049   15.029    0.000     0.739    0.759
   .R_C13D00Q15      0.731    0.052   14.046    0.000     0.731    0.751
   .R_C13D00Q3       0.393    0.043    9.087    0.000     0.393    0.404
   .C14D00Q0         0.709    0.047   14.930    0.000     0.709    0.728
   .C14D00Q10        0.476    0.046   10.421    0.000     0.476    0.489
   .C14D00Q16        0.808    0.052   15.417    0.000     0.808    0.830
   .R_C14D00Q13      0.620    0.047   13.163    0.000     0.620    0.637
   .C15D00Q10        0.363    0.032   11.182    0.000     0.363    0.372
   .C15D00Q11        0.375    0.033   11.450    0.000     0.375    0.385
   .R_C15D00Q15      0.572    0.040   14.247    0.000     0.572    0.587
   .C17D00Q2         0.490    0.038   12.990    0.000     0.490    0.503
   .C17D00Q3         0.436    0.036   12.055    0.000     0.436    0.448
   .C17D00Q9         0.761    0.050   15.364    0.000     0.761    0.781
   .C17D00Q10        0.685    0.046   14.914    0.000     0.685    0.704
    C01D05           0.402    0.056    7.247    0.000     1.000    1.000
    C02              0.584    0.063    9.286    0.000     1.000    1.000
    C03              0.483    0.056    8.617    0.000     1.000    1.000
    C07              0.565    0.060    9.375    0.000     1.000    1.000
    C09              0.381    0.053    7.125    0.000     1.000    1.000
    C10              0.303    0.048    6.316    0.000     1.000    1.000
    C11              0.245    0.043    5.671    0.000     1.000    1.000
    C12              0.373    0.053    6.997    0.000     1.000    1.000
    C13              0.374    0.053    7.095    0.000     1.000    1.000
    C14              0.265    0.045    5.866    0.000     1.000    1.000
    C15              0.611    0.060   10.148    0.000     1.000    1.000
    C17              0.484    0.056    8.582    0.000     1.000    1.000
```

```
       C01D05 C02   C03   C07   C09   C10   C11   C12   C13   C14   C15   C17
C01D05 1.000
C02    0.616  1.000
C03    0.602  0.705 1.000
C07    0.532  0.623 0.729 1.000
C09    0.569  0.591 0.664 0.628 1.000
C10    0.445  0.561 0.791 0.684 0.382 1.000
C11    0.432  0.646 0.833 0.618 0.575 0.824 1.000
C12    0.531  0.673 0.694 0.665 0.737 0.626 0.752 1.000
C13    0.555  0.540 0.791 0.651 0.489 0.545 0.545 0.622 1.000
C14    0.453  0.645 0.687 0.591 0.448 0.800 0.918 0.746 0.553 1.000
C15    0.511  0.557 0.714 0.797 0.655 0.549 0.606 0.633 0.581 0.459 1.000
C17    0.470  0.613 0.788 0.805 0.568 0.748 0.774 0.609 0.561 0.667 0.704 1.000
```

ML4

Final Model:

```
C05 =~  C05D00Q6 + C05D00Q7  + C05D00Q1
C06D01 =~  C06D01Q1   + C06D01Q11 + R_C06D01Q6
C16 =~   C16D00Q12  + C16D00Q17  + C16D00Q13
C18D01 =~ C18D01Q2 + C18D01Q3 +  R_C18D01Q5 + C18D01Q8 + R_C18D01Q14
C18D03 =~ C18D03Q0 + C18D03Q1 + C18D03Q2 +  C18D03Q12
C19 =~   C19D00Q14   + C19D00Q28   + C19D00Q7 + C19D00Q26
```

CFA result:

```
lavaan 0.6-8 ended normally after 60 iterations

  Estimator                                     ML
  Optimization method                        NLMINB
```

```
  Number of model parameters                        59

  Number of observations                           532

Model Test User Model:

  Test statistic                               355.702
  Degrees of freedom                               194
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                              4147.024
  Degrees of freedom                               231
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.959
  Tucker-Lewis Index (TLI)                       0.951

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -14555.533
  Loglikelihood unrestricted model (H1)     -14377.682

  Akaike (AIC)                               29229.066
  Bayesian (BIC)                             29481.388
  Sample-size adjusted Bayesian (BIC)        29294.105

Root Mean Square Error of Approximation:

  RMSEA                                          0.040
  90 Percent confidence interval - lower         0.033
  90 Percent confidence interval - upper         0.046
  P-value RMSEA <= 0.05                          0.997

Standardized Root Mean Square Residual:

  SRMR                                           0.037

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)  Std.lv  Std.all
  C05 =~
    C05D00Q6        1.000                                0.702   0.712
    C05D00Q7        0.897    0.068   13.110    0.000     0.630   0.639
    C05D00Q1        0.935    0.069   13.621    0.000     0.657   0.666
  C06D01 =~
    C06D01Q1        1.000                                0.573   0.580
    C06D01Q11       0.961    0.095   10.170    0.000     0.550   0.558
    R_C06D01Q6      1.025    0.096   10.655    0.000     0.587   0.595
  C16 =~
    C16D00Q12       1.000                                0.734   0.744
    C16D00Q17       0.730    0.063   11.509    0.000     0.536   0.543
    C16D00Q13       1.005    0.064   15.676    0.000     0.738   0.748
  C18D01 =~
    C18D01Q2        1.000                                0.750   0.760
    C18D01Q3        1.013    0.057   17.614    0.000     0.760   0.770
    R_C18D01Q5      1.026    0.057   17.862    0.000     0.770   0.780
    C18D01Q8        0.961    0.058   16.657    0.000     0.721   0.731
    R_C18D01Q14     0.922    0.058   15.917    0.000     0.692   0.701
  C18D03 =~
```

```
     C18D03Q0        1.000                                  0.574    0.582
     C18D03Q1        1.015    0.099   10.239   0.000         0.582    0.590
     C18D03Q2        0.823    0.094    8.772   0.000         0.472    0.479
     C18D03Q12       0.963    0.098    9.869   0.000         0.553    0.560
   C19 =~
     C19D00Q14       1.000                                  0.476    0.483
     C19D00Q28       1.420    0.149    9.530   0.000         0.676    0.685
     C19D00Q7        1.177    0.135    8.710   0.000         0.561    0.568
     C19D00Q26       1.183    0.135    8.736   0.000         0.564    0.571

Covariances:
                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   C05 ~~
     C06D01          0.337    0.038    8.938   0.000         0.839    0.839
     C16             0.470    0.044   10.729   0.000         0.912    0.912
     C18D01          0.345    0.037    9.267   0.000         0.655    0.655
     C18D03          0.280    0.035    8.099   0.000         0.694    0.694
     C19             0.229    0.031    7.378   0.000         0.686    0.686
   C06D01 ~~
     C16             0.346    0.038    9.024   0.000         0.823    0.823
     C18D01          0.357    0.038    9.356   0.000         0.832    0.832
     C18D03          0.238    0.032    7.531   0.000         0.725    0.725
     C19             0.170    0.026    6.510   0.000         0.624    0.624
   C16 ~~
     C18D01          0.372    0.039    9.647   0.000         0.675    0.675
     C18D03          0.270    0.034    7.891   0.000         0.642    0.642
     C19             0.225    0.031    7.270   0.000         0.642    0.642
   C18D01 ~~
     C18D03          0.221    0.031    7.160   0.000         0.512    0.512
     C19             0.193    0.028    6.910   0.000         0.541    0.541
   C18D03 ~~
     C19             0.256    0.034    7.638   0.000         0.937    0.937

Variances:
                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C05D00Q6        0.480    0.038   12.674   0.000         0.480    0.493
    .C05D00Q7        0.577    0.041   13.995   0.000         0.577    0.592
    .C05D00Q1        0.542    0.040   13.591   0.000         0.542    0.557
    .C06D01Q1        0.646    0.046   14.156   0.000         0.646    0.663
    .C06D01Q11       0.671    0.046   14.452   0.000         0.671    0.689
    .R_C06D01Q6      0.629    0.045   13.934   0.000         0.629    0.646
    .C16D00Q12       0.435    0.036   12.118   0.000         0.435    0.447
    .C16D00Q17       0.687    0.046   14.990   0.000         0.687    0.705
    .C16D00Q13       0.429    0.036   12.001   0.000         0.429    0.441
    .C18D01Q2        0.411    0.031   13.291   0.000         0.411    0.422
    .C18D01Q3        0.396    0.030   13.101   0.000         0.396    0.407
    .R_C18D01Q5      0.381    0.030   12.880   0.000         0.381    0.391
    .C18D01Q8        0.453    0.033   13.792   0.000         0.453    0.466
    .R_C18D01Q14     0.495    0.035   14.196   0.000         0.495    0.509
    .C18D03Q0        0.644    0.046   14.036   0.000         0.644    0.662
    .C18D03Q1        0.634    0.046   13.919   0.000         0.634    0.652
    .C18D03Q2        0.751    0.050   15.052   0.000         0.751    0.771
    .C18D03Q12       0.668    0.047   14.304   0.000         0.668    0.686
    .C19D00Q14       0.747    0.050   15.052   0.000         0.747    0.767
    .C19D00Q28       0.516    0.042   12.358   0.000         0.516    0.530
    .C19D00Q7        0.659    0.046   14.299   0.000         0.659    0.677
    .C19D00Q26       0.656    0.046   14.264   0.000         0.656    0.674
     C05             0.493    0.057    8.633   0.000         1.000    1.000
     C06D01          0.328    0.050    6.544   0.000         1.000    1.000
     C16             0.538    0.059    9.193   0.000         1.000    1.000
     C18D01          0.563    0.057    9.877   0.000         1.000    1.000
     C18D03          0.330    0.051    6.525   0.000         1.000    1.000
     C19             0.227    0.043    5.302   0.000         1.000    1.000
```

```
        C05    C06D01 C16    C18D01 C18D03 C19
C05    1.000
C06D01 0.839 1.000
C16    0.912 0.823  1.000
```

```
C18D01 0.655 0.832  0.675 1.000
C18D03 0.694 0.725  0.642 0.512  1.000
C19    0.686 0.624  0.642 0.541  0.937  1.000
```

ML5

Final Model:

```
C04 =~ C04D00Q1 +  C04D00Q10 + R_C04D00Q11 + C04D00Q4 + C04D00Q12
C08 =~ R_C08D00Q3 + C08D00Q4   + R_C08D00Q9 + C08D00Q0
```

CFA result:

```
lavaan 0.6-8 ended normally after 27 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        19

  Number of observations                           532

Model Test User Model:

  Test statistic                                97.847
  Degrees of freedom                                26
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                              1740.810
  Degrees of freedom                                36
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.958
  Tucker-Lewis Index (TLI)                       0.942

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -5908.552
  Loglikelihood unrestricted model (H1)      -5859.629

  Akaike (AIC)                               11855.104
  Bayesian (BIC)                             11936.361
  Sample-size adjusted Bayesian (BIC)        11876.049

Root Mean Square Error of Approximation:

  RMSEA                                          0.072
  90 Percent confidence interval - lower         0.057
  90 Percent confidence interval - upper         0.088
  P-value RMSEA <= 0.05                          0.008

Standardized Root Mean Square Residual:

  SRMR                                           0.038

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C04 =~
    C04D00Q1          1.000                               0.597    0.605
```

```
      C04D00Q10           1.413   0.096   14.660   0.000    0.844    0.856
      R_C04D00Q11         1.350   0.094   14.295   0.000    0.806    0.817
      C04D00Q4            0.757   0.082    9.227   0.000    0.452    0.458
      C04D00Q12           1.034   0.087   11.884   0.000    0.618    0.626
   C08 =~
      R_C08D00Q3          1.000                             0.701    0.711
      C08D00Q4            0.943   0.068   13.852   0.000    0.661    0.670
      R_C08D00Q9          0.803   0.067   11.907   0.000    0.563    0.571
      C08D00Q0            0.670   0.067   10.000   0.000    0.470    0.476

Covariances:
                     Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   C04 ~~
      C08                 0.392   0.040    9.932   0.000    0.937    0.937

Variances:
                     Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
     .C04D00Q1          0.617   0.041   15.108   0.000    0.617    0.634
     .C04D00Q10         0.261   0.025   10.443   0.000    0.261    0.268
     .R_C04D00Q11       0.324   0.027   11.974   0.000    0.324    0.332
     .C04D00Q4          0.769   0.049   15.761   0.000    0.769    0.790
     .C04D00Q12         0.592   0.040   14.968   0.000    0.592    0.608
     .R_C08D00Q3        0.482   0.037   12.941   0.000    0.482    0.495
     .C08D00Q4          0.536   0.039   13.704   0.000    0.536    0.551
     .R_C08D00Q9        0.656   0.044   14.840   0.000    0.656    0.674
     .C08D00Q0          0.753   0.049   15.440   0.000    0.753    0.773
      C04               0.357   0.049    7.329   0.000    1.000    1.000
      C08               0.492   0.057    8.688   0.000    1.000    1.000
```

```
      C04    C08
C04 1.000
C08 0.937 1.000
```

Appendix I CFA and Reliability Analysis Results of Individual Measurement

C01 Agent's Believability

Definition: The extent to which a user believes that the artefact is a social agent

C01D01 Human-Like Appearance

Definition: The extent to which a user believes that the social agent appears like a human

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8

  Number of observations                           532

Model Test User Model:

  Test statistic                                 1.317
  Degrees of freedom                                 2
  P-value (Chi-square)                           0.518

Model Test Baseline Model:

  Test statistic                               750.615
  Degrees of freedom                                 6
  P-value                                        0.000

User Model versus Baseline Model:
```

```
   Comparative Fit Index (CFI)                            1.000
   Tucker-Lewis Index (TLI)                               1.003


Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                   -2616.477
  Loglikelihood unrestricted model (H1)           -2615.819

  Akaike (AIC)                                     5248.954
  Bayesian (BIC)                                   5283.167
  Sample-size adjusted Bayesian (BIC)              5257.773

Root Mean Square Error of Approximation:

  RMSEA                                               0.000
  90 Percent confidence interval - lower              0.000
  90 Percent confidence interval - upper              0.076
  P-value RMSEA <= 0.05                               0.815

Standardized Root Mean Square Residual:

  SRMR                                                0.007

Parameter Estimates:

  Standard errors                                  Standard
  Information                                      Expected
  Information saturated (h1) model                 Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C01D01 =~
    C01D01Q3          1.000                                0.726    0.736
    C01D01Q10         1.081    0.068   15.852    0.000     0.785    0.795
    C01D01Q13         0.952    0.066   14.423    0.000     0.691    0.700
    C01D01Q15         0.983    0.066   14.834    0.000     0.713    0.723

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C01D01Q3         0.447    0.037   12.215    0.000     0.447    0.459
   .C01D01Q10        0.358    0.035   10.336    0.000     0.358    0.368
   .C01D01Q13        0.496    0.038   13.004    0.000     0.496    0.510
   .C01D01Q15        0.465    0.037   12.518    0.000     0.465    0.477
    C01D01           0.527    0.058    9.033    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean  sd median_r
     0.83      0.83     0.78      0.55  4.8 0.012 -5.5e-17 0.8     0.54


 lower alpha upper    95% confidence boundaries
0.8 0.83 0.85


 Reliability if an item is dropped:
        raw_alpha std.alpha G6(smc) average_r S/N alpha se   var.r med.r
C01D01Q3      0.78      0.78     0.71     0.55 3.6    0.016 5.7e-04  0.55
C01D01Q10     0.76      0.76     0.68     0.52 3.2    0.018 7.8e-05  0.52
C01D01Q13     0.79      0.79     0.72     0.56 3.9    0.015 1.3e-03  0.57
C01D01Q15     0.79      0.79     0.71     0.55 3.7    0.016 1.9e-03  0.55


 Item statistics
           n raw.r std.r r.cor r.drop    mean   sd
C01D01Q3 532  0.81  0.81  0.72   0.65  6.3e-17 0.99
C01D01Q10 532 0.84  0.84  0.77   0.69  1.2e-17 0.99
C01D01Q13 532 0.79  0.79  0.69   0.63 -1.1e-16 0.99
C01D01Q15 532 0.81  0.81  0.71   0.64 -1.8e-16 0.99
```

C01D02 Human-Like Behavior

Definition: The extent to which a user believes that the social agent behaves like a human

```
lavaan 0.6-8 ended normally after 23 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                 4.026
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.546

Model Test Baseline Model:

  Test statistic                               964.722
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.002

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3258.560
  Loglikelihood unrestricted model (H1)      -3256.547

  Akaike (AIC)                                6537.120
  Bayesian (BIC)                              6579.886
  Sample-size adjusted Bayesian (BIC)         6548.143

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.054
  P-value RMSEA <= 0.05                          0.930

Standardized Root Mean Square Residual:

  SRMR                                           0.011

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C01D02 =~
    C01D02Q7          1.000                               0.639    0.648
    C01D02Q10         0.945    0.079   11.913    0.000    0.604    0.612
    C01D02Q0          1.163    0.083   13.999    0.000    0.743    0.753
    C01D02Q1          1.180    0.083   14.139    0.000    0.754    0.765
    C01D02Q9          1.219    0.084   14.436    0.000    0.779    0.790

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C01D02Q7          0.565    0.040   14.195    0.000    0.565    0.580
   .C01D02Q10         0.609    0.042   14.565    0.000    0.609    0.625
```

```
     .C01D02Q0            0.421    0.034   12.403    0.000    0.421    0.432
     .C01D02Q1            0.405    0.033   12.117    0.000    0.405    0.415
     .C01D02Q9            0.366    0.032   11.367    0.000    0.366    0.376
      C01D02             0.409    0.052    7.794    0.000    1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean    sd median_r
      0.84      0.84    0.81      0.51 5.2 0.011 1.5e-16 0.77      0.5

 lower alpha upper     95% confidence boundaries
0.82 0.84 0.86

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se  var.r med.r
C01D02Q7       0.82      0.82    0.78      0.53 4.5    0.013 0.0049  0.55
C01D02Q10      0.83      0.83    0.79      0.55 4.8    0.012 0.0027  0.55
C01D02Q0       0.80      0.80    0.75      0.49 3.9    0.014 0.0046  0.50
C01D02Q1       0.79      0.79    0.75      0.49 3.8    0.015 0.0044  0.50
C01D02Q9       0.79      0.79    0.74      0.48 3.7    0.015 0.0046  0.47

 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
C01D02Q7  532  0.74  0.74  0.64   0.59 -1.9e-17 0.99
C01D02Q10 532  0.72  0.72  0.61   0.56  2.3e-16 0.99
C01D02Q0  532  0.80  0.80  0.74   0.67  1.4e-16 0.99
C01D02Q1  532  0.81  0.81  0.75   0.68  4.8e-16 0.99
C01D02Q9  532  0.82  0.82  0.77   0.71 -5.9e-17 0.99
```

C01D03 Natural Appearance

Definition: The extent to which a user believes that the social agent's appearance could exist in or be derived from nature

```
lavaan 0.6-8 ended normally after 24 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10


  Number of observations                           532


Model Test User Model:

  Test statistic                                 6.699
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.244

Model Test Baseline Model:

  Test statistic                               495.152
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.996
  Tucker-Lewis Index (TLI)                       0.993

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3494.681
  Loglikelihood unrestricted model (H1)      -3491.332


  Akaike (AIC)                                7009.363
  Bayesian (BIC)                              7052.129
```

```
    Sample-size adjusted Bayesian (BIC)              7020.386

Root Mean Square Error of Approximation:

  RMSEA                                              0.025
  90 Percent confidence interval - lower             0.000
  90 Percent confidence interval - upper             0.069
  P-value RMSEA <= 0.05                              0.783

Standardized Root Mean Square Residual:

  SRMR                                               0.019

Parameter Estimates:

  Standard errors                                 Standard
  Information                                     Expected
  Information saturated (h1) model              Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C01D03 =~
    C01D03Q7        1.000                                0.557    0.565
    C01D03Q9        1.110    0.113    9.835    0.000      0.619    0.627
    C01D03Q11       1.316    0.126   10.464    0.000      0.733    0.743
    C01D03Q10       0.830    0.102    8.131    0.000      0.463    0.469
    C01D03Q12       1.016    0.109    9.338    0.000      0.566    0.574

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C01D03Q7       0.663    0.048   13.762    0.000      0.663    0.681
   .C01D03Q9       0.591    0.046   12.726    0.000      0.591    0.607
   .C01D03Q11      0.436    0.045    9.584    0.000      0.436    0.448
   .C01D03Q10      0.760    0.051   14.803    0.000      0.760    0.780
   .C01D03Q12      0.653    0.048   13.635    0.000      0.653    0.671
    C01D03         0.311    0.051    6.115    0.000      1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase     mean      sd median_r
     0.73      0.73     0.69       0.35 2.7 0.018 7.7e-19 0.69      0.35

 lower alpha upper    95% confidence boundaries
0.69 0.73 0.77

 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r S/N alpha se  var.r med.r
C01D03Q7      0.69      0.69    0.64      0.36 2.3    0.022 0.0072  0.37
C01D03Q9      0.67      0.67    0.61      0.34 2.0    0.023 0.0081  0.34
C01D03Q10     0.72      0.72    0.66      0.39 2.6    0.020 0.0027  0.40
C01D03Q11     0.64      0.64    0.58      0.31 1.8    0.025 0.0037  0.33
C01D03Q12     0.69      0.69    0.64      0.36 2.3    0.022 0.0046  0.35

 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
C01D03Q7  532  0.68  0.68  0.55   0.47 -1.1e-16 0.99
C01D03Q9  532  0.72  0.72  0.62   0.53 -4.5e-16 0.99
C01D03Q10 532  0.62  0.62  0.46   0.39  1.6e-16 0.99
C01D03Q11 532  0.77  0.77  0.70   0.60  9.1e-17 0.99
C01D03Q12 532  0.68  0.68  0.55   0.47  3.0e-16 0.99
```

C01D04 Natural Behavior

Definition: The extent to which a user believes that the social agent's behaviour could exist in or be derived from nature

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6

  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               198.316
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2144.187
  Loglikelihood unrestricted model (H1)      -2144.187

  Akaike (AIC)                                4300.374
  Bayesian (BIC)                              4326.033
  Sample-size adjusted Bayesian (BIC)         4306.988

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.000
  P-value RMSEA <= 0.05                             NA

Standardized Root Mean Square Residual:

  SRMR                                           0.000

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C01D04 =~
    C01D04Q0          1.000                                0.352    0.356
    C01D04Q13         1.896    0.317    5.976    0.000     0.667    0.676
    C01D04Q15         2.064    0.368    5.610    0.000     0.726    0.736

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C01D04Q0         0.850    0.056   15.151    0.000     0.850    0.873
   .C01D04Q13        0.529    0.081    6.494    0.000     0.529    0.543
   .C01D04Q15        0.447    0.093    4.822    0.000     0.447    0.459
    C01D04           0.124    0.036    3.458    0.001     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N  ase    mean   sd median_r
```

```
        0.6        0.6    0.52      0.33 1.5 0.03 1.1e-17 0.74      0.26

 lower alpha upper     95% confidence boundaries
0.54 0.6 0.66

 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
C01D04Q0      0.66      0.66    0.50      0.50 1.98    0.029   NA  0.50
C01D04Q13     0.42      0.42    0.26      0.26 0.71    0.051   NA  0.26
C01D04Q15     0.39      0.39    0.24      0.24 0.63    0.053   NA  0.24

 Item statistics
          n raw.r std.r r.cor r.drop    mean   sd
C01D04Q0  532  0.67  0.67  0.36   0.29  1.2e-16 0.99
C01D04Q13 532  0.78  0.78  0.62   0.46 -8.8e-17 0.99
C01D04Q15 532  0.79  0.79  0.64   0.48  1.0e-17 0.99
```

C01D05 Agent's Appearance Suitability

Definition: The extent to which the agent's appearance is suitable for its role

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                     ML
  Optimization method                       NLMINB
  Number of model parameters                     6

  Number of observations                       532

Model Test User Model:

  Test statistic                             0.000
  Degrees of freedom                             0

Model Test Baseline Model:

  Test statistic                           322.357
  Degrees of freedom                             3
  P-value                                    0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                1.000
  Tucker-Lewis Index (TLI)                   1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)          -2082.166
  Loglikelihood unrestricted model (H1)  -2082.166

  Akaike (AIC)                            4176.332
  Bayesian (BIC)                          4201.992
  Sample-size adjusted Bayesian (BIC)     4182.946

Root Mean Square Error of Approximation:

  RMSEA                                      0.000
  90 Percent confidence interval - lower     0.000
  90 Percent confidence interval - upper     0.000
  P-value RMSEA <= 0.05                          NA

Standardized Root Mean Square Residual:

  SRMR                                       0.000

Parameter Estimates:

  Standard errors                         Standard
```

```
    Information                                    Expected
    Information saturated (h1) model            Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C01D05 =~
    C01D05Q0        1.000                                 0.630    0.639
    C01D05Q2        1.129    0.109   10.382    0.000    0.711    0.721
    C01D05Q9        1.086    0.104   10.456    0.000    0.685    0.694

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C01D05Q0        0.577    0.049   11.754    0.000    0.577    0.592
   .C01D05Q2        0.468    0.052    8.998    0.000    0.468    0.480
   .C01D05Q9        0.505    0.051    9.963    0.000    0.505    0.519
    C01D05          0.397    0.059    6.741    0.000    1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean   sd median_r
     0.73      0.73     0.64      0.47 2.6 0.021 2.2e-16 0.79     0.46

 lower alpha upper     95% confidence boundaries
0.68 0.73 0.77

 Reliability if an item is dropped:
        raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C01D05Q2     0.61      0.61    0.44      0.44 1.6    0.033   NA  0.44
C01D05Q9     0.63      0.63    0.46      0.46 1.7    0.032   NA  0.46
C01D05Q0     0.67      0.67    0.50      0.50 2.0    0.029   NA  0.50

 Item statistics
          n raw.r std.r r.cor r.drop   mean    sd
C01D05Q2 532  0.81  0.81  0.67   0.57 1.5e-16 0.99
C01D05Q9 532  0.81  0.81  0.65   0.55 4.2e-16 0.99
C01D05Q0 532  0.79  0.79  0.61   0.52 8.7e-17 0.99
```

C02 Agent's Usability

Definition: The extent to which a user believes that using an agent will be free from effort (future process)

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6

  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               319.693
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:
```

```
   Loglikelihood user model (H0)                     -2083.498
   Loglikelihood unrestricted model (H1)             -2083.498

   Akaike (AIC)                                       4178.996
   Bayesian (BIC)                                     4204.656
   Sample-size adjusted Bayesian (BIC)                4185.610

Root Mean Square Error of Approximation:

   RMSEA                                                 0.000
   90 Percent confidence interval - lower                0.000
   90 Percent confidence interval - upper                0.000
   P-value RMSEA <= 0.05                                    NA

Standardized Root Mean Square Residual:

   SRMR                                                  0.000

Parameter Estimates:

   Standard errors                                    Standard
   Information                                        Expected
   Information saturated (h1) model                 Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   C02 =~
     C02D00Q1         1.000                                0.734    0.744
     C02D00Q2         0.889    0.087   10.255    0.000     0.653    0.662
     C02D00Q8         0.864    0.085   10.229    0.000     0.635    0.643

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C02D00Q1        0.435    0.054    8.082    0.000     0.435    0.447
    .C02D00Q2        0.547    0.050   10.963    0.000     0.547    0.562
    .C02D00Q8        0.571    0.049   11.547    0.000     0.571    0.587
     C02             0.539    0.071    7.591    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase      mean    sd median_r
     0.72      0.72     0.64      0.47 2.6 0.021 -1.3e-16 0.79      0.48

 lower alpha upper     95% confidence boundaries
0.68 0.72 0.76

 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C02D00Q1      0.60      0.60    0.43      0.43 1.5    0.035    NA  0.43
C02D00Q2      0.65      0.65    0.48      0.48 1.8    0.031    NA  0.48
C02D00Q8      0.66      0.66    0.49      0.49 1.9    0.030    NA  0.49

 Item statistics
           n raw.r std.r r.cor r.drop    mean   sd
C02D00Q1 532  0.82  0.82  0.68   0.57  5.7e-17 0.99
C02D00Q2 532  0.80  0.80  0.63   0.53 -1.6e-16 0.99
C02D00Q8 532  0.79  0.79  0.61   0.52 -2.9e-16 0.99
```

C03 Performance

Definition: The extent to which a task was well performed (past performance)

```
lavaan 0.6-8 ended normally after 20 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6
```

```
   Number of observations                         532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               255.247
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2115.721
  Loglikelihood unrestricted model (H1)      -2115.721

  Akaike (AIC)                                4243.442
  Bayesian (BIC)                              4269.102
  Sample-size adjusted Bayesian (BIC)         4250.056

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.000
  P-value RMSEA <= 0.05                             NA

Standardized Root Mean Square Residual:

  SRMR                                           0.000

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C03 =~
    C03D01Q7          1.000                                0.699    0.708
    C03D01Q12         0.763    0.089    8.539    0.000     0.533    0.540
    C03D02Q10         0.968    0.113    8.543    0.000     0.676    0.685

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C03D01Q7         0.486    0.061    7.980    0.000     0.486    0.499
   .C03D01Q12        0.690    0.052   13.174    0.000     0.690    0.708
   .C03D02Q10        0.517    0.059    8.767    0.000     0.517    0.531
    C03              0.488    0.074    6.585    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase     mean   sd median_r
     0.68      0.68     0.59      0.41 2.1 0.024 -4.1e-17 0.77     0.38

 lower alpha upper     95% confidence boundaries
0.63 0.68 0.73
```

```
 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C03D01Q7       0.54      0.54    0.37      0.37 1.2    0.040    NA  0.37
C03D01Q12      0.65      0.65    0.49      0.49 1.9    0.030    NA  0.49
C03D02Q10      0.55      0.55    0.38      0.38 1.2    0.039    NA  0.38


 Item statistics
             n raw.r std.r r.cor r.drop    mean   sd
C03D01Q7   532  0.80  0.80  0.64   0.52  1.3e-18 0.99
C03D01Q12  532  0.75  0.75  0.53   0.44  5.7e-17 0.99
C03D02Q10  532  0.79  0.79  0.63   0.51 -1.8e-16 0.99
```

C04 Agent's Likeability

Definition: The agent's qualities that bring about a favourable regard

```
lavaan 0.6-8 ended normally after 24 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10


  Number of observations                           532

Model Test User Model:

  Test statistic                                24.827
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.000

Model Test Baseline Model:

  Test statistic                               897.181
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.978
  Tucker-Lewis Index (TLI)                       0.955

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3302.731
  Loglikelihood unrestricted model (H1)      -3290.317

  Akaike (AIC)                                6625.462
  Bayesian (BIC)                              6668.228
  Sample-size adjusted Bayesian (BIC)         6636.485

Root Mean Square Error of Approximation:

  RMSEA                                          0.086
  90 Percent confidence interval - lower         0.054
  90 Percent confidence interval - upper         0.122
  P-value RMSEA <= 0.05                          0.032

Standardized Root Mean Square Residual:

  SRMR                                           0.034

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
```

```
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C04 =~
    C04D00Q1        1.000                                0.590    0.598
    C04D00Q10       1.490    0.105   14.147    0.000     0.879    0.890
    R_C04D00Q11     1.355    0.098   13.811    0.000     0.799    0.810
    C04D00Q4        0.704    0.083    8.456    0.000     0.415    0.421
    C04D00Q12       1.006    0.089   11.305    0.000     0.593    0.601

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C04D00Q1        0.626    0.042   14.951    0.000     0.626    0.643
   .C04D00Q10       0.202    0.030    6.669    0.000     0.202    0.207
   .R_C04D00Q11     0.335    0.031   10.715    0.000     0.335    0.344
   .C04D00Q4        0.801    0.051   15.802    0.000     0.801    0.823
   .C04D00Q12       0.622    0.042   14.923    0.000     0.622    0.638
    C04             0.348    0.049    7.143    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase  mean   sd median_r
      0.8       0.8     0.78      0.44   4 0.014 9e-17 0.73     0.47

 lower alpha upper     95% confidence boundaries
0.77 0.8 0.83

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C04D00Q1       0.76      0.76    0.74      0.45 3.2    0.017 0.029  0.43
C04D00Q10      0.71      0.71    0.66      0.38 2.4    0.021 0.010  0.38
R_C04D00Q11    0.73      0.73    0.69      0.41 2.7    0.019 0.012  0.43
C04D00Q4       0.82      0.82    0.79      0.53 4.5    0.013 0.011  0.49
C04D00Q12      0.77      0.77    0.74      0.45 3.3    0.017 0.027  0.42

 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
C04D00Q1    532  0.74  0.74  0.63   0.57  1.7e-16 0.99
C04D00Q10   532  0.85  0.85  0.84   0.74  1.9e-16 0.99
R_C04D00Q11 532  0.80  0.80  0.77   0.66 -1.0e-17 0.99
C04D00Q4    532  0.60  0.60  0.43   0.39  1.4e-16 0.99
C04D00Q12   532  0.73  0.73  0.63   0.56 -4.5e-17 0.99
```

C05 Agent's Sociability

Definition: The agent's quality or state of being sociable

```
lavaan 0.6-8 ended normally after 18 iterations

  Estimator                                      ML
  Optimization method                        NLMINB
  Number of model parameters                      6

  Number of observations                        532

Model Test User Model:

  Test statistic                              0.000
  Degrees of freedom                              0

Model Test Baseline Model:

  Test statistic                            305.884
  Degrees of freedom                              3
  P-value                                     0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                 1.000
```

```
   Tucker-Lewis Index (TLI)                            1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                  -2090.403
  Loglikelihood unrestricted model (H1)          -2090.403

  Akaike (AIC)                                    4192.805
  Bayesian (BIC)                                  4218.465
  Sample-size adjusted Bayesian (BIC)             4199.419

Root Mean Square Error of Approximation:

  RMSEA                                              0.000
  90 Percent confidence interval - lower             0.000
  90 Percent confidence interval - upper             0.000
  P-value RMSEA <= 0.05                                 NA

Standardized Root Mean Square Residual:

  SRMR                                               0.000

Parameter Estimates:

  Standard errors                               Standard
  Information                                   Expected
  Information saturated (h1) model              Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C05 =~
    C05D00Q6        1.000                                0.762    0.772
    C05D00Q7        0.865    0.090    9.646    0.000      0.659    0.668
    C05D00Q1        0.750    0.079    9.451    0.000      0.572    0.579

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C05D00Q6        0.393    0.059    6.622    0.000      0.393    0.404
   .C05D00Q7        0.540    0.052   10.311    0.000      0.540    0.554
   .C05D00Q1        0.647    0.050   12.925    0.000      0.647    0.664
    C05             0.581    0.077    7.545    0.000      1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean   sd median_r
     0.71      0.71     0.63      0.45   2.5 0.022 4.7e-17 0.79     0.45

 lower alpha upper     95% confidence boundaries
0.67 0.71 0.75

 Reliability if an item is dropped:
        raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C05D00Q6     0.56      0.56    0.39      0.39 1.3    0.038    NA  0.39
C05D00Q7     0.62      0.62    0.45      0.45 1.6    0.033    NA  0.45
C05D00Q1     0.68      0.68    0.52      0.52 2.1    0.028    NA  0.52

 Item statistics
          n raw.r std.r r.cor r.drop    mean   sd
C05D00Q6 532  0.82  0.82  0.69   0.58  8.9e-17 0.99
C05D00Q7 532  0.80  0.80  0.63   0.53 -2.3e-17 0.99
C05D00Q1 532  0.77  0.77  0.57   0.48  8.3e-17 0.99
```

C06 Agent's Personality

Definition: The combination of characteristics or qualities that form an individual's distinctive character

C06D01 Agent's Personality Presence
Definition: To what extent the user believes that the agent has a personality

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6

  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               166.434
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2160.128
  Loglikelihood unrestricted model (H1)      -2160.128

  Akaike (AIC)                                4332.255
  Bayesian (BIC)                              4357.915
  Sample-size adjusted Bayesian (BIC)         4338.869

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.000
  P-value RMSEA <= 0.05                             NA

Standardized Root Mean Square Residual:

  SRMR                                           0.000

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C06D01 =~
    C06D01Q1          1.000                               0.679    0.688
    R_C06D01Q6        0.848    0.137    6.177    0.000     0.576    0.584
    C06D01Q11         0.680    0.109    6.218    0.000     0.461    0.468

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C06D01Q1         0.513    0.079    6.516    0.000     0.513    0.527
   .R_C06D01Q6       0.642    0.065    9.852    0.000     0.642    0.659
   .C06D01Q11        0.761    0.057   13.267    0.000     0.761    0.781
    C06D01           0.461    0.088    5.223    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N  ase      mean   sd median_r
      0.6       0.6     0.5       0.33 1.5 0.03 -1.2e-16 0.74     0.32

 lower alpha upper     95% confidence boundaries
0.54 0.6 0.66

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
C06D01Q1       0.43      0.43    0.27      0.27 0.75    0.050    NA  0.27
R_C06D01Q6     0.49      0.49    0.32      0.32 0.95    0.045    NA  0.32
C06D01Q11      0.57      0.57    0.40      0.40 1.34    0.037    NA  0.40

 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
C06D01Q1   532  0.77  0.77  0.59   0.45  1.2e-16 0.99
R_C06D01Q6 532  0.75  0.75  0.54   0.41 -2.6e-16 0.99
C06D01Q11  532  0.71  0.71  0.46   0.36 -2.1e-16 0.99
```

C07 User Acceptance of the Agent
Definition: The willingness of the user to interact with the agent

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6

  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               266.900
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2109.894
  Loglikelihood unrestricted model (H1)      -2109.894

  Akaike (AIC)                                4231.789
  Bayesian (BIC)                              4257.449
  Sample-size adjusted Bayesian (BIC)         4238.403

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.000
  P-value RMSEA <= 0.05                             NA

Standardized Root Mean Square Residual:

  SRMR                                           0.000
```

```
Parameter Estimates:

  Standard errors                                 Standard
  Information                                     Expected
  Information saturated (h1) model                Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C07 =~
    C07D00Q0          1.000                                0.790    0.801
    C07D00Q11         0.887    0.126    7.025    0.000      0.701    0.710
    R_C07D00Q15       0.473    0.074    6.403    0.000      0.373    0.379

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C07D00Q0         0.350    0.087    4.006    0.000      0.350    0.359
   .C07D00Q11        0.483    0.073    6.628    0.000      0.483    0.496
   .R_C07D00Q15      0.834    0.055   15.297    0.000      0.834    0.857
    C07              0.624    0.101    6.158    0.000      1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase      mean   sd median_r
     0.65      0.65     0.58      0.38 1.8 0.027 -1.7e-16 0.76      0.3

 lower alpha upper     95% confidence boundaries
0.6 0.65 0.7

 Reliability if an item is dropped:
            raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
C07D00Q0         0.42      0.42    0.27      0.27 0.73    0.050    NA  0.27
C07D00Q11        0.47      0.47    0.30      0.30 0.87    0.046    NA  0.30
R_C07D00Q15      0.72      0.72    0.57      0.57 2.63    0.024    NA  0.57

 Item statistics
             n raw.r std.r r.cor r.drop     mean   sd
C07D00Q0    532  0.81  0.81  0.70   0.55 -4.3e-16 0.99
C07D00Q11   532  0.80  0.80  0.67   0.52  5.7e-17 0.99
R_C07D00Q15 532  0.68  0.68  0.39   0.32 -1.5e-16 0.99
```

C08 Agent's Enjoyability

Definition: The extent to which a user finds interacting with the agent enjoyable

```
lavaan 0.6-8 ended normally after 21 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8

  Number of observations                           532

Model Test User Model:

  Test statistic                                 4.267
  Degrees of freedom                                 2
  P-value (Chi-square)                           0.118

Model Test Baseline Model:

  Test statistic                               362.171
  Degrees of freedom                                 6
  P-value                                        0.000

User Model versus Baseline Model:
```

```
   Comparative Fit Index (CFI)                           0.994
   Tucker-Lewis Index (TLI)                              0.981


Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2812.174
  Loglikelihood unrestricted model (H1)      -2810.041

  Akaike (AIC)                                5640.348
  Bayesian (BIC)                              5674.561
  Sample-size adjusted Bayesian (BIC)         5649.167

Root Mean Square Error of Approximation:

  RMSEA                                         0.046
  90 Percent confidence interval - lower        0.000
  90 Percent confidence interval - upper        0.108
  P-value RMSEA <= 0.05                         0.442

Standardized Root Mean Square Residual:

  SRMR                                          0.019

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model           Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C08 =~
    R_C08D00Q3      1.000                                0.680    0.689
    C08D00Q4        1.038    0.100   10.386    0.000     0.706    0.716
    R_C08D00Q9      0.765    0.083    9.225    0.000     0.521    0.528
    C08D00Q0        0.721    0.082    8.815    0.000     0.490    0.497

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .R_C08D00Q3     0.511    0.050   10.139    0.000     0.511    0.525
   .C08D00Q4       0.475    0.051    9.270    0.000     0.475    0.488
   .R_C08D00Q9     0.703    0.051   13.848    0.000     0.703    0.722
   .C08D00Q0       0.733    0.052   14.231    0.000     0.733    0.753
    C08            0.463    0.064    7.191    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase   mean   sd median_r
      0.7       0.7      0.64      0.37  2.3 0.021 8.5e-17 0.72     0.36


 lower alpha upper     95% confidence boundaries
0.66 0.7 0.74


 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se    var.r med.r
R_C08D00Q3     0.61      0.61    0.51      0.34 1.6   0.029  0.00067  0.36
C08D00Q4       0.60      0.60    0.50      0.33 1.5   0.030  0.00082  0.32
C08D00Q0       0.67      0.67    0.59      0.41 2.1   0.025  0.00711  0.36
R_C08D00Q9     0.66      0.66    0.58      0.39 1.9   0.026  0.01001  0.36


 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
R_C08D00Q3 532  0.75  0.75  0.64   0.53  1.5e-16 0.99
C08D00Q4   532  0.76  0.76  0.66   0.55 -1.1e-17 0.99
C08D00Q0   532  0.68  0.68  0.50   0.42  1.2e-16 0.99
R_C08D00Q9 532  0.70  0.70  0.53   0.45  6.2e-17 0.99
```

C09 User's Engagement

Definition: The extent to which the user feels involved in the interaction with the agent

```
lavaan 0.6-8 ended normally after 21 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6

  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               285.118
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2100.785
  Loglikelihood unrestricted model (H1)      -2100.785

  Akaike (AIC)                                4213.571
  Bayesian (BIC)                              4239.231
  Sample-size adjusted Bayesian (BIC)         4220.185

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.000
  P-value RMSEA <= 0.05                             NA

Standardized Root Mean Square Residual:

  SRMR                                           0.000

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C09 =~
    C09D00Q4          1.000                                0.615    0.623
    C09D00Q10         1.126    0.118    9.572    0.000     0.693    0.702
    C09D00Q1          1.074    0.111    9.668    0.000     0.661    0.670

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C09D00Q4          0.595    0.051   11.608    0.000     0.595    0.611
   .C09D00Q10         0.494    0.055    9.010    0.000     0.494    0.507
   .C09D00Q1          0.537    0.053   10.131    0.000     0.537    0.552
    C09               0.378    0.059    6.368    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase      mean   sd median_r
      0.7       0.7    0.61      0.44 2.4 0.022 -8.7e-17 0.78     0.44

 lower alpha upper    95% confidence boundaries
0.66 0.7 0.75

 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C09D00Q4      0.64      0.64    0.47      0.47 1.8    0.031    NA  0.47
C09D00Q10     0.59      0.59    0.42      0.42 1.4    0.036    NA  0.42
C09D00Q1      0.61      0.61    0.44      0.44 1.6    0.034    NA  0.44

 Item statistics
           n raw.r std.r r.cor r.drop    mean   sd
C09D00Q4  532  0.78  0.78  0.59   0.50  1.8e-16 0.99
C09D00Q10 532  0.80  0.80  0.64   0.54 -6.5e-17 0.99
C09D00Q1  532  0.79  0.79  0.62   0.52 -3.8e-16 0.99
```

C10 User's Trust

Definition: The extent to which a user believes in the reliability, truthfulness, and ability of the agent (for future interactions)

```
lavaan 0.6-8 ended normally after 24 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6


  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               238.367
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2124.161
  Loglikelihood unrestricted model (H1)      -2124.161

  Akaike (AIC)                                4260.322
  Bayesian (BIC)                              4285.982
  Sample-size adjusted Bayesian (BIC)         4266.936

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.000
  P-value RMSEA <= 0.05                              NA

Standardized Root Mean Square Residual:
```

```
   SRMR                                          0.000


Parameter Estimates:

  Standard errors                            Standard
  Information                                Expected
  Information saturated (h1) model          Structured


Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C10 =~
    C10D00Q6         1.000                                0.513    0.520
    C10D00Q16        1.256    0.151    8.328    0.000      0.644    0.653
    C10D00Q18        1.398    0.176    7.940    0.000      0.717    0.727

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C10D00Q6        0.711    0.053   13.330    0.000      0.711    0.730
   .C10D00Q16       0.559    0.059    9.411    0.000      0.559    0.574
   .C10D00Q18       0.460    0.066    6.931    0.000      0.460    0.472
    C10             0.263    0.051    5.148    0.000      1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean    sd median_r
     0.66      0.66     0.57       0.4   2 0.025 9.5e-17 0.76     0.38

 lower alpha upper     95% confidence boundaries
0.61 0.66 0.71


 Reliability if an item is dropped:
        raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C10D00Q6      0.64      0.64    0.47      0.47 1.8    0.031    NA  0.47
C10D00Q16     0.55      0.55    0.38      0.38 1.2    0.039    NA  0.38
C10D00Q18     0.51      0.51    0.34      0.34 1.0    0.043    NA  0.34


 Item statistics
           n raw.r std.r r.cor r.drop   mean   sd
C10D00Q6 532  0.74  0.74  0.51   0.42 7.6e-17 0.99
C10D00Q16 532 0.78  0.78  0.61   0.49 3.9e-18 0.99
C10D00Q18 532 0.80  0.80  0.64   0.52 2.1e-16 0.99
```

C11 User-Agent Alliance

Definition: The extent to which a beneficial association is formed

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                     ML
  Optimization method                       NLMINB
  Number of model parameters                    12


  Number of observations                       532


Model Test User Model:

  Test statistic                            33.475
  Degrees of freedom                             9
  P-value (Chi-square)                       0.000

Model Test Baseline Model:

  Test statistic                           650.302
  Degrees of freedom                            15
  P-value                                    0.000


User Model versus Baseline Model:
```

```
   Comparative Fit Index (CFI)                      0.961
   Tucker-Lewis Index (TLI)                         0.936


Loglikelihood and Information Criteria:

   Loglikelihood user model (H0)            -4178.276
   Loglikelihood unrestricted model (H1)    -4161.538

   Akaike (AIC)                              8380.552
   Bayesian (BIC)                            8431.872
   Sample-size adjusted Bayesian (BIC)       8393.780

Root Mean Square Error of Approximation:

   RMSEA                                        0.071
   90 Percent confidence interval - lower       0.047
   90 Percent confidence interval - upper       0.098
   P-value RMSEA <= 0.05                         0.075

Standardized Root Mean Square Residual:

   SRMR                                         0.036

Parameter Estimates:

   Standard errors                           Standard
   Information                               Expected
   Information saturated (h1) model         Structured

Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   C11 =~
     C11D01Q9       1.000                                0.598    0.606
     C11D01Q10      1.031    0.099   10.449    0.000     0.617    0.625
     C11D01Q11      0.944    0.096    9.858    0.000     0.565    0.572
     C11D01Q14      0.948    0.096    9.888    0.000     0.567    0.575
     C11D02Q4       0.963    0.096    9.992    0.000     0.576    0.584
     C11D02Q7       0.989    0.097   10.169    0.000     0.591    0.599

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C11D01Q9      0.616    0.046   13.369    0.000     0.616    0.633
    .C11D01Q10     0.593    0.045   13.058    0.000     0.593    0.609
    .C11D01Q11     0.655    0.047   13.847    0.000     0.655    0.672
    .C11D01Q14     0.652    0.047   13.815    0.000     0.652    0.669
    .C11D02Q4      0.642    0.047   13.696    0.000     0.642    0.659
    .C11D02Q7      0.624    0.046   13.474    0.000     0.624    0.641
     C11           0.358    0.053    6.720    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase     mean   sd median_r
     0.77      0.77     0.74     0.35   3.3 0.016 -4.2e-17 0.67     0.35


 lower alpha upper     95% confidence boundaries
0.73 0.77 0.8


 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se  var.r med.r
C11D01Q9      0.73      0.73     0.69     0.35  2.7    0.019 0.0014  0.35
C11D01Q10     0.72      0.72     0.69     0.35  2.6    0.019 0.0026  0.35
C11D01Q11     0.74      0.74     0.69     0.36  2.8    0.018 0.0017  0.35
C11D01Q14     0.74      0.74     0.69     0.36  2.8    0.018 0.0018  0.35
C11D02Q4      0.73      0.73     0.70     0.35  2.7    0.018 0.0031  0.35
C11D02Q7      0.73      0.73     0.69     0.35  2.7    0.019 0.0026  0.35
```

```
 Item statistics
            n raw.r std.r r.cor r.drop     mean    sd
C11D01Q9  532  0.69  0.69   0.60   0.52 -2.1e-16  0.99
C11D01Q10 532  0.70  0.70   0.61   0.53  1.7e-17  0.99
C11D01Q11 532  0.66  0.66   0.56   0.49  2.4e-16  0.99
C11D01Q14 532  0.67  0.67   0.56   0.49 -2.1e-16  0.99
C11D02Q4  532  0.67  0.67   0.57   0.50 -1.1e-16  0.99
C11D02Q7  532  0.68  0.68   0.59   0.52  2.9e-17  0.99
```

C12 Agent's Attentiveness

Definition: The extent to which the user believes that the agent is aware of and has attention for the user

```
lavaan 0.6-8 ended normally after 20 iterations

  Estimator                                        ML
  Optimization method                          NLMINB
  Number of model parameters                        6

  Number of observations                          532

Model Test User Model:

  Test statistic                                0.000
  Degrees of freedom                                0

Model Test Baseline Model:

  Test statistic                              315.358
  Degrees of freedom                                3
  P-value                                       0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                   1.000
  Tucker-Lewis Index (TLI)                      1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -2085.666
  Loglikelihood unrestricted model (H1)     -2085.666

  Akaike (AIC)                               4183.331
  Bayesian (BIC)                             4208.991
  Sample-size adjusted Bayesian (BIC)        4189.945

Root Mean Square Error of Approximation:

  RMSEA                                         0.000
  90 Percent confidence interval - lower        0.000
  90 Percent confidence interval - upper        0.000
  P-value RMSEA <= 0.05                            NA

Standardized Root Mean Square Residual:

  SRMR                                          0.000

Parameter Estimates:

  Standard errors                            Standard
  Information                                Expected
  Information saturated (h1) model         Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C12 =~
    C12D00Q0          1.000                               0.704    0.713
    C12D00Q1          0.974    0.095   10.261    0.000     0.685    0.694
```

```
     C12D00Q13           0.891    0.087    10.248    0.000     0.627     0.636

Variances:
                    Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C12D00Q0          0.479    0.052    9.168    0.000    0.479    0.492
    .C12D00Q1          0.504    0.051    9.824    0.000    0.504    0.518
    .C12D00Q13         0.580    0.049   11.739    0.000    0.580    0.596
     C12               0.495    0.068    7.323    0.000    1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase     mean   sd median_r
     0.72      0.72     0.63      0.46 2.6 0.021 -9.4e-17 0.79     0.45

 lower alpha upper    95% confidence boundaries
0.68 0.72 0.76

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C12D00Q0       0.61      0.61    0.44      0.44 1.6    0.034    NA  0.44
C12D00Q13      0.66      0.66    0.50      0.50 2.0    0.029    NA  0.50
C12D00Q1       0.62      0.62    0.45      0.45 1.7    0.033    NA  0.45

 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
C12D00Q0  532  0.81  0.81  0.66   0.56 -1.7e-16 0.99
C12D00Q13 532  0.79  0.79  0.61   0.52 -3.2e-16 0.99
C12D00Q1  532  0.81  0.81  0.65   0.55  2.2e-16 0.99
```

C13 Agent's Coherence

Definition: The extent to which the agent is perceived as being logical and consistent

```
lavaan 0.6-8 ended normally after 22 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8

  Number of observations                           532

Model Test User Model:

  Test statistic                                 2.222
  Degrees of freedom                                 2
  P-value (Chi-square)                           0.329

Model Test Baseline Model:

  Test statistic                               317.338
  Degrees of freedom                                 6
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.999
  Tucker-Lewis Index (TLI)                       0.998

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2833.568
  Loglikelihood unrestricted model (H1)      -2832.457

  Akaike (AIC)                                5683.136
  Bayesian (BIC)                              5717.350
  Sample-size adjusted Bayesian (BIC)         5691.955
```

```
Root Mean Square Error of Approximation:

  RMSEA                                             0.014
  90 Percent confidence interval - lower            0.000
  90 Percent confidence interval - upper            0.089
  P-value RMSEA <= 0.05                             0.689

Standardized Root Mean Square Residual:

  SRMR                                              0.013

Parameter Estimates:

  Standard errors                           Standard
  Information                               Expected
  Information saturated (h1) model          Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C13 =~
    R_C13D00Q11    1.000                                0.665    0.674
    R_C13D00Q6     0.707    0.086    8.263    0.000      0.471    0.477
    R_C13D00Q15    0.698    0.085    8.175    0.000      0.464    0.470
    R_C13D00Q3     1.063    0.111    9.548    0.000      0.707    0.717

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .R_C13D00Q11    0.531    0.053    9.976    0.000      0.531    0.545
   .R_C13D00Q6     0.752    0.053   14.282    0.000      0.752    0.772
   .R_C13D00Q15    0.758    0.053   14.357    0.000      0.758    0.779
   .R_C13D00Q3     0.473    0.055    8.569    0.000      0.473    0.486
    C13            0.443    0.065    6.772    0.000      1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase      mean  sd median_r
     0.67      0.67     0.62      0.34 2.1 0.023 -1.7e-16 0.7     0.32

 lower alpha upper    95% confidence boundaries
0.63 0.67 0.72

 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r S/N alpha se  var.r med.r
R_C13D00Q3     0.55      0.55    0.45      0.29 1.2    0.034 0.0018  0.30
R_C13D00Q11    0.57      0.57    0.47      0.31 1.3    0.032 0.0029  0.32
R_C13D00Q6     0.65      0.65    0.56      0.38 1.8    0.027 0.0090  0.33
R_C13D00Q15    0.65      0.65    0.56      0.38 1.8    0.027 0.0096  0.35

 Item statistics
             n raw.r std.r r.cor r.drop     mean   sd
R_C13D00Q3  532  0.76  0.76  0.66   0.53 -1.7e-16 0.99
R_C13D00Q11 532  0.75  0.75  0.63   0.51 -1.4e-16 0.99
R_C13D00Q6  532  0.67  0.67  0.47   0.39 -4.6e-17 0.99
R_C13D00Q15 532  0.67  0.67  0.47   0.39 -2.9e-16 0.99
```

C14 Agent's Intentionality
Definition: The extent to which the agent is perceived as being deliberate and has deliberations

```
lavaan 0.6-8 ended normally after 27 iterations

  Estimator                                        ML
  Optimization method                          NLMINB
  Number of model parameters                        8

  Number of observations                          532
```

```
Model Test User Model:

  Test statistic                               2.644
  Degrees of freedom                               2
  P-value (Chi-square)                         0.267

Model Test Baseline Model:

  Test statistic                             347.610
  Degrees of freedom                               6
  P-value                                      0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                  0.998
  Tucker-Lewis Index (TLI)                     0.994

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)            -2818.643
  Loglikelihood unrestricted model (H1)    -2817.321

  Akaike (AIC)                              5653.287
  Bayesian (BIC)                            5687.500
  Sample-size adjusted Bayesian (BIC)       5662.105

Root Mean Square Error of Approximation:

  RMSEA                                        0.025
  90 Percent confidence interval - lower       0.000
  90 Percent confidence interval - upper       0.093
  P-value RMSEA <= 0.05                        0.632

Standardized Root Mean Square Residual:

  SRMR                                         0.015

Parameter Estimates:

  Standard errors                           Standard
  Information                               Expected
  Information saturated (h1) model        Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C14 =~
    C14D00Q0       1.000                                0.460    0.466
    C14D00Q10      1.777    0.213    8.328    0.000     0.817    0.828
    C14D00Q16      0.946    0.133    7.128    0.000     0.435    0.441
    R_C14D00Q13    1.344    0.157    8.589    0.000     0.618    0.627

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C14D00Q0      0.762    0.052   14.711    0.000     0.762    0.783
   .C14D00Q10     0.306    0.062    4.933    0.000     0.306    0.314
   .C14D00Q16     0.784    0.052   14.948    0.000     0.784    0.805
   .R_C14D00Q13   0.591    0.050   11.725    0.000     0.591    0.607
    C14           0.212    0.043    4.879    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase     mean  sd median_r
     0.68      0.68     0.63      0.34  2.1 0.023 -1.3e-16 0.7     0.34

 lower alpha upper    95% confidence boundaries
0.63 0.68 0.72
```

```
 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se  var.r med.r
C14D00Q0        0.65      0.65    0.57      0.38 1.8   0.027 0.0195  0.37
C14D00Q10       0.51      0.51    0.42      0.26 1.1   0.036 0.0019  0.24
R_C14D00Q13     0.59      0.59    0.50      0.33 1.4   0.031 0.0070  0.37
C14D00Q16       0.67      0.67    0.59      0.40 2.0   0.025 0.0117  0.37


 Item statistics
            n raw.r std.r r.cor r.drop    mean    sd
C14D00Q0    532  0.67  0.67  0.48   0.40  1.5e-16 0.99
C14D00Q10   532  0.80  0.80  0.73   0.59 -1.9e-16 0.99
R_C14D00Q13 532  0.73  0.73  0.61   0.48 -1.2e-16 0.99
C14D00Q16   532  0.65  0.65  0.44   0.36 -3.4e-16 0.99
```

C15 Attitude

Definition: A favourable or unfavourable evaluation toward the interaction with the agent

```
lavaan 0.6-8 ended normally after 17 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6


  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               462.358
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2012.166
  Loglikelihood unrestricted model (H1)      -2012.166

  Akaike (AIC)                                4036.331
  Bayesian (BIC)                              4061.991
  Sample-size adjusted Bayesian (BIC)         4042.945

Root Mean Square Error of Approximation:

  RMSEA                                          0.000
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.000
  P-value RMSEA <= 0.05                             NA

Standardized Root Mean Square Residual:

  SRMR                                           0.000

Parameter Estimates:

  Standard errors                             Standard
  Information                                 Expected
  Information saturated (h1) model          Structured
```

```
Latent Variables:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C15 =~
    C15D00Q10       1.000                               0.799    0.810
    C15D00Q11       0.955    0.071   13.359    0.000    0.763    0.773
    R_C15D00Q15     0.783    0.062   12.566    0.000    0.625    0.634

Variances:
                 Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C15D00Q10      0.335    0.045    7.387    0.000    0.335    0.344
   .C15D00Q11      0.391    0.044    8.894    0.000    0.391    0.402
   .R_C15D00Q15    0.583    0.043   13.399    0.000    0.583    0.598
    C15            0.638    0.069    9.236    0.000    1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean   sd median_r
     0.78      0.78     0.71      0.54 3.6 0.017 -1.3e-16 0.82    0.51

 lower alpha upper     95% confidence boundaries
0.75 0.78 0.81

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C15D00Q10      0.66      0.66    0.49      0.49 1.9    0.030    NA  0.49
C15D00Q11      0.68      0.68    0.51      0.51 2.1    0.028    NA  0.51
R_C15D00Q15    0.77      0.77    0.63      0.63 3.3    0.020    NA  0.63

 Item statistics
             n raw.r std.r r.cor r.drop    mean   sd
C15D00Q10   532  0.86  0.86  0.75   0.66 -2.1e-16 0.99
C15D00Q11   532  0.85  0.85  0.73   0.64  2.6e-17 0.99
R_C15D00Q15 532  0.80  0.80  0.62   0.56 -2.2e-16 0.99
```

C16 Social Presence

Definition: The degree to which the user perceives the presence of a social entity in the interaction

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         6

  Number of observations                           532

Model Test User Model:

  Test statistic                                 0.000
  Degrees of freedom                                 0

Model Test Baseline Model:

  Test statistic                               323.780
  Degrees of freedom                                 3
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    1.000
  Tucker-Lewis Index (TLI)                       1.000

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -2081.455
  Loglikelihood unrestricted model (H1)      -2081.455
```

```
   Akaike (AIC)                                     4174.910
   Bayesian (BIC)                                   4200.569
   Sample-size adjusted Bayesian (BIC)              4181.524


Root Mean Square Error of Approximation:

   RMSEA                                                0.000
   90 Percent confidence interval - lower               0.000
   90 Percent confidence interval - upper               0.000
   P-value RMSEA <= 0.05                                   NA

Standardized Root Mean Square Residual:

   SRMR                                                 0.000

Parameter Estimates:

   Standard errors                              Standard
   Information                                  Expected
   Information saturated (h1) model           Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   C16 =~
     C16D00Q13       1.000                                0.771    0.782
     C16D00Q12       0.933    0.097    9.647    0.000      0.720    0.730
     C16D00Q17       0.659    0.072    9.113    0.000      0.508    0.515

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
    .C16D00Q13       0.379    0.061    6.221    0.000      0.379    0.389
    .C16D00Q12       0.455    0.056    8.069    0.000      0.455    0.468
    .C16D00Q17       0.716    0.050   14.253    0.000      0.716    0.735
     C16             0.595    0.079    7.560    0.000      1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean   sd median_r
     0.71      0.71     0.63      0.45 2.4 0.022 1.1e-16 0.79      0.4

 lower alpha upper     95% confidence boundaries
0.67 0.71 0.75

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
C16D00Q12      0.57      0.57    0.40      0.40 1.3    0.037    NA  0.40
C16D00Q13      0.55      0.55    0.38      0.38 1.2    0.039    NA  0.38
C16D00Q17      0.73      0.73    0.57      0.57 2.7    0.024    NA  0.57

 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
C16D00Q12 532  0.82  0.82  0.68   0.56 2.3e-16 0.99
C16D00Q13 532  0.83  0.83  0.71   0.59 8.7e-18 0.99
C16D00Q17 532  0.74  0.74  0.51   0.44 9.3e-17 0.99
```

C17 Interaction Impact on Self-Image
Definition: How the user believes others perceive the user because of the interaction with the agent

```
lavaan 0.6-8 ended normally after 20 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8

  Number of observations                           532
```

```
Model Test User Model:

  Test statistic                               12.356
  Degrees of freedom                                2
  P-value (Chi-square)                          0.002

Model Test Baseline Model:

  Test statistic                              411.769
  Degrees of freedom                                6
  P-value                                       0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                   0.974
  Tucker-Lewis Index (TLI)                      0.923

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)             -2791.420
  Loglikelihood unrestricted model (H1)     -2785.242

  Akaike (AIC)                               5598.839
  Bayesian (BIC)                             5633.053
  Sample-size adjusted Bayesian (BIC)        5607.658

Root Mean Square Error of Approximation:

  RMSEA                                         0.099
  90 Percent confidence interval - lower        0.051
  90 Percent confidence interval - upper        0.155
  P-value RMSEA <= 0.05                          0.047

Standardized Root Mean Square Residual:

  SRMR                                          0.032

Parameter Estimates:

  Standard errors                            Standard
  Information                                Expected
  Information saturated (h1) model         Structured

Latent Variables:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C17 =~
    C17D00Q2       1.000                                0.687    0.696
    C17D00Q3       1.051    0.094   11.169    0.000     0.722    0.732
    C17D00Q9       0.710    0.078    9.063    0.000     0.488    0.494
    C17D00Q10      0.830    0.081   10.235    0.000     0.570    0.578

Variances:
                Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C17D00Q2      0.502    0.048   10.481    0.000     0.502    0.515
   .C17D00Q3      0.452    0.049    9.295    0.000     0.452    0.464
   .C17D00Q9      0.736    0.051   14.445    0.000     0.736    0.756
   .C17D00Q10     0.649    0.049   13.361    0.000     0.649    0.666
    C17           0.472    0.063    7.497    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N  ase    mean   sd median_r
     0.72      0.72    0.67      0.39 2.6 0.02 -4.1e-17 0.73     0.37

 lower alpha upper    95% confidence boundaries
0.68 0.72 0.76
```

```
 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r S/N alpha se   var.r med.r
C17D00Q2       0.64      0.64    0.54      0.37 1.8    0.027 0.00152  0.37
C17D00Q3       0.63      0.63    0.53      0.36 1.7    0.028 0.00087  0.37
C17D00Q9       0.70      0.70    0.62      0.44 2.4    0.022 0.00686  0.41
C17D00Q10      0.66      0.66    0.58      0.40 2.0    0.025 0.01410  0.33

 Item statistics
           n raw.r std.r r.cor r.drop    mean   sd
C17D00Q2  532  0.76  0.76  0.65   0.54  7.9e-17 0.99
C17D00Q3  532  0.77  0.77  0.67   0.56 -1.2e-16 0.99
C17D00Q9  532  0.69  0.69  0.51   0.43 -2.2e-16 0.99
C17D00Q10 532  0.73  0.73  0.58   0.50  8.7e-17 0.99
```

C18 Emotional Experience

Definition: A self-contained phenomenal experience. They are subjective, evaluative, and independent of the sensations, thoughts, or images evoking them

C18D01 Agent's Emotional Intelligence Presence

Definition: To what extent the user believes that the agent has an emotional experience and can convey its emotions

```
lavaan 0.6-8 ended normally after 19 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                        10

  Number of observations                           532

Model Test User Model:

  Test statistic                                15.675
  Degrees of freedom                                 5
  P-value (Chi-square)                           0.008

Model Test Baseline Model:

  Test statistic                              1147.365
  Degrees of freedom                                10
  P-value                                        0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                    0.991
  Tucker-Lewis Index (TLI)                       0.981

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)              -3173.063
  Loglikelihood unrestricted model (H1)      -3165.225

  Akaike (AIC)                                6366.125
  Bayesian (BIC)                              6408.892
  Sample-size adjusted Bayesian (BIC)         6377.149

Root Mean Square Error of Approximation:

  RMSEA                                          0.063
  90 Percent confidence interval - lower         0.030
  90 Percent confidence interval - upper         0.100
  P-value RMSEA <= 0.05                          0.226

Standardized Root Mean Square Residual:

  SRMR                                           0.020
```

```
Parameter Estimates:

  Standard errors                                 Standard
  Information                                     Expected
  Information saturated (h1) model             Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
  C18D01 =~
    C18D01Q2        1.000                                0.748    0.758
    C18D01Q3        1.024    0.059   17.279   0.000      0.766    0.776
    R_C18D01Q5      1.026    0.059   17.311   0.000      0.768    0.778
    C18D01Q8        0.950    0.059   16.029   0.000      0.711    0.721
    R_C18D01Q14     0.936    0.059   15.768   0.000      0.700    0.710

Variances:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
   .C18D01Q2       0.414    0.032   12.813   0.000      0.414    0.425
   .C18D01Q3       0.387    0.031   12.382   0.000      0.387    0.397
   .R_C18D01Q5     0.384    0.031   12.343   0.000      0.384    0.395
   .C18D01Q8       0.468    0.035   13.530   0.000      0.468    0.480
   .R_C18D01Q14    0.484    0.035   13.708   0.000      0.484    0.497
    C18D01         0.560    0.058    9.720   0.000      1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N    ase     mean  sd median_r
     0.86      0.86    0.84      0.56 6.4 0.0093 -1.4e-16 0.8    0.57

 lower alpha upper     95% confidence boundaries
0.85 0.86 0.88

 Reliability if an item is dropped:
          raw_alpha std.alpha G6(smc) average_r S/N alpha se   var.r med.r
C18D01Q2       0.83      0.83    0.79      0.56 5.0    0.012 0.00156  0.56
C18D01Q3       0.83      0.83    0.79      0.55 4.9    0.012 0.00186  0.56
R_C18D01Q5     0.83      0.83    0.79      0.55 4.9    0.012 0.00202  0.56
C18D01Q8       0.84      0.84    0.80      0.57 5.3    0.011 0.00154  0.59
R_C18D01Q14    0.84      0.84    0.80      0.58 5.4    0.011 0.00047  0.58

 Item statistics
            n raw.r std.r r.cor r.drop    mean   sd
C18D01Q2    532  0.81  0.81  0.75   0.69 -1.6e-17 0.99
C18D01Q3    532  0.82  0.82  0.77   0.71 -1.4e-16 0.99
R_C18D01Q5  532  0.82  0.82  0.76   0.71 -6.2e-17 0.99
C18D01Q8    532  0.79  0.79  0.71   0.66 -1.7e-16 0.99
R_C18D01Q14 532  0.78  0.78  0.70   0.65 -3.0e-16 0.99
```

C18D03 User's Emotion Presence

Definition: To what extent the user believes that his/her emotional state is caused by the interaction or the agent

```
lavaan 0.6-8 ended normally after 26 iterations

  Estimator                                         ML
  Optimization method                           NLMINB
  Number of model parameters                         8

  Number of observations                           532

Model Test User Model:

  Test statistic                                 7.827
  Degrees of freedom                                 2
```

```
      P-value (Chi-square)                               0.020

Model Test Baseline Model:

  Test statistic                                    249.152
  Degrees of freedom                                      6
  P-value                                             0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                         0.976
  Tucker-Lewis Index (TLI)                            0.928

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)                   -2870.463
  Loglikelihood unrestricted model (H1)           -2866.550

  Akaike (AIC)                                     5756.927
  Bayesian (BIC)                                   5791.140
  Sample-size adjusted Bayesian (BIC)              5765.745

Root Mean Square Error of Approximation:

  RMSEA                                               0.074
  90 Percent confidence interval - lower              0.025
  90 Percent confidence interval - upper              0.132
  P-value RMSEA <= 0.05                               0.177

Standardized Root Mean Square Residual:

  SRMR                                                0.026

Parameter Estimates:

  Standard errors                                  Standard
  Information                                      Expected
  Information saturated (h1) model               Structured

Latent Variables:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C18D03 =~
    C18D03Q0          1.000                                0.534    0.541
    C18D03Q1          1.067    0.142    7.515    0.000     0.570    0.577
    C18D03Q2          1.015    0.137    7.397    0.000     0.542    0.549
    C18D03Q12         1.028    0.138    7.433    0.000     0.549    0.556

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
   .C18D03Q0         0.689    0.056   12.380    0.000     0.689    0.707
   .C18D03Q1         0.649    0.056   11.545    0.000     0.649    0.667
   .C18D03Q2         0.680    0.056   12.205    0.000     0.680    0.698
   .C18D03Q12        0.672    0.056   12.040    0.000     0.672    0.690
    C18D03           0.285    0.056    5.126    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N  ase      mean   sd median_r
     0.64      0.64      0.58      0.31 1.8 0.025 -3.3e-17 0.69     0.33

 lower alpha upper     95% confidence boundaries
0.59 0.64 0.69


 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r S/N alpha se   var.r med.r
C18D03Q0      0.58      0.58    0.48      0.32 1.4    0.032 0.00108  0.33
C18D03Q1      0.56      0.56    0.47      0.30 1.3    0.033 0.00221  0.32
```

```
C18D03Q2      0.58      0.58     0.48      0.31 1.4    0.032 0.00099  0.32
C18D03Q12     0.57      0.57     0.47      0.31 1.3    0.032 0.00274  0.34


 Item statistics
          n raw.r std.r r.cor r.drop    mean   sd
C18D03Q0  532  0.69  0.69  0.51   0.41 -1.5e-16 0.99
C18D03Q1  532  0.70  0.70  0.54   0.43  5.1e-19 0.99
C18D03Q2  532  0.69  0.69  0.52   0.41 -6.2e-17 0.99
C18D03Q12 532  0.70  0.70  0.53   0.42  9.5e-17 0.99
```

C19 User-Agent Interplay

Definition: The extent to which the user and the agent have an effect on each other

```
lavaan 0.6-8 ended normally after 25 iterations

  Estimator                                       ML
  Optimization method                         NLMINB
  Number of model parameters                       8


  Number of observations                         532

Model Test User Model:

  Test statistic                               9.655
  Degrees of freedom                               2
  P-value (Chi-square)                         0.008

Model Test Baseline Model:

  Test statistic                             295.413
  Degrees of freedom                               6
  P-value                                      0.000

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                  0.974
  Tucker-Lewis Index (TLI)                     0.921

Loglikelihood and Information Criteria:

  Loglikelihood user model (H0)            -2848.247
  Loglikelihood unrestricted model (H1)    -2843.419

  Akaike (AIC)                              5712.494
  Bayesian (BIC)                            5746.707
  Sample-size adjusted Bayesian (BIC)       5721.313

Root Mean Square Error of Approximation:

  RMSEA                                        0.085
  90 Percent confidence interval - lower       0.037
  90 Percent confidence interval - upper       0.142
  P-value RMSEA <= 0.05                        0.106

Standardized Root Mean Square Residual:

  SRMR                                         0.028

Parameter Estimates:

  Standard errors                           Standard
  Information                               Expected
  Information saturated (h1) model        Structured

Latent Variables:
                  Estimate  Std.Err  z-value  P(>|z|)   Std.lv  Std.all
  C19 =~
```

```
     C19D00Q7         1.000                                0.569    0.577
     C19D00Q14        0.848    0.111    7.674    0.000      0.483    0.489
     C19D00Q28        1.177    0.136    8.630    0.000      0.670    0.679
     C19D00Q26        0.979    0.118    8.322    0.000      0.557    0.564

Variances:
                   Estimate  Std.Err  z-value  P(>|z|)   Std.lv   Std.all
    .C19D00Q7        0.650    0.053   12.223    0.000     0.650    0.667
    .C19D00Q14       0.740    0.054   13.802    0.000     0.740    0.760
    .C19D00Q28       0.525    0.056    9.380    0.000     0.525    0.539
    .C19D00Q26       0.663    0.053   12.496    0.000     0.663    0.681
     C19             0.324    0.057    5.714    0.000     1.000    1.000
```

```
Reliability analysis
Call: psych:::alpha(x = data, check.keys = TRUE)

  raw_alpha std.alpha G6(smc) average_r S/N   ase    mean   sd median_r
     0.67       0.67     0.61      0.33   2 0.024 2.4e-17 0.7      0.35

 lower alpha upper     95% confidence boundaries
0.62 0.67 0.71

 Reliability if an item is dropped:
         raw_alpha std.alpha G6(smc) average_r S/N alpha se   var.r med.r
C19D00Q7      0.61      0.61    0.51      0.34 1.5    0.030 0.00035  0.35
C19D00Q14     0.64      0.64    0.54      0.37 1.8    0.027 0.00139  0.35
C19D00Q26     0.59      0.59    0.50      0.33 1.5    0.031 0.00978  0.35
C19D00Q28     0.55      0.55    0.46      0.29 1.2    0.033 0.00447  0.32

 Item statistics
           n raw.r std.r r.cor r.drop     mean   sd
C19D00Q7 532  0.70  0.70  0.54   0.43 -1.6e-17 0.99
C19D00Q14 532 0.67  0.67  0.48   0.39  1.7e-17 0.99
C19D00Q26 532 0.71  0.71  0.55   0.45  2.8e-16 0.99
C19D00Q28 532 0.75  0.75  0.63   0.51 -1.8e-16 0.99
```

Appendix J Four Judges Decision on the Highest Loading Items

Note: Individual column shows the factor loading score of items based on the CFA result of the individual construct (in Appendix I CFA and Reliability Analysis Result of Individual Construct); ML[1..4] column shows the factor loading score of items based on the CFA result of the construct's corresponding EFA-result-based model (in Appendix H The CFA Result based on the EFA-based Models section CFA Results of Four EFA-based-Models).

C01 Agent's Believability

Definition: The extent to which a user believes that the artefact is a social agent

C01D01 Human-Like Appearance

Definition: The extent to which a user believes that the social agent appears like a human

No.	ITEMID	ITEMQ	Individual	ML1
1.	C01D01Q3	[The agent]'s appearance is human	.74	.73
2.	C01D01Q10	[The agent] has the appearance of a human	.79	.78
3.	C01D01Q13	[The agent] has a human-like outside	.70	.71
4.	C01D01Q15	[The agent]'s appearance makes me think of a human	.72	.74

Selection reasoning:
Four judges agreed to select C01D01Q10 because the item closely represents the definition of the construct and has the highest factor loading for both measures.

C01D02 Human-Like Behavior

Definition: The extent to which a user believes that the social agent behaves like a human

No.	ITEMID	ITEMQ	Individual	ML1
~~1.~~	~~C01D02Q7~~	~~A human would behave like [the agent]~~	~~.65~~	~~.65~~
~~2.~~	~~C01D02Q10~~	~~[The agent]'s manners is consistent with that of people~~	~~.61~~	~~.60~~
~~3.~~	~~C01D02Q0~~	~~[The agent] behavior makes me think of human behavior~~	~~.75~~	~~.73~~
~~4.~~	~~C01D02Q1~~	~~[The agent] behaves like a real person~~	~~.77~~	~~.78~~
5.	C01D02Q9	[The agent] has a human-like manner	.79	.80

Selection reasoning:
Four judges doubted between C01D02Q1 and C01D02Q9, because both items can represent the definition of the construct. Finally, the judges agreed to select C10D02Q9 because the item has slightly higher factor loading for both measures.

C01D03 Natural Appearance
Definition: The extent to which a user believes that the social agent's appearance could exist in or be derived from nature

No.	ITEMID	ITEMQ	Individual	ML1
~~1.~~	~~C01D03Q7~~	~~[The agent] appears like something that could exist in nature~~	~~.57~~	~~.55~~
~~2.~~	~~C01D03Q9~~	~~[The agent] has a natural physique~~	~~.63~~	~~.63~~
~~3.~~	~~C01D03Q10~~	~~[The agent]'s resemblance has an organic origin~~	~~.47~~	~~.46~~
4.	C01D03Q11	[The agent] seems natural from its outward appearance	.74	.73
~~5.~~	~~C01D03Q12~~	~~How [the agent] is represented is realistic~~	~~.57~~	~~.60~~

Selection reasoning:
Four judges agreed to select C01D03Q11 because the item has the highest factor loading for both measures.

C01D04 Natural Behavior
Definition: The extent to which a user believes that the social agent's behaviour could exist in or be derived from nature

No.	ITEMID	ITEMQ	Individual	ML1
~~1.~~	~~C01D04Q0~~	~~[The agent] is alive~~	~~.36~~	~~.31~~
~~2.~~	~~C01D04Q13~~	~~[The agent] acts naturally~~	~~.68~~	~~.68~~
3.	C01D04Q15	[The agent] reacts like a living organism	.74	.75

Selection reasoning:
Four judges agreed to select C01D04Q15 because the item has the highest factor loading for both measures although the judges realized that it might be difficult to translate in some languages.

C01D05 Agent's Appearance Suitability
Definition: The extent to which the agent's appearance is suitable for its role

No.	ITEMID	ITEMQ	Individual	ML3
1.	C01D05Q2	[The agent]'s appearance is appropriate	.72	.70
~~2.~~	~~C01D05Q9~~	~~[The agent]'s physique is suitable for its role~~	~~.69~~	~~.71~~
~~3.~~	~~C01D05Q0~~	~~[The agent]'s appearance was suitable~~	~~.64~~	~~.64~~

Selection reasoning:
Four judges agreed to select C01D05Q2 because the item can still represent the definition of the construct although it doesn't contain the word 'suitable' and has the highest factor loading for one of measures.

C02 Agent's Usability
Definition: The extent to which a user believes that using an agent will be free from effort (future process)

No.	ITEMID	ITEMQ	Individual	ML3
1.	C02D00Q1	[The agent] is easy to use	.74	.77
~~2.~~	~~C02D00Q2~~	~~Learning to work with [the agent] is easy~~	~~.66~~	~~.65~~
~~3.~~	~~C02D00Q8~~	~~Learning how to communicate with [the agent] is quick~~	~~.64~~	~~.63~~

Selection reasoning:
Four judges agreed to select C02D00Q1 because the item closely represents the definition of the construct and has the highest factor loading for both measures.

C03 Performance
Definition: The extent to which a task was well performed (past performance)

No.	ITEMID	ITEMQ	Individual	ML3
1.	C03D01Q7	[The agent] does its task well	.71	.70
~~2.~~	~~C03D01Q12~~	~~[The agent] does not hinder [me / the user]~~	~~.54~~	~~.54~~
~~3.~~	~~C03D02Q10~~	~~[I am / The user is] capable of succeeding with [the agent]~~	~~.67~~	~~.69~~

Selection reasoning:
Four judges agreed to select C03D01Q7 because the item closely represents the definition of the construct and has the highest factor loading for both measures.

C04 Agent's Likeability
Definition: The agent's qualities that bring about a favourable regard

No.	ITEMID	ITEMQ	Individual	ML5
~~1.~~	~~C04D00Q1~~	~~[The agent]'s appearance is pleasing~~	~~.60~~	~~.61~~
2.	C04D00Q10	I like [the agent]	.89	.86
~~3.~~	~~C04D00Q11~~	~~[R] I dislike [the agent]~~	~~.81~~	~~.82~~
~~4.~~	~~C04D00Q4~~	~~[The agent] is cooperative~~	~~.42~~	~~.46~~
~~5.~~	~~C04D00Q12~~	~~I want to hang out with [the agent]~~	~~.60~~	~~.63~~

Selection reasoning:
Four judges agreed to select C04D00Q10 because the item closely represents the definition of the construct and has the highest factor loading for both measures.

C05 Agent's Sociability
Definition: The agent's quality or state of being sociable

No.	ITEMID	ITEMQ	Individual	ML4
1.	C05D00Q6	[The agent] can easily mix socially	.77	.71
~~2.~~	~~C05D00Q7~~	~~It is easy to mingle with [the agent]~~	~~.67~~	~~.64~~
~~3.~~	~~C05D00Q1~~	~~[The agent] interacts socially with [me / the user]~~	~~.58~~	~~.67~~

Selection reasoning:
Four judges agreed to select C05D00Q6 because the item closely represents the definition of the construct and has the highest factor loading for both measures.

C06 Agent's Personality
Definition: The combination of characteristics or qualities that form an individual's distinctive character

C06D01 Agent's Personality Presence
Definition: To what extent the user believes that the agent has a personality

No.	ITEMID	ITEMQ	Individual	ML4
1.	C06D01Q1	[The agent] has a distinctive character	.69	.58
~~2.~~	~~C06D01Q6~~	~~[R] [The agent] is characterless~~	~~.58~~	~~.60~~

No.	ITEMID	ITEMQ	Individual	ML4
~~3.~~	~~C06D01Q11~~	~~[The agent] is an individual~~	~~.47~~	~~.56~~

Selection reasoning:
Four judges agreed to select C06D01Q1 because the item closely represents the definition of the construct despite it might be hard to translate in some languages.

C07 User Acceptance of the Agent

Definition: The willingness of the user to interact with the agent

No.	ITEMID	ITEMQ	Individual	ML3
1.	C07D00Q0	[I / The user] will use [the agent] again in the future	.80	.76
~~2.~~	~~C07D00Q11~~	~~[I / The user] can see [myself / themselves] using [the agent] in the future~~	~~.71~~	~~.75~~
~~3.~~	~~C07D00Q15~~	~~[R] [I oppose / The user opposes] further interaction with [the agent]~~	~~.38~~	~~.51~~

Selection reasoning:
Four judges agreed to select C07D00Q0 because the item is easier formulated and has the highest factor loading for both measures.

C08 Agent's Enjoyability

Definition: The extent to which a user finds interacting with the agent enjoyable

No.	ITEMID	ITEMQ	Individual	ML5
1.	C08D00Q3	[R] [The agent] is boring	.69	.71
~~2.~~	~~C08D00Q4~~	~~It is interesting to interact with [the agent]~~	~~.72~~	~~.67~~
~~3.~~	~~C08D00Q0~~	~~[I enjoy / The user enjoys] interacting with [the agent]~~	~~.50~~	~~.48~~
~~4.~~	~~C08D00Q9~~	~~[R] [The agent] is unpleasant to deal with~~	~~.53~~	~~.57~~

Selection reasoning:
Four judges agreed to select C08D00Q3 because the item is a good predictor of the construct based on both measures despite that it might be a bit further from the definition of the construct.

C09 User's Engagement

Definition: The extent to which the user feels involved in the interaction with the agent

No.	ITEMID	ITEMQ	Individual	ML3
~~1.~~	~~C09D00Q4~~	~~[I / The user] was concentrated during the interaction with [the agent]~~	~~.62~~	~~.62~~
2.	C09D00Q10	The interaction captured [my / the user's] attention	.70	.72
~~3.~~	~~C09D00Q1~~	~~[I / The user] was alert during the interaction with [the agent]~~	~~.67~~	~~.64~~

Selection reasoning:
Four judges agreed to select C09D00Q10 because the item has a simple statement to represent the definition of the construct and has the highest factor loading for both measures.

C10 User's Trust

Definition: The extent to which a user believes in the reliability, truthfulness, and ability of the agent (for future interactions)

No.	ITEMID	ITEMQ	Individual	ML3
~~1.~~	~~C10D00Q6~~	~~[The agent] always gives good advice~~	~~.52~~	~~.56~~
~~2.~~	~~C10D00Q16~~	~~[The agent] acts truthfully~~	~~.65~~	~~.63~~

No.	ITEMID	ITEMQ	Individual	ML3
3.	C10D00Q18	[I / The user] can rely on [the agent]	.73	.71

Selection reasoning:
Four judges agreed to select C10D00Q18 because the item closely represents the definition of the construct and has the highest factor loading for both measures.

C11 User-Agent Alliance

Definition: The extent to which a beneficial association is formed

No.	ITEMID	ITEMQ	Individual	ML3
1.	C11D01Q9	[The agent] and [I / the user] have a strategic alliance	.61	.50
~~2.~~	~~C11D01Q10~~	~~Collaborating with [the agent] is like a joint venture~~	~~.63~~	~~.64~~
~~3.~~	~~C11D01Q11~~	~~[The agent] joins [me / the user] for mutual benefit~~	~~.57~~	~~.44~~
~~4.~~	~~C11D01Q14~~	~~[The agent] can collaborate in a productive way~~	~~.58~~	~~.60~~
~~5.~~	~~C11D02Q4~~	~~[The agent] and [I / the user] are in sync with each other~~	~~.58~~	~~.61~~
~~6.~~	~~C11D02Q7~~	~~[The agent] understands [me / the user]~~	~~.60~~	~~.67~~

Selection reasoning:
Four judges agreed to select C11D01Q9 because the item closely represents the definition of the construct, relatively easy to translate in other languages and has a decent factor loading score for both measures.

C12 Agent's Attentiveness

Definition: The extent to which the user believes that the agent is aware of and has attention for the user

No.	ITEMID	ITEMQ	Individual	ML3
~~1.~~	~~C12D00Q0~~	~~[The agent] remains focused on [me / the user] throughout the interaction~~	~~.71~~	~~.62~~
2.	C12D00Q13	[The agent] is attentive	.64	.73
~~3.~~	~~C12D00Q1~~	~~[I / The user] receives [the agent]'s full attention throughout the interaction~~	~~.69~~	~~.60~~

Selection reasoning:
Four judges agreed to select C12D00Q13 because the item closely represents the definition of the construct, is simple and has the highest factor loading for one of the measures.

C13 Agent's Coherence

Definition: The extent to which the agent is perceived as being logical and consistent

No.	ITEMID	ITEMQ	Individual	ML3
1.	C13D00Q3	[R] [The agent]'s behavior does not make sense	.72	.77
~~2.~~	~~C13D00Q11~~	~~[R] [The agent]'s behavior is irrational~~	~~.63~~	~~.62~~
~~3.~~	~~C13D00Q6~~	~~[R] [The agent] is inconsistent~~	~~.47~~	~~.49~~
~~4.~~	~~C13D00Q15~~	~~[R] [The agent] appears confused~~	~~.52~~	~~.50~~

Selection reasoning:
Four judges agreed to select C13D00Q3 because the item closely represents the definition of the construct, makes sense and has the highest factor loading for both measures.

C14 Agent's Intentionality

Definition: The extent to which the agent is perceived as being deliberate and has deliberations

No.	ITEMID	ITEMQ	Individual	ML3
~~1.~~	~~C14D00Q0~~	~~[The agent] acts intentionally~~	~~.48~~	~~.52~~

No.	ITEMID	ITEMQ	Individual	ML3
2.	C14D00Q10	[The agent] knows what it is doing	.78	.72
3.	C14D00Q13	[R] [The agent] has no clue of what it is doing	.63	.60
4.	C14D00Q16	[The agent] can make its own decision	.48	.41

Selection reasoning:
Although the factor loading of C14D00Q13 for both measures is not the highest, four judges agreed to select this item because the item is easier to translate to other languages.

C15 Attitude

Definition: A favourable or unfavourable evaluation toward the interaction with the agent

No.	ITEMID	ITEMQ	Individual	ML3
1.	C15D00Q10	[I see / The user sees] the interaction with [the agent] as something positive	.81	.79
2.	C15D00Q11	[I view / The user views] the interaction as something favorable	.77	.79
3.	C15D00Q15	[R] [I think / The user thinks] negatively of the interaction with [the agent]	.63	.64

Selection reasoning:
Four judges agreed to select C15D00Q10 because the item closely represents the definition of the construct , is easy to translate in other languages, and has the highest factor loading for both measures.

C16 Social Presence

Definition: The degree to which the user perceives the presence of a social entity in the interaction

No.	ITEMID	ITEMQ	Individual	ML4
1.	C16D00Q12	[The agent] has a social presence	.73	.74
2.	C16D00Q13	[The agent] is a social entity	.78	.75
3.	C16D00Q17	[I have / The user has] the same social presence as [the agent]	.52	.54

Selection reasoning:
Four judges agreed to select C16D00Q13 because the item closely represents the definition of the construct, is easier to translate in other languages, and has the highest factor loading for both measures.

C17 Interaction Impact on Self-Image

Definition: How the user believes others perceive the user because of the interaction with the agent

No.	ITEMID	ITEMQ	Individual	ML3
1.	C17D00Q2	[My / The user's] friends would recommend [me / them] to use [the agent]	.70	.71
2.	C17D00Q3	Others would encourage [me / the user] to use [the agent]	.73	.74
3.	C17D00Q9	[The agent] makes [me / the user] look good	.49	.47
4.	C17D00Q10	People would look favorably at [me / the user] because of [my / their] interaction with [the agent]	.58	.54

Selection reasoning:
Four judges agreed to select C17D00Q3 because the item can represent the definition of the construct and has the highest factor loading for both measures.

C18 Emotional Experience

Definition: A self-contained phenomenal experience. They are subjective, evaluative, and independent of the sensations, thoughts, or images evoking them

C18D01 Agent's Emotional Intelligence Presence

Definition: To what extent the user believes that the agent has an emotional experience and can convey its emotions

| No.	ITEMID	ITEMQ	Individual	ML4
~~1.~~	~~C18D01Q2~~	~~[The agent] is emotional~~	~~.76~~	~~.76~~
~~2.~~	~~C18D01Q3~~	~~[The agent] experiences emotions~~	~~.78~~	~~.77~~
3.	C18D01Q5	[R] [The agent] is emotionless	.79	.78
~~4.~~	~~C18D01Q8~~	~~[The agent] can express its feelings~~	~~.72~~	~~.73~~
~~5.~~	~~C18D01Q14~~	~~[R] [The agent] cannot experience emotions~~	~~.71~~	~~.70~~

Selection reasoning:
Four judges agreed to select C18D01Q5 because the item can represent the definition of the construct and has the highest factor loading for both measures.

C18D03 User's Emotion Presence

Definition: To what extent the user believes that his/her emotional state is caused by the interaction or the agent

No.	ITEMID	ITEMQ	Individual	ML4
~~1.~~	~~C18D03Q0~~	~~[The agent]'s attitudes influences how [I feel / the user feels]~~	~~.54~~	~~.58~~
~~2.~~	~~C18D03Q1~~	~~[I am / The user is] influenced by [the agent]'s moods~~	~~.58~~	~~.59~~
3.	C18D03Q2	The emotions [I feel / the user feels] during the interaction are caused by [the agent]	.55	.48
~~4.~~	~~C18D03Q12~~	~~[My / The user's] interaction with [the agent] gives [me / them] an emotional sensation~~	~~.57~~	~~.56~~

Selection reasoning:
Four judges agreed to select C18D03Q2 because the item closely represents the definition of the construct and has a decent factor loading for both measures.

C19 User-Agent Interplay

Definition: The extent to which the user and the agent have an effect on each other

No.	ITEMID	ITEMQ	Individual	ML4
~~1.~~	~~C19D00Q7~~	~~[My / The user's] emotions influence the mood of the interaction~~	~~.58~~	~~.57~~
~~2.~~	~~C19D00Q14~~	~~[The agent] reciprocates [my / the user's] actions~~	~~.49~~	~~.48~~
~~3.~~	~~C19D00Q26~~	~~[The agent]'s and [my / the user's] behaviors are in direct response to each other's behavior~~	~~.56~~	~~.57~~
4.	C19D00Q28	[The agent]'s and [my / the user's] emotions change to what [we / they] do to each other	.68	.69

Selection reasoning:
Four judges agreed to select C19D00Q28 because the item can represent the definition of the construct and has the highest factor loading for both measures.
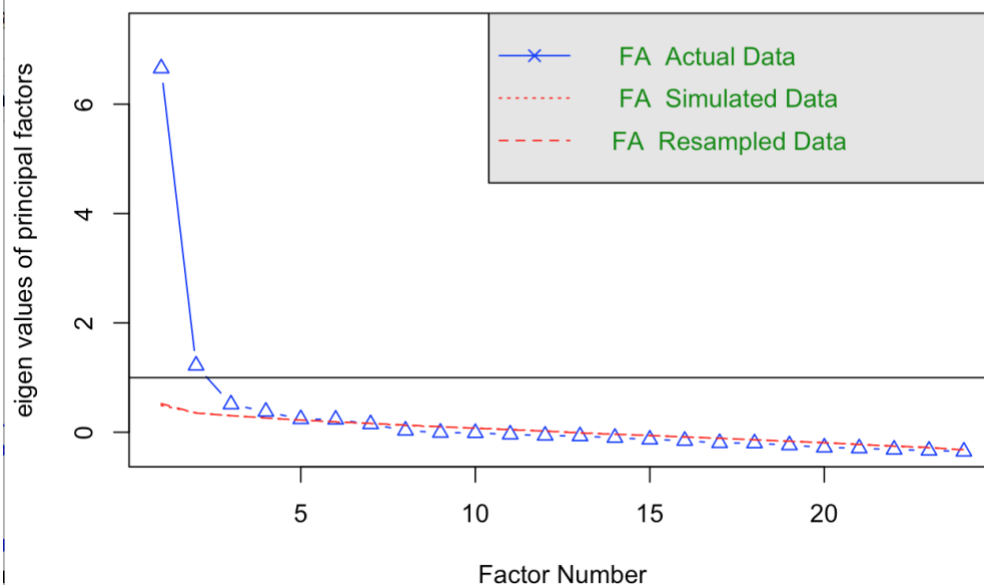
Appendix K Correlation and EFA Result based on 24 Highest Loading Items

Note: Corresponding construct-IDs are used to represent the 24 items

Correlation between items:
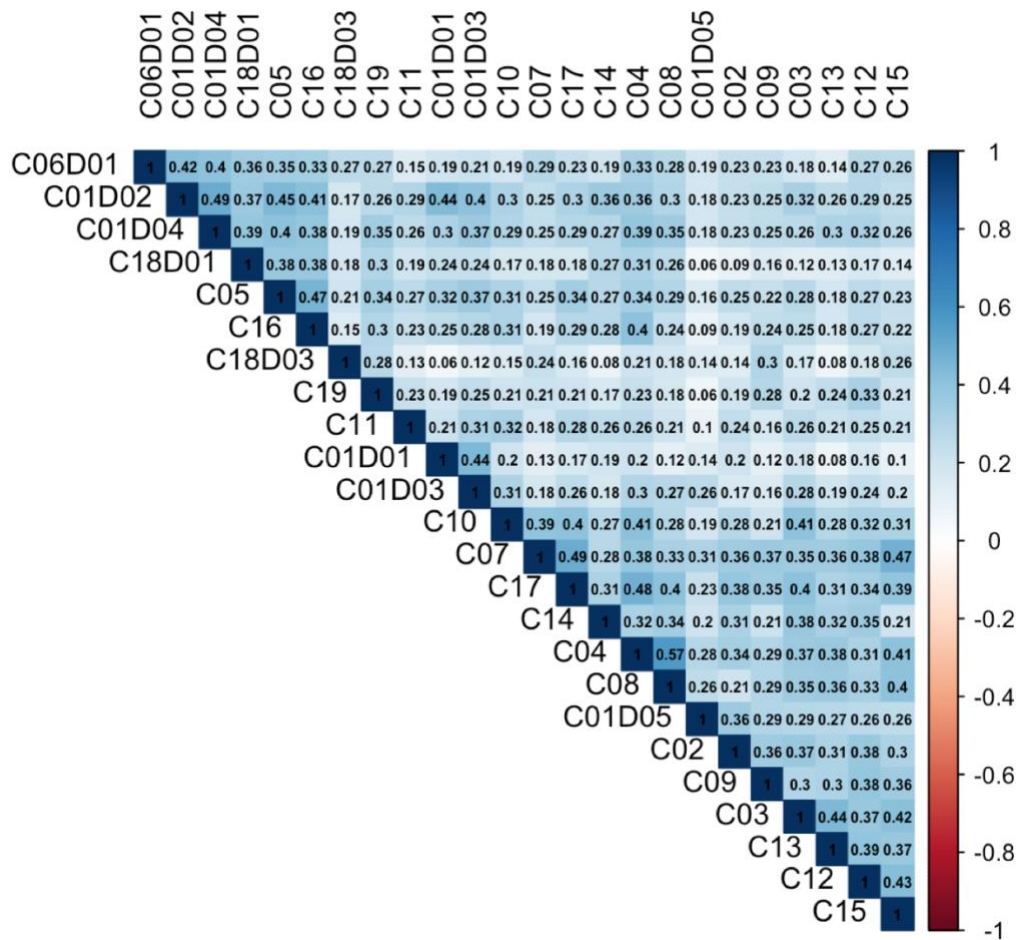
Parallel analysis suggests that the number of factors = 4 and the number of components = NA

EFA result:

```
Factor Analysis using method =  ml
Call: fa(r = data_cor, nfactors = nfactors, rotate = "promax", SMC = FALSE,
    max.iter = 100, fm = "ml")
```

```
Standardized loadings (pattern matrix) based upon correlation matrix
         item  ML1    ML2    ML4    ML3   h2   u2  com
C02       6   0.59   0.12   0.03  -0.14 0.36 0.64 1.2
C07      11   0.59  -0.14   0.15   0.09 0.44 0.56 1.3
C03       7   0.59   0.18  -0.14   0.06 0.44 0.56 1.3
C12      16   0.55   0.06   0.21  -0.12 0.42 0.58 1.4
C15      19   0.55  -0.19   0.15   0.18 0.43 0.57 1.6
C13      17   0.52  -0.02  -0.05   0.16 0.35 0.65 1.2
C09      13   0.50  -0.11   0.35  -0.10 0.38 0.62 2.0
C17      21   0.47   0.02  -0.02   0.27 0.43 0.57 1.6
C01D05    5   0.46   0.05  -0.04  -0.01 0.22 0.78 1.0
C10      14   0.37   0.24  -0.11   0.16 0.34 0.66 2.4
C14      18   0.28   0.22  -0.03   0.13 0.27 0.73 2.4
C01D01    1  -0.02   0.77  -0.05  -0.21 0.39 0.61 1.2
C01D03    3   0.08   0.64  -0.08  -0.03 0.39 0.61 1.1
C01D02    2   0.00   0.60   0.19   0.00 0.52 0.48 1.2
C05       9  -0.02   0.44   0.28   0.04 0.43 0.57 1.7
C11      15   0.20   0.36  -0.04   0.00 0.22 0.78 1.6
C01D04    4  -0.01   0.35   0.31   0.13 0.44 0.56 2.3
C16      20  -0.08   0.32   0.28   0.18 0.38 0.62 2.7
C06D01   10  -0.03   0.09   0.51   0.09 0.38 0.62 1.1
C18D03   23   0.15  -0.14   0.48  -0.03 0.22 0.78 1.4
C19      24   0.11   0.17   0.47  -0.15 0.30 0.70 1.6
C18D01   22  -0.27   0.23   0.41   0.23 0.39 0.61 3.0
C04       8   0.19  -0.06  -0.02   0.71 0.62 0.38 1.2
C08      12   0.20  -0.15   0.00   0.67 0.51 0.49 1.3

                        ML1  ML2  ML4  ML3
SS loadings            3.48 2.44 1.77 1.58
Proportion Var         0.14 0.10 0.07 0.07
Cumulative Var         0.14 0.25 0.32 0.39
Proportion Explained   0.38 0.26 0.19 0.17
Cumulative Proportion  0.38 0.64 0.83 1.00


 With factor correlations of
      ML1  ML2  ML4  ML3
ML1 1.00 0.48 0.46 0.55
ML2 0.48 1.00 0.54 0.64
ML4 0.46 0.54 1.00 0.55
ML3 0.55 0.64 0.55 1.00

Mean item complexity =  1.6
Test of the hypothesis that 4 factors are sufficient.

The degrees of freedom for the null model are  276  and the objective function
was  7.59
The degrees of freedom for the model are 186  and the objective function was
0.72

The root mean square of the residuals (RMSR) is  0.03
The df corrected root mean square of the residuals is  0.04

Fit based upon off diagonal values = 0.99
Measures of factor score adequacy
                                            ML1  ML2  ML4  ML3
Correlation of (regression) scores with factors  0.92 0.90 0.86 0.89
Multiple R square of scores with factors          0.85 0.82 0.74 0.79
Minimum correlation of possible factor scores     0.70 0.64 0.48 0.58
```

Appendix L WEB-ASA of 14 ASAs used in the Study

ASA	MEAN VALUE OF CONSTRUCTS/DIMENSIONS IN THE ASA QUESTIONNAIRE
AIBO	-2.54, -1.59, 0.04, 0.3, 2.06, 1.78, 1.56, 1.48, 0.93, 0.32, 1.82, 1.96, 2.19, -0.09, 0.36, 1.85, 1.76, 0.13, 2.37, 0.03, 1.06, -0.69, 1.51, 1.3

AMY	0.88, 0.09, -0.25, -0.85, 1.21, 1.28, 0.87, 0.08, -0.28, -0.44, 0.63, 0.31, 1.31, 0.61, 0.1, 1.66, 1.5, 0.33, 0.36, -0.46, -0.1, -0.92, 0.3, 0.69
CHAPPIE	-1.09, 0.31, -0.92, 0.16, 0.95, 0.75, 1.13, 1.27, 0.63, 0.77, 1.39, 1.82, 2.04, 0.07, 0.65, 1.15, 1.05, 0.18, 1.86, 0.25, 0.88, 0.26, 1.18, 1.02
DEEPBLUE	-1.96, -0.55, -1.1, -1.14, 1.09, 0.8, 1.92, 0.33, -1.23, -1.31, 1.34, 1.18, 1.8, 1.18, 0.63, 1.32, 2.11, 1.54, 1.47, -1.21, 0.83, -2.17, -0.4, 0.17
DOG	-1.91, -0.62, 1.7, 1.89, 1.85, 0.42, 1.28, 2.31, 1.48, 1.47, 1.99, 2.29, 2.33, 0.21, 1.03, 1.91, 1.07, 0.21, 2.5, 0.48, 1.41, 1.1, 1.51, 1.58
FURBY	-2.14, -0.14, -0.85, -0.61, 1.8, 1.92, 1.16, 0.91, 0.73, 0.74, 1.02, 1.44, 1.5, -0.46, -0.06, 1.14, 1.41, -0.49, 1.56, -0.12, 0.63, -0.15, 1.03, 1.03
HAL 9000	-2.08, 0.23, -1.2, -0.36, 1.39, 1.39, 1.18, 0.36, 0.05, 0.29, 1.36, 0.86, 2.12, 0.41, 0.84, 2.1, 1.61, 1.8, 0.41, -0.26, 0.75, -1.06, 0.8, 0.68
ICAT	-2.21, -1.28, -1.5, -1.88, 0.49, 1.19, 0.94, -0.57, -0.35, -0.52, 0.66, 0.47, 1.67, -0.03, -0.26, 1.38, 1.68, 0.07, 1.1, -1.12, -0.08, -1.84, 0.26, 0.06
NAO	-0.93, 0.74, -0.57, -0.36, 1.74, 1, 1.31, 1.74, 0.97, 1.06, 1.57, 1.91, 2.11, 0.51, 0.94, 1.59, 1.61, 0.82, 1.9, 0.4, 1.12, 0.07, 0.99, 1.14
POPPY	0.64, 0.51, -0.31, -0.38, 0.7, 0.84, 0.94, 0.22, 0.75, -0.04, 1.35, 1.03, 1.99, 0.32, 0.22, 1.5, 1.22, 0.44, 1.68, 0.04, 0.21, -0.73, 0.49, 0.68
SIM SENSEI	1.28, 0.92, 0.61, -0.36, 1.55, 1.25, 1.04, 0.61, 0.13, 0.01, 0.74, 0.86, 1.04, 0.48, 0.32, 1.76, 1.58, 0.85, 0.92, -0.06, 0.36, -0.65, 0.36, 0.95
SIRI	-1.76, -0.28, -0.7, -0.81, 0.8, 2.21, 2.07, 0.77, -0.14, -0.64, 2.13, 1.53, 1.56, 1.17, 0.57, 1.79, 2.08, 0.79, 2.03, -0.99, 0.93, -1.91, -0.62, 0.05
SARAH	1.66, 0.71, 0.87, -0.32, 1.74, 1.71, 1.72, 0.77, 0.04, -0.17, 1.51, 1.11, 1.67, 1.3, 0.79, 2.04, 1.92, 1.36, 1.73, 0.06, 0.78, -1.36, 0.15, 0.4
MARCUS	1.69, 1.7, 0.67, 1.21, 1.41, 0.65, 1.09, 0.41, 0.75, 1.35, 0.76, 0.71, 2.08, 0.31, 1.07, 1.96, 1.04, 1.63, -0.01, 0.75, 0.24, 0.78, 1.24, 1.4

AIBO

MARCUS

SARAH

SIRI

SIM SENSEI

POPPY

NAO

iCAT

HAL 9000

FURBY

DOG

DEEPBLUE

CHAPPIE

AMY