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published in

Journal of Research in Personality
2023

DOI (link to publisher)

[10.1016/j.jrp.2023.104358](https://doi.org/10.1016/j.jrp.2023.104358)

document version

Publisher's PDF, also known as Version of record

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citation for published version (APA)

Dunlop, P. D., de Vries, R. E., Jolly, A. A., & Parker, S. K. (2023). Three nightmare traits (TNT) and the similarity effect determine which personality traits we like and dislike. *Journal of Research in Personality*, 103, 1-9. Article 104358. <https://doi.org/10.1016/j.jrp.2023.104358>

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Full Length Article

Three nightmare traits (TNT) and the similarity effect determine which personality traits we like and dislike

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ARTICLE INFO

Keywords:

Likeability
Personality
HEXACO
Three nightmare traits
Similarity

ABSTRACT

We obtained free-text descriptions of liked and disliked others provided by 441 panel members (aged 24–26; 35 % male), who also completed the HEXACO PI-R in an online survey. Free-text descriptions were coded for HEXACO trait content by three judges. In line with the ‘three nightmare traits’ framework, we expected and found that language describing high levels of honesty-humility, agreeableness, and conscientiousness most distinguished liked from disliked targets (and vice versa for low levels). High extraversion also appeared in descriptions of liked targets, whereas low extraversion rarely appeared in descriptions of disliked targets. We also found support for the similarity hypothesis with participants higher in openness describing their liked (disliked) targets in terms of higher (lower) levels on this trait.

1. Introduction

Who are the people we want to be associated with? And who do we try to avoid? Being associated with – and supported by – the people we like, while not having to deal with people we dislike, may account for an important part of our well-being as implied by social support and friendship quality research (Chu et al., 2010; Dryburgh et al., in press; Le et al., 2018; Pinquart & Sörensen, 2000). Not only may some personality traits in other people be more ‘likeable’ or ‘dislikeable’ in general, it may also be true that personality determines who we like and who we dislike. The goal of this study was to find out, using the HEXACO model of personality, (1) what personality traits are generally liked and disliked and (2) the extent to which the similarity effect accounts for the extent to which people like and dislike others.

Likeable traits are those traits that we like our partners, friends, and co-workers to have (Goodwin et al., 2014). Dislikeable traits are those that may provide problems in relationships. According to De Vries (2016, 2018), people who are characterized by ‘Three Nightmare Traits’ (TNT) may cause most problems in relationships. These three nightmare traits are low levels of (HEXACO) honesty-humility (i.e., dishonesty), low levels of (HEXACO) agreeableness (i.e., disagreeableness), and low levels of conscientiousness (i.e., carelessness). *Dishonesty* has been

associated with all kinds of negative consequences, including societal (delinquency, criminality; Dunlop et al., 2012; Međedović, 2017; Van Gelder & De Vries, 2012), work-related (e.g., counterproductive, deviant, and unethical workplace behaviors; Anglim et al., 2018; De Vries & Van Gelder, 2015; De Vries et al., 2017; Lee et al., 2005; Pletzer et al., 2020; Zettler et al., 2020), and relational (e.g., low relationship satisfaction, Tov et al., 2016). *Disagreeableness* has been associated with higher levels of antisocial behaviors and insensitivity to unfairness, higher levels of aggressiveness and vengefulness, lower levels of altruism and (reactive) cooperation, and lower levels of relationship satisfaction (Tov et al., 2016; Zettler et al., 2020). *Carelessness* (i.e., low conscientiousness, which is isomorphic in the HEXACO and Big Five personality models) has been associated with lower levels of self-control, lower levels of organizational citizenship behaviors (OCB), higher levels of workplace deviance, and lower levels of relationship satisfaction in intimate partners (Malouff et al., 2010; Pletzer et al., 2019; Pletzer et al., in press; Zettler et al., 2020).

Although the other HEXACO personality traits, extraversion, emotionality, and openness to experience, have also been found to be associated with some of the aforementioned outcome variables, their relations with outcome variables are much more ambiguous than those of the TNT variables (see Zettler et al., 2020). For instance, although

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¹ The first two authors contributed to the development of the study, the hypotheses, and rating materials. The third author contributed to the data collection design and execution, and provided editorial assistance. The fourth author contributed to the study design and materials.

extraversion has been found to be related to positive relationship evaluations (e.g., Malouff et al., 2010; Tov et al., 2016), extraversion is also related to narcissism (Lee et al., 2013), which is associated with various negative psychosocial outcomes (e.g., interpersonal difficulties; Muris et al., 2017).² Furthermore, ‘assholes’ are commonly not only characterized by antagonism (cf. HEXACO low honesty-humility), angry-hostility (cf. HEXACO low agreeableness), and irresponsibility (cf. HEXACO low conscientiousness; see Ashton et al., 2012), but also by assertiveness, a facet of extraversion (Hyatt et al., 2019; Sharpe et al., 2022). That is, of all HEXACO personality variables, the core variables that seem to contrast whether somebody is likeable or dislikeable are mainly determined by a person’s level of honesty-humility, agreeableness, and conscientiousness. Accordingly, we expected to observe a higher prevalence of content relating to high levels honesty-humility, agreeableness, and conscientiousness to emerge in descriptions of liked targets, and a higher prevalence of content relating to low levels of these traits to emerge in descriptions of disliked targets. Similarly, we also expected to observe low prevalence of low levels of these three traits in descriptions of liked targets, and low prevalence of high levels of these traits in descriptions of disliked targets. Formally, we hypothesized:

H1: Compared to liked persons, who are more often described as high rather than low on honesty-humility, agreeableness, and conscientiousness, disliked persons are more often described as low rather than high on honesty-humility, agreeableness, and conscientiousness.

Apart from the main effects on likeability of honesty-humility, agreeableness, and conscientiousness, a rater’s personality may also determine the extent to which somebody else’s personality traits are deemed likeable or dislikeable. Especially two HEXACO personality traits have been found to be relevant in the perception and evaluation of personality traits in others: honesty-humility and openness to experience. Honesty-humility and openness to experience are the two personality traits that are most closely related to socio-political attitudes (e.g., social dominance orientation and right-wing authoritarianism; Altemeyer, 1981; Pratto et al., 2006) and values (e.g., self-enhancement versus self-transcendence and openness to change versus conservation; Schwartz, 1992). That is, honesty-humility has been found to be negatively related to social dominance orientation and self-enhancement values, whereas openness to experience has been negatively related to right-wing authoritarianism and conservation values (De Vries et al., 2022; Desimoni & Leone, 2014; Lee et al., 2010; Leone et al., 2012).

In contrast to the four other dimensions of HEXACO personality, not only do people assume others to be similar on honesty-humility and openness to experience, but they also prefer to befriend others with similar levels on these two personality dimensions (Lee et al., 2009; Thielmann et al., 2020). That is, people seem to ‘like’ people better when they have similar levels of honesty-humility and openness to experience. This may affect their ratings of likeable and dislikeable people as follows. People who are low in honesty-humility may be less inclined to describe people low in honesty-humility as dislikeable (and people high in honesty-humility as likeable) than people high in honesty-humility. Similarly, people low in openness to experience may like others low in openness to experience more than they like people high in openness to experience (and vice versa) when compared to people high in openness to experience. Consequently, we hypothesized:

H2: Honesty-humility is positively associated with the tendency to describe likeable (versus dislikeable) people in terms of higher (versus lower) levels of honesty-humility; and

H3: Openness to experience is positively associated with the tendency to describe likeable (versus dislikeable) people in terms of higher (versus lower) levels of openness to experience.

In the present study, we investigated likeability, dislikeability, and similarity effects using independently coded data of people describing others – in free text format – whom they liked and disliked. Although other studies have investigated likeability of traits, these studies have either investigated the likeability of trait-descriptive words (e.g., Chandler, 2018; Leising et al., 2014), or of traits that have been found to be correlated with ratings of likeability by peers (Wortman & Wood, 2011), or of open-ended descriptions of the best and worst (likeable) traits in the person him-/herself or in a friend (Sun et al., 2022). With respect to the latter large-scale study, friends are not only less likely to have dislikeable traits, the number of terms used to describe somebody who is liked has also been found to be smaller than the number of terms used to describe somebody who is disliked (Alves et al., 2016; Leising et al., 2012). That is, obtaining ratings on a good friend may restrict the range of dislikeable traits, which may skew or even nullify potential effects (for instance, because friends may be less likely to be perceived as dishonest, a contrast in dishonesty between likeable and dislikeable others is less likely to be found). By inviting open-ended responses to people’s own selection of likeable and dislikeable others, a more realistic picture of the profile of likeable and dislikeable traits in others can be provided. Furthermore, by testing the relations of a target’s personality with the ratings of their descriptions of a likeable and dislikeable other, we were able to test the similarity effect using an approach which does not rely on self- and other-ratings using the same instrument, as has been common in other studies (e.g., Thielmann et al., 2020).

2. Method

Supplemental materials for this paper are available for download via the following URL: <https://osf.io/bqe9r>. These materials include rater training documents, SPSS syntax, some additional analyses, and a correlation matrix containing all variables including HEXACO facets.

2.1. Participants and procedure

Participants were recruited from the Raine Study cohort (Straker et al., 2017). The Raine Study (<https://www.rainestudy.org.au>) is a Western Australian based cohort study that commenced in 1989 as a study of 2900 pregnant women (“Gen1”). The children of these participants, the “Gen2” cohort, were born between October 1989 and April 1992. In 2016, 1239 of the now-adult Gen2 cohort members were invited to participate in a larger questionnaire-based project which included the present study, and of these, 441 provided useable responses (36% response rate). Gen2 participants at the time of data collection were all aged between 24 and 26 years, and 35% were male. Where participants’ emails were available, invitations to complete the questionnaire on Qualtrics were circulated directly to the participants, with reminders sent at fortnightly intervals for eight weeks.

2.2. Statistical power, sensitivity, and registration

The sample size was determined entirely by the number of participants who chose to engage with the study, rather than being a target set by researchers. We generally anticipated relatively large effect sizes to emerge with respect to H1. Indeed, the dependent variables for this hypothesis are derived from the ‘counting up’ of trait-relevant content contained in text. Further, the text was solicited by asking participants to provide descriptions of liked and dislike others, and as noted above, research has provided insights into what traits would likely emerge in

² Note that this relation of narcissism with interpersonal difficulties may be mainly due to the fact that not only (high) extraversion, but also (low) honesty-humility is related to narcissism (Schreiber & Marcus, 2020). However, extraversion may exacerbate this relation, as has been shown for instance in studies on the interaction between (low) honesty-humility and (high) extraversion in the prediction of workplace deviance (Oh et al., 2011).

these descriptions. By contrast, H2 and H3 involve correlations between pairs of variables elicited from two different sources (participants vs. judges), using two different methods (self-reports vs. evaluations of written text, respectively). Associations between personality and variables that are not self-report and scale-based (e.g., Koutsoumpis et al., in press; Soto, 2019) tend to be small, and thus we anticipated that small correlations would be common. Rather than estimate power, which is appropriate when choosing a desirable sample size, we instead estimated sensitivity using GPower 3.1 (Faul et al., 2007). We found that our sample would yield a 90% chance of detecting standardized mean differences of greater than 0.155, and a true population correlation of 0.152 or larger, using two-tailed tests. Further, because data were collected prior to planning this study, and because of the inherent uncertainty associated with coding the qualitative results, we elected not to pre-register this study.

2.3. Measures

2.3.1. HEXACO personality inventory

Participants responded to the six 16-item HEXACO scales from the 100-item HEXACO Personality Inventory (Lee & Ashton, 2018). The altruism scale was not included in the questionnaire to conserve space. Participants were instructed to respond to each self-descriptive item on a 5-point *strongly disagree to strongly agree* scale. Cronbach's alpha reliabilities for the six HEXACO scales were, respectively, 0.81, 0.83, 0.88, 0.86, 0.80, and 0.84. Facet scale reliability coefficients are published in the online supplement.

2.3.2. Interpersonal descriptions

To solicit descriptions of people that the participants liked and disliked, participants were asked to follow the instructions presented below:

Think about a person you like. Think about a person you don't like. Spend a few minutes thinking about each of these people, mentally comparing and contrasting them.

First, describe the person you like as fully as you can. Describe their habits, beliefs, ways of treating others, mannerisms, and such attributes. Please do not spend more than 5 min describing this person.

[response box]

Now describe the person you don't like as fully as you can. Describe their habits, beliefs, ways of treating others, mannerisms, and similar attributes. Please do not spend more than 5 min describing this person.

[response box]

Participants typed their responses using a free-text format. These written responses were then coded independently by three research assistants, two of whom were completing their postgraduate studies in Psychology, and one who had completed a Master of Organizational Psychology. Before undertaking the coding, the coders received training on the HEXACO model, and all training materials are available in the supplement. First, all coders were provided with the definitions of the domain- and facet scales and two journal articles that further described the nature of the HEXACO facets and factors (Ashton et al., 2014; Ashton et al., 2004). These readings were then supplemented by two objective assessments of the coders' understanding of the HEXACO model. One assessment involved matching a set of 48 adjectives to the HEXACO factors, and the second was the Dispositional Insights Test, which assesses individuals' understanding of the behavioral expression (trait induction), trait covariation (trait extrapolation), and situational relevance (trait contextualization) of the HEXACO traits (De Vries et al., 2021). After providing coders with feedback on their performance on the two assessments and after clarifying any misunderstandings, we provided the coders with a set of instructions for the coding activity itself. We asked the coders to code a set of 20 responses (10 for liked, 10 for disliked), and later identified and discussed areas where the coders had reached different conclusions for those 20 responses. Finally, the

coders were given the full set of responses and asked to code these.

The coding itself involved reviewing a participant's written response, and then identifying whether any of the content described high or low levels of the six HEXACO factors. That is, for each response, the coders flagged, separately, whether a high or low level of any factor was present or absent. For example, the response, "Uses people for own personal gain, does not seem to care about the effects they have on other people to get where they want, puts on a different persona around people that have a higher standing in the company, lazy, manipulative" was coded as low honesty-humility (using people for personal gain, manipulative, being insincere), and low conscientiousness (lazy). Altogether, the coders were asked to make 24 presence/absence judgements per participant formed by two levels of six traits, in relation to the liked and disliked persons' descriptions.

To estimate the extent of agreement among the three raters, we counted for each trait (HEXACO \times level (high vs. low) combination, and valence of the target (i.e., liked vs. disliked), the percentage for which all three raters either flagged the trait level as being present or as being absent. By this metric, the range of agreement was 66% to 100%, with a mean across the 24 ratings of 85%. The three cases where agreement was below 70% were Liked-High-Emotionality (67% agreement), Liked-High-Agreeableness (67%), and Disliked-Low-Agreeableness (66%). Finally, we scored each participants' descriptions in relation to high and low levels of each of the HEXACO traits by counting the number of coders that had flagged the characteristic as present. That is, each description would receive a set of 12 scores (6 traits \times 2 levels), with the scores being 0 if none of the coders indicated that the trait-level combination was present, 1 if one coder identified the trait and level combination was present, and so on, to a maximum of 3. Thus, the scores represent the prominence of each trait level in the description, as perceived by the three trained coders.

Finally, to understand precisely how liked and disliked people were described in terms of the HEXACO traits, we computed a new variable for each of the six HEXACO traits which provided an omnibus estimate of the overall desirability of a trait. For convenience, we labelled this variable the "Omnibus Trait Likeability Index" (OTLI) and it represented the extent that high levels of the traits appeared in descriptions of liked individuals and low levels appeared in descriptions of disliked individuals, contrasted against the opposite pattern. For example, for honesty-humility, the OTLI was equal to the sum of the high levels of the trait identified in the description of the liked target and the low levels of the trait identified in the description of the disliked target, minus the sum of the low levels identified for the liked person and the high levels identified in the disliked person. The OTLI could thus range from -6 to $+6$, with higher numbers reflective of traits for which high levels are more prevalent in descriptions of desirable people and less prevalent in descriptions of undesirable people.

3. Results

3.1. Target descriptions

Participants used a mean of 49.86 words ($SD = 43.87$) to describe their 'liked' target and a mean of 46.81 words ($SD = 47.89$) to describe their 'disliked' target. In nearly all cases (90.6% for liked, 91.4% for disliked), the participant did not provide any specific information about the individual the person being described was (e.g., the target was described as "this person", without any information given about who the target was, either by name or by role). Among the responses without identifying information were 16 descriptions for liked targets, and 17 for disliked targets (3.6%/3.9% of the whole sample of descriptions for liked and disliked people respectively) that described people in a general sense rather than an individual (e.g., "People I like are those who..."). A name was provided in some descriptions (12 descriptions, or 2.7% among the liked targets, and 6, 1.4% among the disliked targets). Among the liked target descriptions, it was possible to infer that the person

being described was a friend (18 descriptions, 4.1%), a work colleague (5, 1.1%), a supervisor (4, 0.9%), a romantic partner (4, 0.9%), a family member (5, 1.1%), and one participant named a celebrity in their description. Among the disliked target descriptions, we could infer that the person being described was a friend or former friend (2 descriptions, 0.9%), work colleague (18, 4.1%), a supervisor (5, 1.1%), a former romantic partner (1, 0.2%), a family member (4, 0.9%), a housemate (2, 0.5%) and a single description of a celebrity from the same participant as for the liked targets. Note these categories are not mutually exclusive (e.g., a person could in one description name their target, and mention they were both a colleague and a friend), however we were able to distinguish supervisors from work colleagues in all cases. Several example responses are provided in the appendix.

3.2. Preliminary analyses

We first inspected the means and standard deviations of the 24 ratings, and these are presented in Table 1, along with the OTLIs for each trait. In the descriptions of the liked targets, the trait × level combinations that were most prominent were high levels of agreeableness, honesty-humility, extraversion, and conscientiousness, in that order. Low trait levels were rarely identified by coders among the descriptions of the liked targets, with emotionality being the most prominent. When identifying trait × level combinations in the descriptions of the disliked targets, the coders would most often identify low levels of honesty-humility, agreeableness, and conscientiousness. The remaining traits - high or low levels - were rarely identified by the coders.

3.3. Hypothesis tests

In support of H1, honesty-humility, agreeableness, and conscientiousness showed the highest OTLI scores, as shown by the pattern of results in Table 1. Indeed, honesty-humility exhibited the highest OTLI mean value ($M = 4.27, SD = 1.85$), followed by agreeableness ($M = 3.81, SD = 1.96$), and conscientiousness though the latter showed a somewhat lower mean value ($M = 2.01, SD = 2.09$). The next highest mean value on OTLI was in relation to extraversion ($M = 1.62, SD = 1.89$), however, this was statistically significantly lower than that of conscientiousness ($t(437) = 2.95, p = .004$). Thus overall, H1 was supported.

In addition to the omnibus test, we undertook follow-up analyses of the six HEXACO traits individually using two approaches. First, we compared the extent that the same levels of traits were observed across the liked and disliked targets. For example, we compared the extent that a high level of honesty-humility was observed in the descriptions of the

liked target to the extent it was observed in the description of the disliked target. Second, we undertook within-target comparisons, examining the extent to which low and high levels of the same traits would emerge in the descriptions of the same target. For example, we compared the extent to which high levels of honesty-humility content was identified to the extent that low-levels of honesty-humility content was identified within the description of the same target.

Full details of the follow-up analyses are available in the supplement and Figs. 1 and 2 provide a graphical summary, respectively. The overall shapes of both figures were very similar. Indeed, both figures showed the traits that most discriminated descriptions of liked versus disliked targets were honesty-humility and agreeableness, reflecting the fact that these two traits also showed the largest OTLI. Further, by and large, the two profiles within each chart were close to symmetric (i.e., the more that high levels of a trait were liked, the more that low levels were disliked), however, the lone exception to this pattern was extraversion. Indeed, it appears that language describing high levels of this trait emerged relatively frequently in descriptions of liked targets, whereas descriptions of low levels of extraversion (i.e., introversion) rarely appeared in descriptions of disliked targets.

Next, to test H2 and H3, we examined the associations of participants' own personalities with the extent to which their descriptions of their chosen liked and disliked targets incorporated HEXACO trait information, as identified by the three coders. To this end, we calculated correlations of participants' personality scores with the six OTLI scores derived from their target descriptions, and these are shown in Table 2. A more extensive set of correlations is available in the online supplement. We also inspected partial correlations, controlling for sex which is a known determinant of personality, and a potential cause of trait content in the descriptions (Wysocki et al., 2022), however, results were essentially unchanged and thus we only present zero-order coefficients here.

As Table 2 shows, we found evidence of trait similarity-desirability effects for honesty-humility (H2, $r = 0.18, p < .001$) and openness (H3, $r = 0.34, p < .001$). We also, however, found evidence of analogous effects for emotionality ($r = 0.20, p < .001$), extraversion ($r = 0.16, p = .001$), and conscientiousness ($r = 0.14, p = .002$) but not agreeableness ($r = 0.05, p = .307$). Indeed, tests of the differences in correlations showed that the openness similarity effect was the only such effect that was statistically distinguishable from the others (statistically comparing the openness similarity effect to the next largest effect yielded $z = 2.25, p = .012$). In totality, while H3 was very well supported, the results did not suggest honesty-humility was functionally different from three of the remaining four traits in terms of susceptibility to trait desirability-similarity preferences, thus the support for H2 is less pronounced.

Table 1

Means and Standard Deviations of Participants' Personality and the Counts of the Trait × Level Combinations Appearing in the Descriptions as Rated by Three Coders.

Trait	Participants' Personality		Liked Target				Disliked Target				Omnibus Trait Likeability Index		
	Mean	SD	High Level (1)		Low Level (2)		High Level (3)		Low Level (4)		([1 + 4]-[2 + 3])		
			Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	95% CI
Honesty-humility	3.52	0.54	1.95	1.22	0.05	0.32	0.01	0.11	2.38	1.05	4.27	1.85	4.10, 4.44
Emotionality	3.20	0.58	0.69	0.97	0.39	0.72	0.29	0.68	0.35	0.72	0.35	1.60	0.20, 0.50
Extraversion	3.28	0.62	1.73	1.30	0.18	0.64	0.29	0.71	0.37	0.73	1.62	1.89	1.44, 1.80
Agreeableness	3.03	0.59	2.24	1.02	0.23	0.66	0.05	0.26	1.85	1.20	3.81	1.96	3.63, 4.00
Conscientiousness	3.64	0.49	1.26	1.32	0.05	0.37	0.05	0.29	0.85	1.21	2.01	2.09	1.81, 2.21
Openness	3.38	0.60	0.70	1.07	0.01	0.12	0.00	0.05	0.32	0.74	1.00	1.46	0.86, 1.14

Notes.

$N = 438$ for Liked Target and Omnibus Trait Likeability Index (OTLI), and 441 for all other variables. CI = Confidence Interval. Scores can range from 1 to 5 for the participants' personality traits and 0–3 for the Liked and Disliked Target traits and –6 to + 6 for the OTLI. Column numbers in parentheses were used in the calculation of the OTLI.

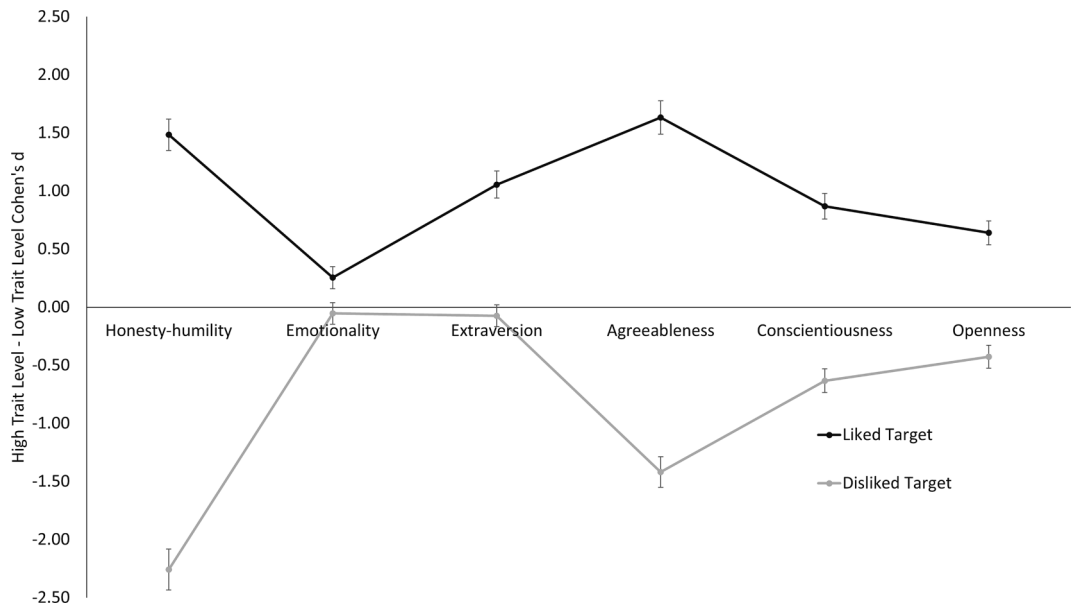


Fig. 1. Mean differences, in terms of Cohen's d, between the use of high and low trait levels in the descriptions of the liked and disliked targets.

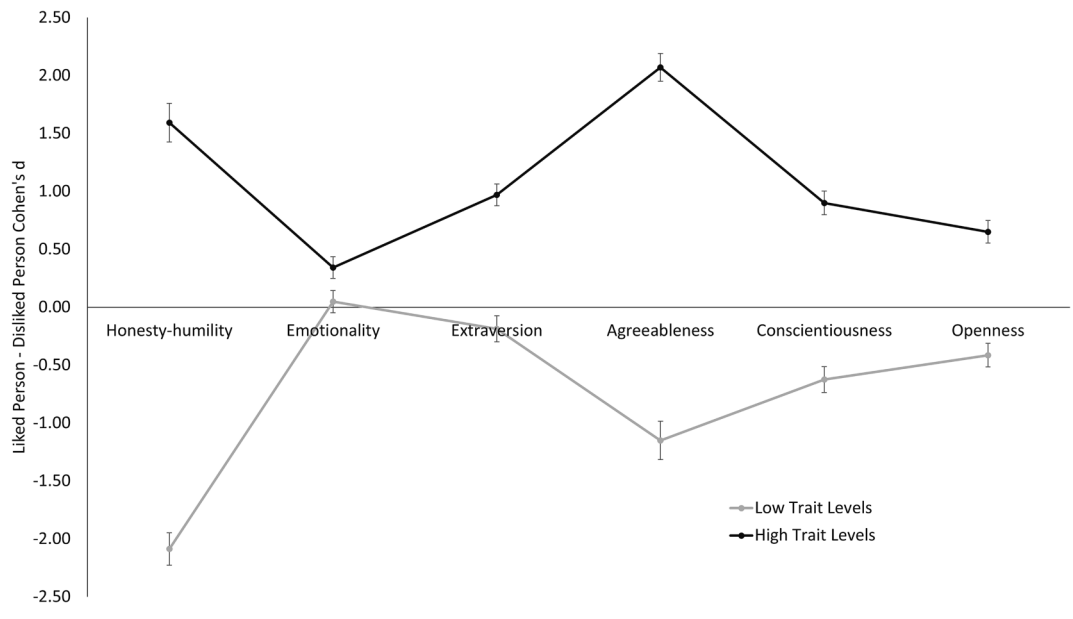


Fig. 2. Mean differences, in terms of Cohen's d, between the liked and disliked target in the use of high and low trait levels in descriptions.

Table 2
Correlations of participants' HEXACO Personality Scores and Omnibus Trait Likeability Indexes.

	1	2	3	4	5	6	7	8	9	10	11
1. OTLI - Honesty-Humility											
2. OTLI - Emotionality	0.10*										
3. OTLI - Extraversion	0.04	0.01									
4. OTLI - Agreeableness	0.12**	0.05	0.14**								
5. OTLI - Conscientiousness	-0.03	-0.05	0.02	-0.07							
6. OTLI - Openness	0.06	-0.03	-0.05	0.01	0.00						
7. Participant Honesty-Humility	0.18**	0.08	-0.06	0.07	0.00	0.01					
8. Participant Emotionality	0.07	0.20**	-0.00	0.08	-0.03	0.06	0.02				
9. Participant Extraversion	0.00	0.02	0.16**	-0.01	0.03	0.01	-0.03	-0.10*			
10. Participant Agreeableness	0.05	0.01	0.02	0.05	-0.09	0.01	0.26**	-0.28**	0.19**		
11. Participant Conscientiousness	0.10*	-0.08	-0.04	0.11*	0.14**	-0.06	0.15**	0.02	0.12*	-0.06	
12. Participant Openness	0.05	0.00	-0.04	0.00	0.02	0.34**	0.14**	-0.04	0.13**	0.11**	-0.04

Notes.
* $p < .05$; ** $p < .01$. $N = 438$ OTLI = Omnibus Trait Likeability Index. Correlation coefficients in bold represent similarity-liking effects.

3.4. Additional findings

In addition to examining relations of participants' personality traits with the OTLIs, we also examined whether personality influences the tendency to use specific trait \times level combinations in the target descriptions. To that end, we inspected the full set of correlations of participants' personality traits with their coded descriptions, shown in the supplement, and identified several interesting patterns.

First, we found that the strong trait desirability-similarity effects observed for openness warranted further exposition. Specifically, relatively more open individuals appeared to describe their liked and disliked targets in language describing higher and lower levels of openness, respectively. By contrast, openness was not associated with the use of language describing low (high) levels of openness among liked (disliked) targets. In other words, low-open people did not seem to be any more, or less, inclined than high-open people to describe their liked target using low-openness language. Similarly, low-open people did not appear to be any more, or less, inclined than high-open people to describe their disliked target in terms of high-openness.

We also discovered that participants who were relatively higher on openness were slightly more inclined to describe people they liked in terms of lower levels of conventionally socially desirable traits, namely low honesty-humility ($r = 0.11, p = .029$), low extraversion ($r = 0.14, p = .003$), and low agreeableness ($r = 0.16, p < .001$). Similarly, they also tended to describe people they *disliked* in terms of conventionally socially desirable traits, including lower emotionality ($r = 0.10, p = .040$) higher agreeableness ($r = 0.12, p = .015$), and higher conscientiousness ($r = 0.13, p = .009$). Nonetheless, we urge some caution with respect to these findings as the base rates of some of the socially undesirable trait \times level combinations in the descriptions of liked targets and vice versa for the disliked targets were relatively low. Table 1 shows, for example, that very few participants cited low levels of openness and honesty-humility in their descriptions of liked targets, and few cited high levels of honesty-humility, agreeableness, conscientiousness, or openness in their descriptions of disliked targets.

4. Discussion

This investigation marks a first attempt to study the traits of liked and disliked targets as those traits emerge in free-text descriptions of the targets. Whereas extensive previous research has identified the characteristics of liked and disliked others (e.g., Alves et al., 2016; Chandler, 2018; Leising et al., 2012, 2014; Sun et al., 2022; Wortman & Wood, 2011), much of it has involved directly prompting participants with the descriptors to solicit a rating. While participants can of course easily provide ratings of a target on any trait when prompted, we expected that our free-form approach would be more likely to invoke the characteristics of the targets that are most salient. Similarly, by asking participants to identify a liked and disliked target, we avoided the problem of range restriction that would occur if participants would be asked to identify the liked and disliked characteristics of friends (e.g., Sun et al. 2022). Using the Three Nightmare Traits (TNT; De Vries, 2016, 2018) as an organizing framework, we showed that the three traits that most distinguished the descriptions of liked from disliked targets were, in order, honesty-humility, agreeableness, and conscientiousness; specifically, liked targets were described in terms of high levels of these traits, and disliked targets were described in terms of low levels. We also discovered that language describing high levels of extraversion was relatively common among descriptions of liked targets, but language describing low levels of this traits, and of high and low levels of emotionality and openness were somewhat rarer in general.

Of the TNTs, honesty-humility and agreeableness were clearly the most salient when describing liked and disliked targets. The strong presence of honesty-humility content suggests that a person's willingness to exploit or co-operate with others (where exploitation can occur without repercussions) represents a key determinant of the valence of a

social relationship with others. Similarly, the salience of agreeableness also highlights the importance to the valence of social relations of a willingness to cooperate over the longer term, despite any past perceived transgressions.³

The magnitude of the differences in description content between the liked and disliked targets we observed for conscientiousness were smaller when compared to those for honesty-humility and agreeableness. Indeed, we found that descriptions of high levels of extraversion occurred more often in the descriptions of liked targets than high levels of conscientiousness. The Omnibus Trait Likeability Index we calculated, which provides a more complete picture of the desirability of a trait, was still larger for conscientiousness than for extraversion. Nonetheless, the finding of somewhat higher ratings of high extraversion than high conscientiousness among liked targets contradicts to some degree the pattern expected from the TNT framework.

There are two possible reasons for this somewhat contradictory finding, which relate to the conceptualization of the TNT framework. First, the TNT framework was conceptualized to describe the traits of aversive (dislikeable) targets, but it was not primarily conceptualized to describe the traits of likeable targets. It is possible that the traits that are regarded as dislikeable may not be the polar opposites of traits that are regarded as likeable. This may be because (a) relations between personality traits and likeability are nonlinear or (b) likeability and dislikeability are not exact polar opposites. However, the profile correlation of the six means of liked traits (column '1' in Table 1) with the means of disliked traits (column '4' in Table 1) is 0.77 ($p = .07$ – note, with only six pairs of data points), which shows that the pattern of means of liked and disliked traits is highly symmetric. Consequently, in general, it seems unlikely that either nonlinearity of traits or nonpolarity of (dis-)likeability play a very strong role in explaining these deviations from the expected pattern. As noted above, however, extraversion was the lone exception to the 'symmetric' pattern, where the affinity for high levels was not reflected by a concomitant dislike of low levels (i.e., introversion). Indeed, low levels on this trait were referenced very rarely in descriptions of both the liked and disliked targets.

According to the TNT framework (De Vries 2016; 2018), the combination of the TNT with high levels of extraversion may actually aggravate the negative effects of the TNT on (work-related) outcomes. First of all, extraversion is the most observable personality trait (Vazire, 2010) and the trait that is most strongly related to leader emergence (Landis et al., 2022). People who are high on extraversion are thus more likely to become influential, even though they have traits that turn out to be undesirable in situations in which they have power (Barends et al., 2019; Lee et al., 2013). Second, high levels of extraversion may – in the minds of others – compensate for the three nightmare traits. People with high levels of extraversion may be seen as more expressive, lively, funny, charming, and interesting than people with low levels of extraversion (e.g., De Vries et al., 2013). And thus, consequently, people with high levels of extraversion, combined with low levels of honesty-humility, agreeableness, and conscientiousness, may misuse their charm and charisma to manipulate, demean, and exploit others.

A second, possibly more important, explanation of the somewhat deviating findings with respect to conscientiousness is that the TNT framework describes the traits of undesirable work colleagues (De Vries, 2016) and leaders (De Vries, 2018). In our study, we did not specifically solicit descriptions of work colleagues or leaders. Instead, though a small number of participants had clearly identified work colleagues,

³ In an analysis reported in the online supplement, we compared the OTLIs observed in this study to three different evaluations of HEXACO traits' desirability derived from Anglim et al. (2017), De Vries et al (2016), and an unpublished study. We found that the OTLI was very strongly associated with all three indexes of desirability (mean profile correlation = 0.80). Note, however, that each of the three sets of profile correlations was based on only six pairs of data points.

supervisors, and in the case of the disliked targets, housemates, we suspect that people would have been thinking about a variety of people. It may therefore be the case that the conscientiousness of individuals who are acquainted outside the work context have somewhat less of an impact on people's perceptions, when compared to extraversion. Nonetheless, the sizes of the effects with respect to conscientiousness descriptions were still generally strong, suggesting that this trait does play an important role in determining the likeability or dislikeability of others in general. We suggest, however, that a future iteration of this research could involve asking people to identify liked and disliked targets in work settings and other specific contexts. For example, the TNT framework would suggest that conscientiousness might emerge to a greater extent if people were describing liked or disliked co-workers and leaders. There may, however, be other contexts where conscientiousness levels of targets may have an impact on participants' perception of targets' (dis-)likeability, such as among housemates or study colleagues.

Our research also found further evidence of personality similarity-affinity effects. In particular, when compared to the remaining HEXACO traits, we found relatively strong similarity effects for the openness trait. That is, more open individuals tended to describe their liked targets using language reflecting high levels of openness, and their disliked targets using language reflecting low levels of openness. Further analyses revealed however, that these effects only operated in one direction. Specifically, similar levels of openness in the target appear to be salient when describing liked targets, and dissimilar levels of openness when describing disliked targets, but not the reverse. In fact, there were almost zero cases where counter-polar openness descriptors were used, suggesting these characteristics are not at all salient when considering liked/disliked others. Until now, as far as we know, no research into the similarity hypothesis (Lee et al., 2009; see also Thielmann et al., 2020) has investigated this unidirectional effect of openness and thus future research might like to investigate whether people characterized by high openness are more likely to more strongly (positively or negatively) evaluate the openness of other people than people low on openness.

We also anticipated that we would find a similarity effect with respect to honesty-humility. While we did find evidence for such an effect, when compared to the size of the similarity effect of openness, the effect for honesty-humility was significantly weaker. Further, the similarity effect for honesty-humility was roughly the same size as that for three of the remaining HEXACO traits (agreeableness being the only trait for which similarity effects were near-zero). Thus, altogether, despite the relations of honesty-humility with socio-political attitudes and values (De Vries et al., 2022; Desimoni & Leone, 2014), and the "assumed similarity" phenomenon associated with this trait (Lee et al., 2009; Thielmann et al., 2020), a person's honesty-humility appears not to be an unusually strong determinant of the presence of honesty-humility relevant content in descriptions of liked and disliked others. One possible explanation for these apparently contradictory findings is that the honesty-humility trait was strongly salient to nearly all participants when describing liked and disliked others.

A final noteworthy result was that participants' openness was associated with the tendency to describe liked targets in terms of traits that are, conventionally, somewhat socially undesirable. That is, those who were more open to experiences were more likely to describe a liked target as being lower on honesty-humility, less extraverted, and less agreeable. Further, these individuals tended to refer to conventionally desirable traits when describing their disliked target, namely higher conscientiousness, agreeableness, and lower emotionality. Thus, altogether, this pattern suggests that those relatively more open individuals are attracted to individuals that are less inclined to conform to societal norms, perhaps reflecting their general preferences for the unconventional or novel.

We must bear in mind some of the limitations of our research. First, our sample was drawn from a cohort study, which in practical terms means that it likely best represents a specific age-range-restricted (early adulthood) and English-speaking population in Australia, rather than a

more general population. Additionally, we only successfully recruited a sub-set of volunteers from the larger cohort into the study. It is therefore possible that participation in the study may have been causally determined by personality traits. In analyses presented in the supplemental materials, we compared the standing on the HEXACO of our participants to that of two samples of a similar age, one being Australians who completed the HEXACO PI on the hexaco.org website (see Ashton & Lee, 2016; $n = 1477$), and the second being a community sample from the Netherlands (see De Vries et al., 2009; $n = 388$). Compared with the online sample, our participants were relatively higher on honesty-humility, agreeableness, openness, and in the case of women, conscientiousness. Compared with the Dutch sample, our sample appeared again to be higher on conscientiousness and openness, but lower on extraversion. Generally, we have no reason to suspect that participation would be associated with the content of the verbal descriptions, however, collider biases in the participant trait-target description correlations are possible in principle if there is such an association (Rohrer, 2018). Second, we must acknowledge that the extraction of trait information from open-ended descriptions necessarily requires human expert judgement, which will introduce some unavoidable subjectivity, and will likely yield a more conservative estimate of effects. Nonetheless, the strong pattern of results, combined with the associations of trait-descriptors with participants' personalities, reassures us that there was sufficient 'signal' embedded within the judgements of the trait descriptions.

Overall, the findings of this investigation have further reinforced the role that the three nightmare traits play in determining the quality of social relationships. Indeed, that these traits emerged most frequently in descriptions of liked and disliked others, in the absence of specific prompts, shows how salient these traits are. Among the three, honesty-humility was the most dominant, followed by agreeableness, and then conscientiousness. High levels of extraversion were also seen as desirable, but in contrast to the three nightmare traits dishonesty (low honesty-humility), disagreeableness (low agreeableness), and carelessness (low conscientiousness), introversion (low extraversion) was rarely mentioned in descriptions of disliked targets. We also uncovered new evidence of the role that openness plays in determining who people want to be associated with or wish to avoid. Specifically, relatively more open people seemed to describe liked targets in terms of high openness and disliked targets in terms of low openness. We also found additional evidence that people high on openness to experience are more likely to be drawn to people with traits that are typically thought of as less desirable. By contrast, despite the associations of honesty-humility with values, we did not observe equally strong evidence that those higher (or lower) in this trait were especially drawn to (or repulsed by) others who shared similar (or had different) levels on the same trait. All in all, our research provides strong evidence that the perception of personality in terms of the TNT plays an important role in who we want to be befriended with – and who we try to avoid.

Additional Disclosures

The data supporting this research are held by the Raine Study (<http://rainestudy.org.au>). Although data access is restricted, such that it cannot be downloaded directly nor accessed by the public, researchers can apply to the custodians of the study for access via the study's web portal. All supplemental materials are available on the project's OSF page: <https://osf.io/bqe9r>.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. This work was supported by the Australian Research Council Discovery Program [DP150103312], Work Design Matters: The Dynamic Interplay of Work, Person and Context.

Data availability

The data supporting this research are held by the Raine Study (<http://rainestudy.org.au>). Although data access is restricted, such that it cannot be downloaded directly nor accessed by the public, researchers can apply to the custodians of the study for access via the study's web portal.

Acknowledgements

We are grateful to the Raine Study participants and their families and

Appendix. Example responses

Liked target

Down to earth, warm, make you feel comfortable, open and honest about themselves, makes you feel needed, funny, cute, calm, likes laughing, not too loud, not too outspoken, open minded, likes to learn, trusts you, respects your opinion, needs you, believes in good, positive (spiritual or religious).

This person is very thoughtful. He is very aware of himself and others and has clearly spent a great deal of time coming to his own conclusions about what is and is not important. Despite taking a very measured approach to life, he is still fun and has a lot of interesting opinions. His response to a messy break up exemplifies how people should act in these situations. And the changes he's made to achieve his goal are admirable.

Loyal, loves animals, emotional, giving, smart, does favours for friends with no expectations, would do anything for his partner and family, very responsible, polite and hugs his friends with open arms, honest. Been through a lot in the past and does not take advantage of people or situations. Does not judge other people.

Disliked target

The person I don't like is loud and obnoxious. They enjoy being the centre of attention too much, and are willing to make others feel like outsiders in order to feel powerful. They do not respect people who are different to them. They speak over the top of others, and laugh at the expense of others in a way that is nasty. They don't show others equal respect. This person does what they want without thinking of the impact of others.

They like to be the centre of attention, put those around them down for their own benefits, false, unable to keep anything shared to them in confidence, I don't always feel they are being honest - more I'm being told what I want to hear, lack of trust - this one I just feel really awful writing so Loud. Very loud. Never stops talking. Will keep talking just for the sake of talking when there is nothing to talk about. Won't easily leave me alone. Will often repeat the same point over and over again maybe paraphrasing but often just saying the exact same thing over and over again. Will try to be the centre of attention and butt in on everyone's lives. Busybody.

Does not treat people with respect. Doesn't appreciate things. Uses people to get what they want. Does what they want without thinking about others.

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