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How Our Personality Shapes Our Interactions with Virtual Characters - Implications for Research and Development.

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Abstract. There is a general lack of awareness for the influence of users´ personality traits on human-agent-interaction (HAI). Numerous studies do not even consider explanatory variables like age and gender although they are easily accessible. The present study focuses on explaining the occurrence of social effects in HAI. Apart from the original manipulation of the study we assessed the users´ personality traits. Results show that participants´ personality traits influenced their subjective feeling after the interaction, as well as their evaluation of the virtual character and their actual behavior. From the various personality traits those traits which relate to persistent behavioral patterns in social contact (agreeableness, extraversion, approach avoidance, self-efficacy in monitoring others, shyness, public self-consciousness) were found to be predictive, whereas other personality traits and gender and age did not affect the evaluation. Results suggest that personality traits are better predictors for the evaluation outcome than the actual behavior of the agent as it has been manipulated in the experiment. Implications for research on and development of virtual agents are discussed.

Keywords: virtual agents, personality traits, social effects, evaluation, nonverbal feedback

1 Introduction

From our everyday interactions we know that people´s perception and behavior is mediated by their personality. Their impact has been broadly studied within interactions between humans as well as in the field of human-computer interaction. Personality traits are defined as habitual patterns of thought, behavior and emotion which endure over time [1]. Our personality affects our perception and actual behavior. An extroverted person is more outgoing, talkative, active, confident, and companionable. In contrast a more introverted person is reserved, and concentrated. Studies from face-to-face contexts show, for example, that extroverts and introverts use different kinds of information while judging another person under time pressure

[2]. Extroverts feel more control over their interactions, judge them as more intimate and less conflict-laden. They feel more confident after their interactions and also judge their interaction partners as higher in self-esteem than introverts did [3]. People high in social anxiety construe other reactions towards them more negatively than persons low in social anxiety [4]. These examples show how our personality shapes the perception of our interactions.

Although some research groups consider the impact of personality traits on human-computer-interaction, they concentrate on the incorporation of personality traits in artificial entities [5-11]. They are interested in whether the user actually recognizes the implementation of a personality, correctly classifies this implementations into categories of personality traits, and whether they behaviorally react in the same way towards the "artificial entity personality" like they would towards a human with a certain personality. Whether people generally react towards computers and artificial entities like they would do towards humans has been studied extensively. The results from the 'Computers Are Social Actors' studies by Nass and colleagues [5, 6, 12-15] provide broad evidence that people react to media like they would to real persons or places. In their book "The Media Equation" Nass and Reeves [14] report numerous studies (involving usually computers) which prove this assumption to be correct. In later studies researchers began to transfer these studies to virtual characters (talking heads, ECAs, avatars) and broadly confirmed this hypothesis [16-24, see 25 for an overview]. Thus, it can generally be assumed that knowledge from the field of social psychology and differential psychology should be transferable from human-human-interaction to human-agent-interaction.

The personality of the user, however, has been largely neglected (except for studies that target the benefits of a match-up of agent and user personality) [e.g. 7, 8]. There is a general lack of awareness for the influence of users´ personality traits on their perception of human-computer-interaction. Numerous studies do not even integrate easily accessible explanatory variables like age and gender, let alone variables that have to be assessed via standardized questionnaires. However, studies by Kang et al. suggest that personality traits, like for instance shyness [26] or the Big Five [27] crucially affect users´ perception, regardless of the implementation of a personality within the virtual agent. The results, which are presented in detail in the next chapter, demonstrate that the users´ evaluation of an interaction and the actual behavior in HCI-, and HAI-settings can at least partially be predicted by personality.

1.1 Related work and research questions

Research on effects of human personality traits: As mentioned above the studies by Kang et al. suggest that personality traits, like for instance shyness [26] or the Big Five [27] crucially affect users´ perception. In the former study participants interacted either with a human listener, or with an agent in three different conditions: a non-responsive agent, a responsive agent and a mediated agent (a digital representation which mapped the nonverbal behavior of a human listener). The experimenters investigated the effects of shyness and public and private self-consciousness on perceived self-performance, embarrassment and the perceived trustworthiness of the interlocutor. The results indicated that users' social anxiety (shyness) significantly

decreased their self-performance and self-reported rapport, while increasing their embarrassment in the condition of the non-responsive Agent. In the latter study Kang et al. explored the relationship between the Big Five and the rapport people felt in the interaction with the agent, measured via self-report and their verbal behavior. The results revealed that more agreeable people showed strong self-reported rapport when they interacted with the agent. Bickmore and his colleagues [28, 29] examined how an ECA is able to build trust via small talk. They demonstrate that the ability to chat about everyday things especially has an impact on people with a disposition to be extroverts. Adding small talk to a task-related interaction did not affect the feeling of trust in introverts. But for extroverts it seemed to be a pre-requisite for establishing the same level of trust to add this small talk ability. A recent study by Yee et al. [30] showed that users´ personality traits determine their virtual behavioral in Second Life, for instance, conscientiousness (Big Five) was correlated with variables related to geographical movement and emotional stability with log-in patterns.

Research questions: Given the rare attempts to investigate the relationship between humans' personality traits and their evaluation of interactions with embodied agents we decided to fill this gap and explore the impact of users´ personality on human-agent interaction. We assume that the participants´ personality shapes their perception and evaluation of the interaction with agents like it is the case in face-to-face- interactions. Although this paper will not provide a manual for developers on how to deal with users´ personality, we outline some initial guideposts and illustrate the clear need for further research on how to design agents that e.g. are positive for shy persons, or are evaluated positively by the broad mass of users.

2 Method

2.1 Experimental Apparatus - The Rapport Agent

We used the Rapport Agent, which was developed by Gratch et al. [31] at the Institute for Creative Technologies. The agent displays listening behaviors that correspond to the verbal and nonverbal behavior of a human speaker. In addition to the usual listening behaviors such as posture shifts and head nods automatically triggered by the system corresponding to participants´ verbal (pitch, velocity of participant´s voice) and nonverbal behavior (position and orientation of participant´s head), we modified the system so that it was possible to conduct a small dialogue. Before the interaction starts, the animated character is looking to the ground to avoid eye contact with the participant before the system begins. When the system begins, indicated by a ping sound, the animated character looks up and says "Okay, I´m ready." We used five prerecorded sentences with a female voice:

- Okay, I´m ready.
- What was the most special experience for you yesterday?
- Which of your characteristics are you most proud of?
- What has been the biggest disappointment in your life?
- Thank you. You´re done.

The study utilized two different kinds of head nods, a double head nod with higher velocity and smaller amplitude (called backchannel head nod) and a single head nod with lower velocity and larger amplitude (called understanding head nod). The backchannel was generated automatically by the Rapport Agent whereas the single head nod was triggered manually by the experimenter at the end of the participants´ verbal contribution to each of the three questions in order to support the impression of an attentive listener. The animated agent was displayed on a 30-inch Apple display. A female virtual character was used in all conditions (see figure 1).

Conditions. In addition, we implemented two levels of behavioral realism (showing (feedback) behavior versus showing no behavior).

Condition low behavioral realism. For this condition, we chose to use the breathing, eye blinking, and posture shifts, but disabled the backchannel nods normally produced by the Rapport Agent. In this way, we achieved a rather unrealistic behavior, as the Rapport Agent was simply staring at the participants and did not react to their contributions at all.

Condition high behavioral realism. For this condition, we used breathing, eye blinking, posture shifts and the two kinds of head nods. The backchannel head nod was triggered automatically by the system according to the nonverbal and verbal behavior of the participants. The so called understanding head nod was actuated by the experimenter each time the participant finished his or her contribution to one of the three questions.

Participants were randomly assigned to the conditions. Gender was distributed equally across conditions.

Fig. 1. The Rapport Agent – female character

2.2 Explanatory variables – personality traits

As explanatory variables, we firstly used the well-known Big Five Inventory (44-item version, [32]). Secondly, we identified the following self-report scales measuring personality traits which relate to communicative behavior, for instance the Unwillingness-to-Communicate Scale [33], with the constructs approach avoidance, which is defined as the extent to which people fear interpersonal encounters (10 items), and reward, which is defined as the extent to which people perceive

interactions with other persons as manipulative and dishonest (10 items). All 20 items were rated on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree". In addition, we used the Revised Cheek and Buss Shyness Scale (RCBS; [34]) with 13 items (e.g. "I feel tense when I´m with people I don´t know well") rated on a 5-point Likert scale. From the Revised Self-Consciousness Scale [35], we took the subscale Public Self-Consciousness Scale, which measures the extent to which people think about aspects of themselves that form a picture of them in other persons (impression management). The scale consists of 7 items (e.g. "I´m concerned about my style of doing things"), which are rated on a 5-point Likert scale. Furthermore, we used the subscale Self-Monitoring Sensitivity from the Revised Self-Monitoring Scale [36]. The scale measures the extent of peoples´ sensitivity to perceive social cues which indicate socially desired behavior. The 6 items (e.g. "I am often able to read people´s true emotions correctly (through their eyes)") are rated on a 5-point Likert scale. Taking a closer look at the items we suggest that the scale actually measures one´s self-efficacy with regard to monitoring of other people and is therefore called self-efficacy in monitoring others (abbreviated with self-efficacy).

Table 1. Overview explanatory variables

five factor inventory Extraversion	Extent to which people are extroverted (or introverted); people high in extraversion are described as more companionable, talkative, confident, active, optimistic [32]
five factor inventory Agreeableness	Extent to which people are altruistic, complaisant, cooperative, trustworthy, sympathetic and caring [32]
five factor inventory Openness	Extent to which people are curious, inquisitive, keen on making new experiences and act more unconventional [32]
five factor inventory Conscientiousness	Extent to which people are accurate, responsible, reliable, thoughtful [32]
five factor inventory Neuroticism	Extent to which people describe themselves to be emotionally unstable. People high in neuroticism are more sorrowful, unsure, nervous, anxious and sad, but they are also more empathetic [32]
Approach Avoidance	Extent to which people fear interpersonal encounters; people low in approach avoidance fear interpersonal encounters; people high in approach avoidance are more open [33]
Reward	Extent to which people perceive interactions with other persons as manipulative and dishonest [33]
Public Self-Consciousness	Extent to which people think about aspects of themselves that form a picture of them in other persons (impression management) [35]
Self-Efficacy in Monitoring Others	Extent of peoples´ sensitivity to perceive social cues which indicate socially desired behavior [36]
Shyness	Extent to which people are shy and not confident [34]

2.3 Dependent variables

As dependent variables, we assessed the participants´ emotional state (PANAS) after the interaction, the person perception of the virtual character, the self-reported experience of social presence, and self-reported rapport. Besides these self-report measures, we also measured the following objective variables: the total number of words the participants used during the interaction and the percentage of pause-fillers and interrupted words. In the following, all measurements will be described in detail.

Quantitative measurements. In the present study, we used the Positive And Negative Affect Schedule [37] consisting of 20 items (e.g. strong, guilty, active, ashamed etc.), which are rated on a 5-point Likert scale. The factorial analysis for the Positive And Negative Affect Scale resulted in three factors. The first factor, *Positive High-Dominance* (enthusiastic, inspired, active, proud, determined, excited, strong, alert, attentive und interested), explains 28.24% of the variance (Cronbach's Alpha= .838). The second factor, *Negative High-Dominance* (hostile, irritable und upset, guilty, jittery and nervous), explains 23.09% of the variance (Cronbach's Alpha= .819), and the third factor, *Negative Low-Dominance* (afraid, scared, ashamed und distressed), explains 7.57% of the variance (Cronbach's Alpha=.712).

For the person perception (of the agent), we used a semantic differential with 26 bi-polar pairs of adjectives (e.g. friendly-unfriendly, tense-relaxed), which are rated on a 7-point scale. The factor analysis for the person perception of the virtual character resulted in four factors. The first factor, *Negative Low-Dominance* (weak, dishonest, naïve, shy, unintelligent, acquiescent and immature), explains 32.60% of the variance (Cronbach's Alpha= .852). The second factor, *Positive High-Dominance* (compassionate, inviting, involved, noisy, cheerful, sympathic, and active), explains 11.20% of the variance (Cronbach's Alpha= .816). The third factor, *Positive Low-Dominance* (soft, modest, permissive, not conceited, tender), explains 8.21% of the variance (Cronbach's Alpha= .748), and the fourth factor, *Negative High-Dominance* (threatening, proud, unpleasant, unfriendly, tense, sleepy, nervous), explains 5.65% of the variance (Cronbach's Alpha= .792).

Verbal behavior. In addition, we analyzed the participants´ verbal behavior. We counted the total amount of words, the amount of pause-fillers ("erm", "hm") and the amount of broken words (e.g. "I was in the bib… library"). From the latter two, we calculated the percentage of speech disfluencies in relation to the total amount of words.

3.1 Participants and procedure

Eighty-three persons (42 females and 41 males) were recruited via www.craigslist.com from the general Los Angeles area and were compensated $20 for one hour of their participation. The mean age was 37.27 (*SD*=13.61) ranging from 18 to 65 years. The participants were asked to read and sign informed consent forms. After completing a web-based questionnaire about their background including demographic data and the questionnaires of the explanatory variables, participants received a short introduction about the equipment and the task of the experiment. Then, participants took a seat in front of a 30'' screen, which displayed the Rapport Agent. They were equipped with a headset with microphone. In order to assess the participants' verbal behavior, the whole session was videotaped. The camera was directed towards the participants and situated directly under the screen with the Rapport Agent in combination with the stereovision camera. Participants were instructed to wait until the system starts, indicating readiness by a ping sound. They were asked three questions by the Rapport Agent with increasing intimacy. After the interaction, the participants completed the second web-based questionnaire. They were fully debriefed, given $20 and thanked for their participation.

3 Results

Because this analysis is not driven by a specific existing model/hypothesis, we ran an exploratory data analysis using stepwise regression. In every calculation we included as predictors the independent variable behavioral realism (dummy variable with 1= responsive and 2= non-responsive) and the following demographic variables and personality traits: gender, age, the Big Five (agreeableness, extraversion, neuroticism, openness and conscientiousness), approach avoidance and reward, public self-consciousness, self-efficacy in monitoring others and shyness.

3.1 Participants´ subjective feelings after the interaction (PANAS)

For the subjective feeling after the interaction results show that each of the three PANAS factors can be predicted by at least one regression model. For the factor PANAS Positive Low-Dominance approach avoidance is the best predictor. In a second step agreeableness significantly improves the model. All other predictors were excluded (see table 2). This shows that people who are more open to encounter other people (high value in approach avoidance) and are more agreeable feel better after the interaction.

Table 2. Stepwise regression for PANAS Positive Low-Dominance

	B	Sf B	B	Sig
Step 1				
Constant	-1.930	0,548		
Approach Avoidance	0,375	0,105	.370	.001
Step 2				
Constant	-3,259	0,819		
Approach Avoidance	0,391	0,103	.386	.000
Agreeableness	0,391	0,154	.218	.035

Note: R^2= .137 for step 1, ΔR^2=.047 for step 2 (ps > .05).

For PANAS Negative High-Dominance public self-consciousness is the best predictor followed by the independent variable behavioral realism in a second step (see table 3). Participants who try to leave a good impression about themselves in others report about stronger negative feelings. In addition, more behavioral realism contributed to the occurrence of negative feelings, but the data show that public self-consciousness is a better predictor for PANAS Negative High-Dominance than the behavioral realism. This shows that the behavior of the agent has less impact on feelings of the user in terms of anger than has his/her disposition to think about themselves.

The factor PANAS Negative Low-Dominance can be best predicted by the personality trait self-efficacy in monitoring others, meaning that people who are more sensitive towards social cues which indicate socially desirable behavior felt less negative after the interaction than people with a weaker value in self-efficacy (see table 4).

In sum, people who easily deal with encountering other people and more agreeable people reported to feel better after the interaction. Participants highly motivated to leave a good impression report about stronger negative feelings. People who are efficient in monitoring others experienced less negative feelings. Furthermore, gender and age as well as four of the Big Five dimensions (extraversion, neuroticism, openness and conscientiousness), reward, and shyness were not included in any of the regression models.

Table 3. Stepwise regression for PANAS Negative High-Dominance

	B	Sf B	B	Sig
Step 1				
Constant	-1.547	0,546		
Public Self-Consciousness	0,443	0,154	.305	.005
Step 2				
Constant	-1,438	0,538		
Public Self-Consciousness	0,472	0,151	.325	.002
Behavioral realism	-0,436	0,270	-.219	.038

Note: R^2= .085 for step 1, ΔR^2=.055 for step 2 (ps > .05).

Table 4. Stepwise regression for PANAS Negative Low-Dominance

	B	Sf B	β	Sig
Step 1				
Constant	1.551	0,576		
Self-efficacy	-0,428	0,156	-.291	.008

Note: R^2= .085 for step 1

3.2 Person Perception

For the participants´ perception of the agent after the interaction results show that two of the four person perception factors can be predicted by at least one regression model. For Person Perception Negative Low-Dominance the stepwise regression included public self-consciousness in the first model and shyness in the second model (see table 5). Public self-consciousness contributes negatively and shyness positively to the perception of the agent on the factor Negative Low-Dominance, meaning that people who care less about making a good impression and are more shy evaluate the virtual character higher on the factor Negative Low-Dominance (weak, shy, naïve, immature, etc). For the factor Person Perception Positive High-Dominance (compassionate, inviting, etc.) the stepwise regression analysis included in a first step self-efficacy and in a second step public self-consciousness into the regression model. People who are more sensitive to social cues for desirable behavior and try less to make a good impression perceive the agent as more positively high-dominant.

In sum, shyer people evaluated the agent to be more submissive and people who want to leave a good impression as less submissive. People who are more sensitive to social cues for desirable behavior and try less to make a good impression evaluate the

agent more positively. Gender and age were not predictive, as well as all Big Five dimensions, and approach avoidance and reward.

Table 5. Stepwise regression for Person Perception Negative Low-Dominance

	B	Sf B	β	Sig
Step 1				
Constant	1,419	0,551		
Public Self-Consciousness	-0,406	0,155	-.280	.010
Step 2				
Constant	,644	0,584		
Public Self-Consciousness	-0,489	0,150	-.337	.002
Shyness	0,490	0,262	.313	.003

Note: R^2= .078 for step 1, ΔR^2=.095 for step 2 (ps > .05).

Table 6. Stepwise regression for Person Perception Positive High-Dominance

	B	Sf B	β	Sig
Step 1				
Constant	-1,531	0,576		
Self-efficacy	0,422	0,156	.288	.008
Step 2				
Constant	-,387	0,793		
Self-efficacy	,407	0,153	.277	.010
Public Self-Consciousness	-,312	0,152	-.215	.043

Note: R^2= .083 for step 1, ΔR^2=.046 for step 2 (ps > .05).

3.5 Verbal behavior

We also calculated a stepwise regression for the participants´ verbal behavior. For the percentage of disfluencies no regression model emerged. However, for the number of words three models were found (see table 7).

Table 7. Stepwise regression for total amount of words

	B	Sf B	β	Sig
Step 1				
Constant	226,7	27,0		
Behavioral realism	-106,8	39,0	-,291	.008
Step 2				
Constant	-9,4	95,4		
Behavioral realism	-128,5	38,6	-.350	.001
Extraversion	79,6	30,9	.271	.012
Step 3				
Constant	-200,9	131,6		
Behavioral realism	-135,5	38,0	-.369	.001
Extraversion	79,4	30,3	.270	.011
Public Self-Consciousness	55,9	27,0	.209	.042

Note: R^2= .113 for step 1, ΔR^2=.161 for step 2 (ps > .05).

Here behavioral realism is the best predictor for the verbal behavior (behavioral realism as dummy variable with 1= responsive and 2= non-responsive). In a second step extraversion significantly improves the model and public self-consciousness in the third step, respectively. The more realistic the agent´s behavior, the more extraverted the person is and the more the person tries to leave a good impression the more words this person will use during the interaction.

3.6 Summary

Results show that participants´ personality traits influenced how they perceived and evaluated their interaction with the Rapport Agent. Effects could be shown for their subjective feeling after the interaction, as well as for their evaluation of the virtual character and their actual behavior (see table 8).

Table 8. Survey of the results

High values in …	…increase…	…decrease…
Behavioral realism	total amount of words	-
Big Five Extraversion	total amount of words	-
Big Five Agreeableness	positive feelings (PANAS Positive Low-Dominance)	-
Big Five Openness	-	-
Big Five Conscientiousness	-	-
Big Five Neuroticism	-	-
Approach Avoidance (more open people, see above)	positive feelings (PANAS Positive Low-Dominance)	-
Reward	-	-
Public Self-Consciousness	negative feelings (PANAS Negative High-Dominance) and total amount of words	negative and positive evaluation of agent (PP Negative Low-Dominance; PP Positive High-Dominance)
Self-Efficacy in Monitoring Others	-	negative feelings (PANAS Negative High-Dominance)
Shyness	negative evaluation of agent (PP Negative Low-Dominance)	positive evaluation of agent (PP Positive High-Dominance)
Age	-	-
Gender	-	-

Agreeableness was found to have a positive impact, as well as the explanatory variables approach avoidance and self-efficacy in monitoring others. On the other hand public self-consciousness, and shyness more negatively influenced the evaluation. People with high values in these traits felt more negative and evaluated the agent more negatively. The actual verbal behavior was positively influenced by extraversion and public self-Consciousness. We could also show that peoples´ disposition to be extroverts and their level of self-confidence influenced their verbal behavior by increasing the number of used words.

4 Discussion and Future Work

In total we included 13 possible predictors into our analyses from which seven were actually predictive for at least one of the dependent variables: extraversion, agreeableness, approach avoidance, self-efficacy in monitoring others, shyness and public self-consciousness as well as the behavioral realism of the virtual character which was the actual manipulation within the study. Gender and age and the three Big Five traits openness, conscientiousness and neuroticism were not found to be predictive. Although the Big Five reflect the most elaborate model on human personality traits they did not seem to be the best predictors regarding that three of them were not predictive. Interestingly, those two Big Five factors which are most closely related to social interaction (extraversion and agreeableness) were predictive. This is in line with the other predictive traits which also rather relate to persistent behavioral patterns in social contact.

Most studies in HAI miss to include standardized questionnaires like the Big Five or the other presented instruments and only assess dispositions for experimental purposes like matching extroverted computers to extroverted people. Researchers should also consider other instruments besides the well known Big Five, because our results suggest that the Big Five had limited explanatory value. Although there is much work concentrating on extraversion and agreeableness, other instruments might deliver more results which lead to interesting insights into the nature and the mechanisms of human-agent-interaction.

Although the traits public self-consciousness and self-efficacy in monitoring others seem to be closely related (one might expect that someone who in general wants to make a good impression also observes his or her own behavior a lot) they were found to have opposite effects on subjective feelings and perception of the virtual character. People high in public self-consciousness feel more aggressive after the interaction. This might be the case because the feedback of the agent is limited (or non-existent, respectively) in both conditions. Therefore participants do not receive feedback whether they actually left a good impression or not. In contrast, people high in self-efficacy feel less afraid and distressed after the interaction. We would speculate that as these persons report to have a high self-efficacy with regard to the ability to interpret other people´s behavior they were satisfied with even minimal cues and therefore felt less afraid and distressed (which is also reflected in the more positive evaluation of the agent). Furthermore, it has to be noted that public self-consciousness yields self-contradictory results since it decreases both negative (submissive, etc.) and positive (compassionate, etc.) perception of the agent. Here, further studies have to be conducted as this cannot be explained by our setting.

In sum, results suggest that, except in one case, certain personality traits are better predictors for the evaluation outcome than the actual manipulation of the experiment, in this case the agent´s behavior. It is quite impressive that the user´s personality has more impact on the agent´s evaluation than its actual behavior – although it is of course not predictable what would happen when the behavior of the agent is even more different. In sum, these results do not suggest that the agent´s behavior does not matter at all or that developers should design systems that can only be used by people with a specific characteristic, it is valuable to know that the effects of an agent also depend on the personality of the user. In conclusion, a person´s disposition can greatly

influence his or her evaluation and also his or her actual behavior during the interaction. Therefore we advise to be aware and assess participants´ personality traits to be able to control for the effects they elicit. A rather extreme example might be that a specific agent received negative ratings caused by a sample with predominantly shy people.

Limitations. To be able to provide developers with some kind of design guidelines we have to conduct further research – especially taking different agents into account. Although shy participants rated this special agent more negative, this result is not necessarily transferable to other agents. Further research with different agents has to be conducted to be able to draw generalizable conclusions on the influence of users´ personality on evaluation. However, the present study showed that a) users´ personality plays a great role in human-agent-interaction (and is sometimes even more important than the agent´s behavior), b) that in particular those traits are important which are related to interpersonal encounters, and c) that especially people with high values in agreeableness, extraversion, approach avoidance (in the sense of being open towards communication) and self-efficacy in monitoring others (in the sense of high self-efficiacy with regard to reading other people´s behavior) judged the agent positively while people with high values on public self-consciousness, and shyness judged the agent more negatively.

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