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Perceptions of Vocational Interest: Self- and Other-Reports in Student–Parent Dyads

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Abstract

The current study investigated how self- and other-ratings of vocational interests converge among student–parent dyads. Using the Personal Globe Inventory–Short, we obtained data from a pooled sample of 271 (high school senior and university) student–parent dyads. Participants rated their own vocational interests and those of the other dyad member. First, profile correlations revealed high levels of self-other agreement, moderate levels of assumed similarity, and low levels of similarity and reciprocity in vocational interests. These correlations are highly similar to those found in personality research. Second, profile elevation showed a reversed pattern compared to interest perceptions, with high levels of self-other agreement and moderate levels of assumed similarity, indicating that profile elevation may mostly be an artifact/rater bias and not a substantive factor. Ipsatization of the vocational interest scales somewhat reduced profile elevation bias. Third, same-gender dyads overestimated their similarity in vocational interests more than different-gender dyads.

Keywords

vocational interests, other-reports, self-other agreement, assumed similarity, profile elevation, social relations model

Each year, large numbers of students complete vocational interest questionnaires to help them choose a study program. Sometimes, however, self-reported vocational interests do not provide enough information for vocational counseling because—for example—a candidate’s profile does not show any differentiation between the interests measured (i.e., profile flatness; Sacket & Hansen, 1995). A possible solution may be to also collect other-reported vocational interests. However, not much is known about such other-reports yet. Nearly all studies on vocational interests have used self-reports, and only a few

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Table 1. Types of Interpersonal Perceptions at a Dyadic Level With Self- and Other-Ratings.

Rater	Target	Notation	Person A		Person B	
			Person A = A(A)	Person B = A(B)	Person B = B(B)	Person A = B(A)
Person A	Person A	A(A)	—	—		
	Person B	A(B)	Assumed similarity: $r_{A(A),A(B)}^a$	—		
Person B	Person B	B(B)	Similarity: $r_{A(A),B(B)}$	Self-other agreement: $r_{A(B),B(B)}$	—	
	Person A	B(A)	Self-other agreement: $r_{A(A),B(A)}$	Reciprocity: $r_{A(B),B(A)}$	Assumed similarity: $r_{B(B),B(A)}$	—

^a $r_{A(A),A(B)}$ refers to the correlation between person A’s self-ratings of vocational interests (A[A]) and person A’s other-ratings about the interests of person B (A[B]).

(Nauta, 2012; Nelling, Kandler, & Riemann, 2015) have investigated other-reports. This study builds on these recent studies by investigating the nature of other-reports of vocational interests.

In this study, we will answer three fundamental questions about self- and other-reports of vocational interests in a dyadic (student–parent) setting. First, how do self- and other-reports of vocational interests correspond? Using self- and other-ratings, we investigate the strength of four dyadic vocational interest perceptions, namely, self-other agreement (do a person’s self-ratings converge with ratings by others?), assumed similarity (do a person’s self-ratings converge with how she or he rates others?), similarity (do self-ratings of two persons converge?), and reciprocity (do other-ratings of the persons in a dyad converge?). Second, should vocational interests be ipsatized to adjust for profile elevation? We investigate how perceptions of profile elevation are different from perceptions of vocational interests. Third, does it matter if the observer is of the same or of a different gender? Investigating the effect of gender similarity between the observer and target on perceptions of vocational interests may indicate whether same- or different-gender dyads are better suited to evaluate each other’s vocational interests.

Correspondence of Self- and Other-Rated Vocational Interests

In his social relationships model (SRM), Kenny (1994) described how self- and other-ratings can be combined to form several aspects of interpersonal perception. Within one dyad, self- and other-ratings can yield four different aspects of interpersonal perception, as shown in Table 1. For instance, imagine a dyad consisting of Alexa (A) and Bob (B). Both Alexa and Bob provide self-ratings on vocational interests, which are shown in Table 1 as A(A) and B(B). Alexa provides other-ratings on the interests of Bob and vice versa, which are shown as A(B) and B(A). The self- and other-ratings of Alexa and Bob intersect in six unique ways that can be categorized using four aspects of interpersonal perception (two aspects appear twice).

The—probably—most frequently used aspect of interpersonal perception is self-other agreement. Self-other agreement, $r_{A(A),B(A)}$ or $r_{B(B),A(B)}$, represents the correlation between the self-ratings of one person and the other-ratings by another person who judges the characteristics (e.g., vocational interests) of the first person. If the target’s self-ratings and the observer’s other-ratings correlate highly, then the self-other agreement is high. To our knowledge, dyadic research on vocational

interests has so far been limited to self-other agreement (Nauta, 2012; Nelling et al., 2015). However, there are three other aspects of interpersonal perception. First, if a person rates their own characteristics and the characteristics of another person, the correlation between these two ratings is called assumed similarity. Assumed similarity, $r_{A(A),A(B)}$ or $r_{B(B),B(A)}$, represents the degree to which a person sees him/herself as (s)he sees the other. Second, the correlation between self-ratings of one person with the self-ratings of another is called similarity, $r_{A(A),B(B)}$. Sometimes this is referred to as actual similarity to set it apart from assumed similarity. Last, the relation between two people's other-ratings of each other is called reciprocity, $r_{A(B),B(A)}$. Reciprocity is the correlation between two other-ratings of two individuals judging each other. Reciprocity strongly resembles similarity but uses other-ratings instead of self-ratings to establish the similarity within a dyad.

In sharp contrast to the small number of studies that have looked at other-ratings of vocational interests, a large number of studies have looked at other-ratings of personality. For example, in personality research, other-ratings have been used to establish how rater tendencies influence scale scores (Zettler, Lang, Hülshager, & Hilbig, 2015), to establish how stable personality is over time (Costa, McCrae, & Dye, 1991), and in attempts to solve the person-situation debate (Kenny, 2004). Expanding the SRM, Kenny (2004) describes in his PERSON model how an observer may make more accurate judgments of a target's personality when they make more observations. More observations allow an observer to rate a target's personality more accurately and to reduce error (E), the residual of personal stereotypes (R), the influence of stereotypes that are shared by all observers (S), and the influence of norms (N) on judgments. The accurate judgment of a target's personality partly consists of the target's true personality (P; the part that all observers would agree upon), but it also consists of the unique opinion (O) that the observer has on the target's personality.

Personality research (e.g., De Vries, 2010; McCann, Lipnevich, Poropat, Wiemers, & Roberts, 2015; Watson & Clark, 1991) has provided empirical evidence for strong self-other agreement relations, moderate assumed similarity relations, and mostly insignificant or small similarity and reciprocity relations. A large body of research (e.g., Barrick, Mount, & Gupta, 2003; Holtrop, Born, & De Vries, 2015; Larson, Rottinghaus, & Borgen, 2002; McKay & Tokar, 2012) has shown significant relations between self-ratings of interests and self-rated personality. Additionally, Nelling, Kandler, and Riemann (2015) found high levels of self-other agreement in vocational interests ($\bar{r} = .59$), as did Nauta (2012) across two separate samples ($\bar{r} = .46$ and $.53$). Moreover, when Nauta compared self-other agreement in vocational interests to self-other agreement in personality, she found comparable levels of self-other agreement in vocational interests to personality (respectively \bar{r} [study 1] = $.53$ and $.57$; \bar{r} [study 2] = $.46$ and $.48$). Based on the significant relation between self-ratings of interests and personality, and the comparable levels of self-other agreement, it can be expected that the magnitude of other aspects of interpersonal perception in vocational interests (e.g., assumed similarity, similarity, and reciprocity) will be similar to those found in personality research. Thus, we expected to find strong levels of self-other agreement, moderate levels of assumed similarity, and weak levels of similarity and reciprocity in dyadic ratings of vocational interests.

Hypothesis 1: There is a positive self-other agreement correlation between a target's self-ratings (e.g., A(A)) and other-ratings (e.g., B(A)).

Hypothesis 2: There is a positive assumed similarity correlation between a rater's self-ratings, for example, A(A), and other-ratings, for example, A(B). However, in vocational interests, assumed similarity correlations will be weaker than self-other agreement correlations.

Hypothesis 3: There is a positive correlation between the two targets' self-ratings (similarity; A(A) and B(B)) and two targets' other-ratings (reciprocity; A(B) and B(A)). However, in vocational interests, both similarity correlations and reciprocity correlations are weaker than self-other agreement and assumed similarity correlations.

The Structure and Measurement of Vocational Interests

The present study extends previous research on self- and other-ratings of vocational interests not only by looking at other aspects of interest perceptions but also by using the spherical model of vocational interests (Tracey & Rounds, 1996). The spherical model of vocational interests is an extension on Holland's (1959) structure of vocational interests. Holland proposed that vocational interests can be captured in six main themes: realistic, investigative, artistic, social, enterprising, and conventional. These so-called RIASEC themes represent six, evenly distributed, vectors on a circumplex. Prediger (1982) proposed that two right-angled axes underlie this RIASEC circumplex, namely, ideas versus data and people versus things. In addition to the two axes previously proposed by Prediger (1982), Tracey and Rounds (1996) proposed a third axis of vocational interests, namely, prestige interests. Prestige interests describe an interest in complex tasks (vs. simple tasks) and have been related to educational level, required skill and effort for the activity, and competition involved in the activity (Sodano & Tracey, 2008). Tracey and Rounds proposed that the prestige axis is orthogonal to prediger's ideas versus data and people versus things axes, thus effectively changing the two-dimensional circular representation of vocational interests into a three-dimensional spherical representation, with the original circular representation on the equator. Tracey and Rounds (1996) called this revised model the spherical representation of vocational interests. The spherical structure has been confirmed in the United States (Tracey, 2002) and in several samples outside the United States (e.g., Irish, Dutch, Chinese, and Caribbean; Darcy, 2005; Holtrop et al., 2015; Long, Adams, & Tracey, 2005; Wilkins, Ramkissoon, & Tracey, 2013).

The prestige axis is not the only difference between the spherical representation and the RIASEC model. In the spherical model, the circumplex on the equator is not represented by the six RIASEC themes but instead by eight "basic" interest scales: social facilitating, managing, business detail, data processing, mechanical, nature/outdoors, artistic, and helping. Tracey and Rounds (1995) showed that the hexagonal and octagonal representations cover the same space on the circumplex of vocational interests and are psychometrically equally valid representations of this circumplex. However, they proposed that an octagonal representation may be slightly preferable because practically eight scales allow for a slightly more specified formulation of interests that may be more readily understood. The current study measures vocational interests using the Personal Globe Inventory–Short (PGI-Short; Tracey, 2010), which measures the spherical representation including its octagonal equator.

Profile Elevation in Self- and Other-Rated Vocational Interests

The average score on all scales of an inventory is often called profile elevation. Profile elevation explains large amounts of shared variance in vocational interest scales (Tracey, 2012). Researchers have interpreted profile elevation in two ways: as substance or as artifact. The "substantive" interpretation of profile elevation (e.g., Fuller, Holland, & Johnston, 1999; Hirschi & Läge, 2007) suggests that profile elevation is a meaningful factor. As a substantive factor, profile elevation has been found to relate to career planning, career exploration (Hirschi & Läge, 2007), and personality traits (Fuller et al., 1999; Holtrop et al., 2015). The "artifact" interpretation (e.g., Prediger, 1998; Tracey, 2012) suggests that profile elevation is systematic error or rater bias and that its influence should be minimized when measuring vocational interests. Tracey (2012) suggested to minimize the influence of profile elevation by ipsatizing raw vocational interest scale scores. According to Tracey (2012), profile elevation is likely to affect the score on every vocational interest scale, causing the relations to other variables to not only be due to a particular interest but also be due to profile elevation. To ipsatize interest scales, the grand mean of all raw interest scales is subtracted from each individual scale.

If profile elevation is indeed a substantive factor, then it may show the same pattern of interest perceptions as regular interest scales, as described in Hypotheses 1–3. If profile elevation is a rater bias, then it may show nontrait-like interest perceptions. So far, Nelling et al. (2015) found that profile elevation shows moderate levels of self-other agreement ($r = .34$), in contrast to high levels of self-other agreement for regular interest scales ($r = .59$). If profile elevation shows higher levels of assumed similarity than regular interest scales, this would imply that profile elevation is more influenced by rater tendencies than regular interest scales are, and thus that profile elevation is a bias. Building on the findings of Nelling et al., we expect profile elevation to show moderate levels of self-other agreement, high levels of assumed similarity, and low levels of similarity and reciprocity, indicative of the artifact interpretation.

Hypothesis 4: Self-other agreement correlations in profile elevation are positive and weaker than assumed similarity correlations in profile elevation.

Gender Influences on Self- and Other-Rated Vocational Interests

Of all individual differences, vocational interests arguably show the largest gender differences. For example, Su, Rounds, and Armstrong (2009) found a large gender effect for interest in people versus things ($d = .93$), with women showing more interest in people and men in things. In her circumscription and compromise theory, Gottfredson (1981) describes how people develop vocational aspirations that are in line with their own gender at an early age (from the ages 6–8). Therefore, members of same-gender dyads should—on average—show more strongly overlapping interests than members of different-gender dyads. It may be expected that these pronounced gender mean differences affect the correlations between self- and other-reports of vocational interests and thus influence the perception of vocational interests, specifically for assumed similarity, similarity, and reciprocity, but not for self-other agreement.

In the realistic accuracy model, Funder, Kolar, and Blackman (1995) described how self-other agreement (or accuracy) varies under four conditions. First, a *good judge* (e.g., trained rater) improves the accuracy of ratings. Second, a *good target* makes it easier for judges to accurately rate his or her characteristics. Third, a *good trait* makes judgments more accurate, as some traits are more visible than others. For example, some research (e.g., Funder & Colvin, 1988) showed that extroversion is a highly visible trait. Fourth, *good information* improves the quality of other-ratings and the quality of information improves with acquaintanceship. For vocational interests, Nauta (2012) found some evidence that interest in things showed higher levels of self-other agreement than interest in people and she offered as explanation that interest in things is more visible. Nauta also found that self-other agreement improved with acquaintanceship. For the current study, however, none of these known moderators of self-other agreement describes how self-other agreement may be directly influenced by the gender of the observer, the target, or an interaction thereof. Thus, there is no reason to expect that self-other agreement is influenced by the gender of a dyad's members.

For some personality traits (e.g., openness to experience), assumed similarity was found to be higher between well-acquainted people than their actual similarity, such as between friends and (dating) couples (Lee et al., 2009; Watson, Hubbard, & Wiese, 2000); that is, close acquaintances sometimes overestimate their similarity to the other. According to Lee et al., this overestimation might imply that people are motivated to think that their close acquaintances are more similar to them than they actually are in characteristics that are central to their identity. As interests may also represent such values, participants in student–parent dyads may be motivated to overestimate their similarity to each other. Specifically, because adolescents may model their behavior more after their

same-gender parent (e.g., Dryler, 1998) and because they identify themselves more with the same-gender parent (Starrels, 1994), they may be even more motivated to overestimate their similarity to the same-gender parent. Lastly, due to the aforementioned gender effects in vocational interests, the interests of two people with the same gender are on average more similar than interests of two people with a different gender. Therefore, same-gender dyads are expected to share more interests than different-gender dyads, which should result in higher similarity and reciprocity in same-gender dyads.

Hypothesis 5a: Assumed similarity correlations in vocational interests are stronger than (actual) similarity correlations.

Hypothesis 5b: Assumed similarity correlations in vocational interests are stronger for same-gender dyads than for different-gender dyads, even after controlling for (actual) similarity correlations.

Hypothesis 6: Similarity correlations and reciprocity correlations in vocational interests are stronger for same-gender dyads than for different-gender dyads.

Method

Participants and Procedure

The present study combines the self- and other-ratings of vocational interests of three Dutch subsamples: (1) a high school student subsample, (2) a small heterogeneous snowball subsample, and (3) a university student subsample. Note that the term “students” in this article refers to sons/daughters who are (high school) students, all of whom were close to making their first major vocational decision (i.e., choosing a study program) or recently made that decision. The subsamples were all collected as part of the present study to investigate self- and other-ratings of vocational interests. Besides the PGI-Short (Tracey, 2010), each subsample completed some exploratory measures that are not reported (for more information, please contact the first author).

For the first subsample, approximately 1,200 Dutch sophomore, junior, and senior students from six high schools were approached via e-mail and classroom presentations for voluntary participation. The students were first asked to complete a self-rating of their vocational interests and then to choose one of their parents and rate this parent’s interests. Across the six high schools, 341 students completely filled out the self- and other-ratings. For the second subsample, a group of undergraduate students approached people within their social network. Forty-seven people completed the self- and other-ratings. For the third subsample, university students participated in exchange for credits. In the span of 2 years, 132 undergraduate psychology students completely filled out the self- and other-ratings. Thus, self- and other-ratings of vocational interests were available from 520 people in total. As a reward, all participants received a short report of their own vocational interests and some vouchers were raffled.

All participants filled out the e-mail address of one of their parents. The parents were approached via e-mail within 2 weeks of the students’ participation. For the first subsample of 341 high school students, 59.53% of the parents completely filled out the self- and other-ratings, resulting in 203 “high school student–parent” dyads, students: $\bar{M} = 62.6\%$, $M(\text{age}) = 16.40$ years, standard deviation (SD) = 0.99; parents: $\bar{M} = 56.7\%$, $M(\text{age}) = 49.12$ years, $SD = 5.29$. For the second subsample of 47 students, 44.68% of the parents completely filled out the self- and other-ratings, resulting in 21 “student–parent” dyads, students: $\bar{M} = 57.1\%$, $M(\text{age}) = 22.40$ years, $SD = 5.24$; parents: $\bar{M} = 76.2\%$, $M(\text{age}) = 52.80$ years, $SD = 9.23$. For the third subsample of 132 undergraduate students, 35.61% of the parents completely filled out the self- and other-ratings, resulting in 47 “undergraduate student–parent” dyads, students: $\bar{M} = 91.5\%$, $M(\text{age}) = 19.62$ years, $SD = 1.47$;

parents: $\varphi = 68.1\%$, $M(\text{age}) = 49.28$ years, $SD = 5.23$. Further analyses in the present study are only conducted with participants in a complete dyad.

Before the subsamples were merged, we investigated if they differed in self-other agreement, assumed similarity, similarity, and reciprocity. There were no such differences, $F(2, 268) = 0.30\text{--}1.48$, $p > .20$, also if the second and third subsamples were merged, $F(1, 269) = 0.15\text{--}2.56$, $p > .10$, because these two subsamples consisted of slightly older participants compared to the high school students. Because the groups did not show any significant differences on interpersonal perception of vocational interest, it was decided that the subsamples could be combined for all subsequent analyses. In total, self- and other-ratings of vocational interests were available for 271 dyads, students: $\varphi = 67.2\%$, $M(\text{age}) = 17.42$ years, $SD = 2.56$; parents: $\varphi = 60.1\%$, $M(\text{age}) = 49.47$ years, $SD = 5.79$. Of these dyads, 63.4% was of the same gender (49 son–father and 123 daughter–mother) and 36.5% was of different genders (40 son–mother parent and 59 daughter–father).

Vocational Interest Measurement

The *PGI-Short* (Tracey, 2010) measures vocational interests and contains 2-item formats: activity liking and activity competence, divided over 40 activity statements. Each statement is rated twice on a 7-point Likert-type scale, once on liking (1 = *very strongly dislike*, 7 = *very strongly like*) and once on perceived competence (1 = *unable to do*, 7 = *very competent*). Example items are “paint a portrait” and “oversee sales.” For the purpose of the current study, we used a Dutch translation of the *PGI-Short*. The items were previously translated to Dutch in a study (Holtrop et al., 2015) that used the complete *PGI* (Tracey, 2002). For the self-ratings, we used the original instructions. For the other-ratings, the participants were instructed to “indicate how much you think your (mother/father/daughter/son) likes the activities and how competent you think your (mother/father/daughter/son) is at the activities.” The survey tool automatically showed the appropriate other where now mother/father/daughter/son is displayed.

We used the *PGI-Short*'s 10 spherical interest scales to compute the aspects of interpersonal perception because together these 10 scales comprise the spherical representation of vocational interests. These 10 scales consist of the 8 basic interest scales and the high and low prestige interests scales. Each scale includes 8 items with 4 items from each format. α reliabilities for the 10 scales ranged from .80 to .92 for the self-ratings and from .83 to .93 for the other-ratings. We also computed the three main axes of the spherical model: ideas versus data, people versus things, and prestige interests, which also showed adequate composite reliabilities (Feldt & Brennan, 1989), ranging from .78 to .93 for self-ratings and .80 to .95 for other-ratings.

Because the Dutch *PGI-Short* was used for the first time, its circumplex structure (the equator with the basic interest scales) was tested with a nonparametric randomization test of hypothesized order relations (Hubert & Arabie, 1987) utilizing the program *RANDALL* (Tracey, 1997). This analysis tests whether the correlations decrease in magnitude as the distance between scales on a circumplex increases. These hypothesized order relations are called order predictions and the correspondence index (CI) reflects how many predictions are met, ranging from -1.00 (all predictions violated) to $+1.00$ (all predictions met). In previous research (Tracey, 2010), the *PGI-Short* showed a high average CI of .88 for the basic interest scales. For our data, the self- and other-ratings of vocational interests showed a significant circumplex fit with CIs ranging from .80 to .87 (Table 2).

Analyses

To test Hypotheses 1–3, zero-order correlations were computed for all separate spherical interest scales for each aspect of interpersonal perception within a dyad (see Table 1). Next, to be able to compute an average correlation per aspect, an r -to- z transformation was applied, then the Z -values

Table 2. Randomization Test of Hypothesized Order Relations for a Circumplex Structure in Self- and Other-Ratings on the PGI-Short Octant.

Rater	Student		Parent	
	Self	Other: Parent	Self	Other: Student
Predictions met	269	259	259	263
Predictions tied	0	1	0	0
CI	0.868	0.802	0.799	0.826
p	0.000	0.000	0.000	0.000

Note. $N = 271$. For every hypothesized order test, 288 predictions were made. PGI-Short = Personal Globe Inventory–Short; CI = correspondence index (Hubert & Arabie, 1987).

were averaged, and then the average Z was transformed back to \bar{r} . This average correlation statistic summarizes the correlations between overlapping interest scales for each aspect of interpersonal perception. However, psychological profiles often show some degree of normativeness, which means that—on average—two random profiles are somewhat similar to each other. An averaged correlation between the two profiles, such as the one computed from the simple correlations, may therefore not just reflect the knowledge about one particular person but also of people in general. This normativeness may cause an overestimation of the unique overlap between two interest ratings. Therefore, an r -to- z to \bar{r} transformation was also applied to all interest scales to compute a baseline that reflects normativeness. The baseline thus consists of the average correlation between matched interest scales, for example, correlation between mechanical interest ratings for A(A) and for B(A), and nonmatched scales, for example, correlation between mechanical interest ratings for A(A) and helping ratings for B(A).

Additionally, to further test Hypotheses 1–3, we also computed profile correlations (Furr, 2008). These correlations describe the overlap between two individual multivariate profiles. The profile correlations were estimated with the R package Multicon V1.6 (Sherman & Serfass, 2015). Using Multicon, we computed two types of profile correlations for every dyad for each aspect of interpersonal perception: normative profile correlations and distinctive profile correlations. Normative profile correlations describe the overlap between two multivariate profiles but still include normativeness. Distinctive profile correlations describe the overlap between two multivariate profiles with normativeness removed. To remove normativeness, the overlap between all nonpaired profiles is computed and subsequently removed from the normative profile correlations. Therefore, distinctive profile correlations can be viewed as a summary of the unique overlap between all interest scales of two profiles into one correlation statistic. For the interpretation of the results, we focused on the distinctive profile correlations. Both the average normative and distinctive correlations were estimated with the *describe.r* function in Multicon. This function computes the average correlation applying an r -to- z to \bar{r} transformation. The average normative and distinctive profile correlation presented is therefore somewhat different from the straightforward average of the normative and distinctive profile correlations.

For Hypothesis 4, profile elevation (i.e., the mean score across all spherical interest scales) was computed for all self- and other-ratings of vocational interests. These profile elevation values were then used to compute a zero-order correlation for each aspect of interpersonal perception. Additionally, profile elevation was subtracted from all raw scale scores, creating a second-ipsatized/centered-interest scale score for every participant (Tracey, 2012). Due to the nature of the computation of profile correlations, the profile correlation scores of the ipsatized scales do not differ from the raw scales (in the computation of profile correlations, the scores are already ipsatized). Next, the average correlation of the matched interests and nonmatched interests was compared between the raw and

Table 3. Raw Interest Scores: Means, Standard Deviations, and Reliabilities.

Rater	Student						Parent					
	Self			Other: Parent			Self			Other: Child/Student		
	M	SD	α	M	SD	α	M	SD	α	M	SD	α
Target												
Spherical interest scales												
Social facilitating	4.44	1.08	.84	4.09	1.16	.86	4.37	1.12	.80	4.86	1.15	.88
Managing	3.80	1.20	.88	4.10	1.27	.88	3.96	1.12	.80	3.97	1.17	.87
Business detail	3.17	1.37	.92	3.76	1.45	.92	3.48	1.31	.87	3.47	1.33	.91
Data processing	2.58	1.06	.84	2.88	1.28	.88	2.75	1.21	.85	2.89	1.12	.83
Mechanical	2.43	1.11	.87	2.87	1.44	.92	2.97	1.51	.91	2.69	1.14	.87
Nature/outdoors	3.30	1.26	.85	3.23	1.29	.87	3.33	1.24	.82	3.87	1.26	.84
Artistic	3.23	1.39	.90	3.15	1.52	.93	3.26	1.36	.87	3.81	1.47	.92
Helping	3.97	1.35	.86	3.89	1.34	.86	4.12	1.24	.83	4.34	1.31	.86
High prestige	3.63	1.21	.84	3.65	1.18	.84	3.51	1.33	.85	3.96	1.25	.85
Low prestige	2.65	1.10	.84	3.06	1.32	.87	3.53	1.29	.83	3.01	1.22	.84
Interest axes												
People (hi) versus Things (lo)	3.35	3.28	.93	2.16	3.95	.95	2.72	3.55	.92	3.51	3.21	.92
Ideas (hi) versus Data (lo)	-0.65	3.19	.93	-1.45	3.27	.93	-0.80	3.03	.89	-0.05	2.92	.91
Prestige	0.98	1.46	.78	0.59	1.67	.84	-0.02	1.77	.83	0.95	1.55	.80
Profile elevation	3.32	0.72	—	3.47	0.77	—	3.53	0.73	—	3.69	0.77	—

Note. $N = 271$. Scores on the spherical interest scales ranged from 1 = very strongly dislike/unable to do to 7 = very strongly like/very competent.

ipsatized scales with a Z -test. If ipsatization increases self-other agreement of matched interest scales and decreases self-other agreement of nonmatched interest scales, then ipsatization improves the measurement of self-other agreement (i.e., accuracy of other-ratings). Also, if ipsatization reduces the baseline/average correlation between all interest scales (i.e., the normativeness) of assumed similarity, then ipsatization reduces rater tendencies.

To test Hypotheses 5 and 6, vocational interest perceptions (see Table 1) of same-gender and different-gender dyads were compared using several analysis of (co)variances (AN(C)OVAs). For these tests, the distinctive profile correlations were compared between groups. However, because correlations are generally not normally distributed, first the Z values were computed using Fisher's r -to- z formula. These values were used as input for the AN(C)OVAs. After the analyses, the Z values were transformed back to r s.

Results

Table 3 shows the M , SD , and reliabilities of the self- and other-reports of vocational interests. Overall, participants seemed to be mostly interested in activities with people over things, somewhat more interested in activities with data over ideas and somewhat more interested in prestige.

Correspondence of Self- and Other-Rated Vocational Interests

Table 4 shows all scale and profile correlations for the raw and ipsatized scores. Cohen's (1992) guidelines were used to interpret the strength of the correlations. In these guidelines, he describes correlations from .10 to .30 as weak, from .30 to .50 as moderate, and higher than .50 as strong. Altogether, the raw scale score results in Table 4 support the first three hypotheses. With respect to

Table 4. Correlations Between Self- and Other- Ratings Within Student (S)–Parent (P) Dyads.

Measures	Self-Other Agreement				Assumed Similarity				Similarity		Reciprocity	
	$r_{S(S),P(S)}^a$		$r_{P(P),S(P)}$		$r_{S(S),S(P)}$		$r_{P(P),P(S)}$		$r_{S(S),P(P)}$		$r_{S(P),P(S)}$	
	Raw	lps	Raw	lps	Raw	lps	Raw	lps	Raw	lps	Raw	lps
Spherical interest scales												
Social facilitating	.502	.502	.471	.593	.542	.410	.594	.528	.243	.291	.395	.356
Managing	.444	.539	.461	.527	.414	.307	.440	.472	.185	.289	.180	.238
Business detail	.473	.530	.615	.669	.280	.187	.252	.252	.090	.108	.184	.233
Data processing	.486	.505	.616	.683	.495	.295	.510	.482	.307	.252	.356	.336
Mechanical	.514	.617	.649	.740	.487	.314	.513	.392	.275	.266	.344	.329
Nature/outdoors	.542	.593	.432	.585	.536	.423	.564	.475	.294	.317	.316	.348
Artistic	.536	.625	.529	.638	.422	.354	.480	.372	.165	.206	.330	.333
Helping	.546	.657	.622	.773	.359	.354	.470	.354	.157	.253	.300	.335
High prestige	.491	.507	.418	.522	.520	.382	.478	.372	.161	.182	.282	.293
Low prestige	.332	.403	.557	.638	.477	.294	.555	.458	.217	.201	.295	.254
Interest axes												
Ideas (hi) versus data (lo)	.598	.570	.667	.671	.367	.397	.452	.432	.271	.251	.344	.335
People (hi) versus things (lo)	.714	.725	.803	.799	.395	.339	.509	.469	.372	.309	.435	.384
Prestige interests	.510	.504	.618	.609	.348	.382	.429	.435	.199	.200	.289	.286
Correlation aggregates												
Fisher's Z to \bar{r} (all interests)	.149	.007	.120	.011	.243	.001	.225	.002	.055	.000	.105	.001
Fisher's Z to \bar{r} (matched interests)	.489	.522	.542	.644	.457	.334	.490	.419	.210	.237	.300	.306
Normative profile correlation	.728	—	.730	—	.520	—	.554	—	.397	—	.448	—
Distinctive profile correlation	.547	—	.598	—	.327	—	.361	—	.177	—	.223	—
Profile elevation	.378	—	.330	—	.666	—	.619	—	.153*	—	.277	—

Note. $N = 271$. Raw = correlation coefficients for raw scores; lps = correlation coefficients for ipsatized scores.

* $p < .05$, correlations in *italics* are nonsignificant, all other correlations are $p < .01$. Fisher aggregated correlation coefficients do not have a significance level.

^a $r_{S(S),P(S)}$ indicates the self-other agreement and refers to the correlation between the children's self-ratings of vocational interests, S(S) and the parents' other-ratings about the interests of their children, P(S).

Hypothesis 1, the distinctive profile correlations showed significantly positive and strong levels of self-other agreement, $r = .55$ for agreement about the students' interests and $r = .60$ for agreement about the parents' interests. For Hypothesis 2, the distinctive profile correlations showed significantly positive and moderate levels of assumed similarity, $r = .46$ for assumed similarity by the students (i.e., how similar the students think they are to the parents) and $r = .49$ for assumed similarity by the parents (i.e., how similar the parents think they are to the students). Additionally, the distinctive profile correlations for assumed similarity were significantly weaker than those for self-other agreement ($Z = -3.18$ and -7.75 , both $ps < .01$). Among the zero-order correlations of assumed similarity, the Business detail scale showed the weakest relations for both students' and parents' assumed similarity. For Hypothesis 3, the distinctive profile correlations showed significantly positive and weak similarity ($r = .18$) and reciprocity ($r = .22$). The distinctive profile correlations for similarity and reciprocity were significantly weaker than those for self-other agreement ($Z = -4.53$ to -5.95 , all $ps < .01$). However, the distinctive profile correlations for similarity and reciprocity were mostly not significantly weaker than those for assumed similarity, as only (actual) similarity was weaker than assumed similarity by the parent ($Z = -2.31$, $p < .05$).

Profile Elevation and Self- and Other-Rated Vocational Interests

Table 4 also shows the interest perceptions for profile elevation (i.e., the average score over all interest scales). In contrast to the findings on vocational interests (Hypotheses 1–3), self-other agreement and assumed similarity correlations in profile elevation seemed to be reversed in strength, as predicted in Hypothesis 4. There was a significantly positive and moderate self-other agreement in profile elevation ($r = .38$ and $.33$, with respectively, students or parents as target) and a significantly positive and strong assumed similarity ($r = .67$ in students and $.62$ in parents). Furthermore, profile elevation scores of self-other agreement were significantly lower than those of assumed similarity ($Z = -4.70$ and -4.41 , $p < .01$). Profile elevation scores of similarity and reciprocity showed comparable correlations ($r = .15$ and $.28$, respectively) to the vocational interest scales.

Next, self-other agreement and assumed similarity in profile elevation were compared to self-other agreement and assumed similarity in regular interests. For self-other agreement, the correlations of profile elevation were significantly lower than the distinctive profile correlations of the regular interest scales for students ($Z = -2.50$, $p < .05$) and parents ($Z = -4.02$, $p < .01$). For assumed similarity, the correlations of profile elevation were significantly higher than the distinctive profile correlations of the regular interest scales for students ($Z = 5.37$, $p < .01$) and parents ($Z = 4.00$, $p < .01$).

All raw interest scores were subsequently ipsatized, as described in the analyses plan, to investigate the effect of profile elevation correction on interest perceptions. For self-other agreement, the average correlation of matched ipsatized scales was not significantly higher than the correlation of the raw scores ($Z = .51$, $p = .61$ and $Z = 1.83$, $p = .07$), and the average correlation between nonmatched interests scales (i.e., the normativeness) showed a nonsignificant decrease ($Z = -1.66$, $p = .10$ and $Z = -1.27$, $p = .20$). For assumed similarity, the average correlation of matched ipsatized scales was not significantly lower than the correlation of the raw scores ($Z = -1.69$, $p = .09$ and $Z = -1.04$, $p = .30$), but the average correlation between nonmatched interests scales did show a significant decrease for assumed similarity ($Z = -2.86$, $p < .01$ and $Z = -2.63$, $p < .01$). Thus, ipsatization did not significantly affect self-other agreement or assumed similarity, except for a significant reduction in normativeness of assumed similarity. Note that if ipsatization affects self-other agreement at all the effect is very small. This study provided low power to detect such small differences ($1 - \beta$ ranged from $.13$ to $.57$ for the nonsignificant results).

Gender Influences on Self- and Other-Rated Vocational Interests

Lastly, we tested whether same-gender dyads differed in interest perceptions compared to different-gender dyads. For same-gender dyads, no differences were expected in self-other agreement and greater magnitudes were expected of assumed similarity (Hypothesis 5) and similarity and reciprocity (Hypothesis 6). The distinctive profile correlation was used to calculate the gender interaction for all four aspects of interest perceptions (see Table 1). Assumed similarity was also corrected for actual similarity.

For self-other agreement, no interaction effect was found—between the gender of the rater and the gender of target—for students ($\eta^2 = .00$, $p = .94$) and for parents ($\eta^2 = .00$, $p = .30$). For assumed similarity (Hypothesis 5a), a significant interaction effect was found—between the gender of the rater and the gender of the target—for students ($\eta^2 = .09$, $p < .01$) and parents ($\eta^2 = .06$, $p < .01$). Thus, there was a higher level of assumed similarity when a person of the same gender was judged. When including the main effect of actual similarity on assumed similarity in this model (Hypothesis 5b), the interaction effect for gender diminished slightly but remained significant for students ($\eta^2 = .08$, $p < .01$) and parents ($\eta^2 = .05$, $p < .01$). The interaction effects for assumed similarity are visually shown in Figures 1 and 2. Unexpectedly, for similarity (Hypothesis 6), no

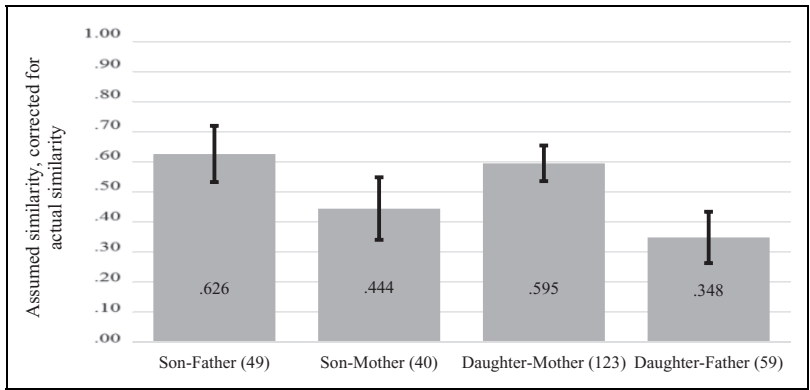


Figure 1. Means and 95% confidence intervals for assumed similarity of vocational interests of students with their parents, $r_{S(S),S(P)}$, corrected for actual similarity, $r_{S(S),P(P)}$. $R^2(\text{model}) = .197$, $p < .01$, observed power $(1 - \beta) = .998$.

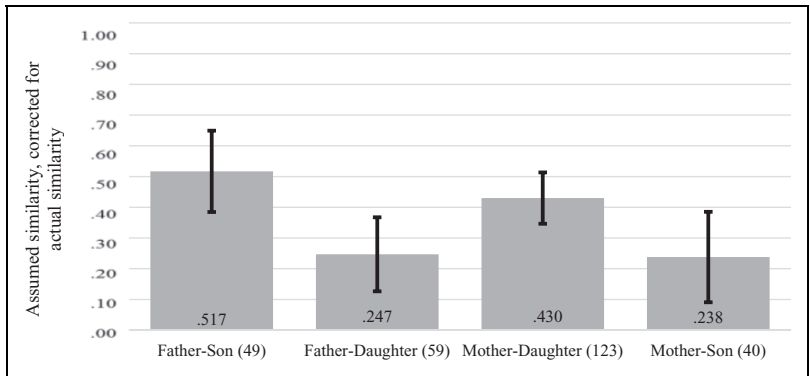


Figure 2. Means and 95% confidence intervals for assumed similarity of vocational interests of parents with their children, $r_{P(P),P(S)}$, corrected for actual similarity, $r_{P(P),S(S)}$. $R^2(\text{model}) = .106$, $p < .01$, observed power $(1 - \beta) = .956$.

significant interaction effect was found between the gender of the targets ($\eta^2 = .01$, $p = .08$). For reciprocity (Hypothesis 6), a significant interaction effect was found between the gender of the targets ($\eta^2 = .04$, $p < .01$). This interaction effect for reciprocity is visually shown in Figure 3. Thus, Hypothesis 6 was only partially confirmed. Overall, neither self-other agreement, assumed similarity, similarity, nor reciprocity showed significant main effects for gender.

Discussion

Correspondence of Self- and Other-Rated Vocational Interests

The results showed that interpersonal perceptions of vocational interests are quite similar to interpersonal perceptions of personality. Using self- and other-reports of vocational interests, we replicated Nauta’s (2012) findings of high levels of self-other agreement in vocational interests and personality. Our results showed a comparable high level of self-other agreement in vocational interests. Additionally, we extended her research, by showing that vocational interests have relations similar to personality for three other interpersonal perceptions, namely, for assumed similarity,

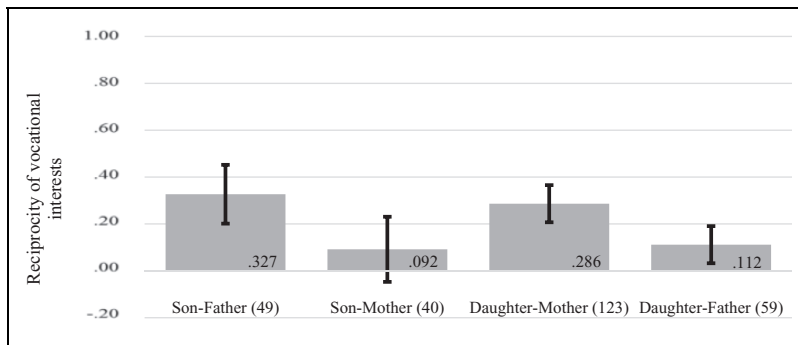


Figure 3. Means and 95% confidence intervals for reciprocity of vocational interests of students and their parents, $r_{S(P),P(S)}$. $R^2(\text{model}) = .043$, $p < .01$, observed power $(1 - \beta) = .931$.

similarity, and reciprocity. Assumed similarity was moderately strong for vocational interests. This means that, when judging others' vocational interests, students and parents generally indicated that those interests were moderately similar to their own interests. We confirmed only a weak presence of similarity and reciprocity, meaning that the correlation between two self-ratings or two other-ratings of vocational interests seems to be low in students–parent dyads. Note that vocational interests are partially heritable (e.g., Nelling et al., 2015) and that the dyads in our study were formed by parents and their children. Therefore, we expect that the moderate assumed similarity, weak similarity, and weak reciprocity found in the present study may be overestimations when compared with dyads comprising nonrelated persons.

Based on the high similarity between the interpersonal perceptions of vocational interests and personality, it could be argued that other research findings regarding self- and other-reports of personality are likely to generalize to vocational interests. For example, Connelly and Ones (2010) showed that several other-reports of personality have a higher predictive validity for work performance than self-reported personality. This could mean that multiple other-reports of vocational interests may be a more valid measure of someone's interests than one self-report and that multiple other-reports are also possibly more predictive for a person's career choices. Consequently, future studies might like to compare the predictive validity of self- and other-reports of vocational interests for study choice and performance.

Profile Elevation and Self- and Other-Rated Vocational Interests

Profile elevation showed a nontrait-like pattern of interpersonal perception in the present study. First, self-other agreement in vocational interests was high, implying that observers can judge the vocational interests of another person well. However, self-other agreement in profile elevation was moderate and significantly lower than in interest scales, indicating that observers cannot judge profile elevation as accurately as they can judge vocational interests. Second, assumed similarity in vocational interests was moderate, implying that observers judge others somewhat similar to themselves. However, assumed similarity in profile elevation was strong and significantly higher than in interests. This reversed pattern of self-other agreement and assumed similarity—compared to vocational interest scales—indicates that profile elevation is probably less like a trait than substantive interest scales. Moreover, the finding that profile elevation shows strong assumed similarity indicates that profile elevation mainly resides within the ratings of one person and means that it is likely a rater tendency/bias. These findings thus support the artifact interpretation (Prediger, 1998;

Tracey, 2012) of profile elevation and oppose the substantive interpretation (e.g., Fuller et al., 1999; Hirschi & Läge, 2007).

Ipsatization seemed to alleviate part of the profile elevation bias problem. Specifically, it completely removed the random correlation (i.e., normativeness) between self- and other-ratings from the same observer. Matched vocational interest scales showed a nonsignificant increase of self-other agreement and a nonsignificant decrease of assumed similarity. These nonsignificant results may be due to the lack of power. Overall, ipsatization seems to improve interpersonal perception measures of vocational interests somewhat. Practitioners and researchers should thus consider removing profile elevation bias by ipsatizing their vocational interest measure.

Gender Influences on Self- and Other-Rated Vocational Interests

The third major finding of the present study was that same-gender dyads showed higher assumed similarity and reciprocity than different-gender dyads. This interaction effect occur neither for self-other agreement and—unexpectedly—nor for similarity. Earlier studies have shown that observers have a tendency to rate well-acquainted targets more similar to themselves than that they actually are (e.g., Lee et al., 2009; Watson et al., 2000). In the present study, parents' assumed similarity to the students was significantly higher than the actual similarity, but not vice versa. Our findings are thus partially in line with previous findings in personality research. The tendency to overestimate the similarity to a target may thus also occur for vocational interests. Moreover, assumed similarity was significantly higher in same-gender dyads than in different-gender dyads (among both students and parents), even if corrected for actual similarity. Thus, observers with the same gender as the target overestimate the overlap in vocational interests even more than observers in different-gender dyads. When studying interpersonal relations with self- and other-rated vocational interests, researchers should keep in mind that different-gender raters may provide more unique information.

The absence of a gender interaction effect for similarity is unexpected as vocational interests show strong gender effects. Moreover, similarity and reciprocity indicate the same underlying interpersonal comparison (both are a between-person comparison with either self- or other-ratings). Because a gender interaction effect did occur for reciprocity, the nonsignificant result for similarity seems puzzling. However, the obvious difference between similarity and reciprocity may lie at the root of this difference, namely, that similarity consists of the correlation between self-ratings and reciprocity of other-ratings. Other-ratings in a same-gender child–parent dyad may correlate stronger than in a different-gender dyad because children identify themselves more strongly with same-gender parents (Starrels, 1994). If an observer strongly identifies with a target, they tend to project characteristics central to their identity on the target through their other-ratings (Lee et al., 2009; Watson et al., 2000). However, taking into account that the interaction effect of similarity was nearly significant and that reciprocity only showed a moderate interaction effect, future research needs to clarify the stability of the gender interaction effect of both of these interests perception aspects.

Practical Implications

The present study shows that other-ratings on vocational interest questionnaires may be used to measure a person's interests. To our knowledge, interests are rarely (possibly never) measured via other-ratings. Others are usually involved in vocational counseling through interviews or discussions. The fact that other-ratings accurately reflect a person's interests, but are not completely similar to self-ratings, opens up new possibilities for vocational counseling. Other-rated vocational interests will allow counselors to involve acquaintances in a structured and reliable manner. This could be helpful when—for instance—the participant has little vocational experience or lacks cultural knowledge. If this is the case, counselors are advised to also collect other-ratings from

well-acquainted others with more vocational experience. These acquaintances may be better able to estimate which jobs and activities the participant likes than the participant himself or herself because they have more knowledge of the person as well as of existing vocations. Another instance in which other-ratings of interests may be helpful is when others are not available for interviews due to practical considerations. An interest questionnaire is a time-efficient tool that can be completed at any moment and may allow others, who are unavailable for interviews, to contribute to career choices of their close acquaintances. For example, other-ratings could be helpful to involve working parents.

We would recommend to only use the highest interest scores provided by other assessments and warn against using the lowest scores because the purpose of vocational interest measurement is to explore what the target person would like to do. It may be detrimental to this process if a well-acquainted other points out what the person would not be interested in. Moreover, counselors should be aware that others may have ulterior motives by ranking vocations higher or lower, especially if these others are invested in the person's future. For example, a parent may be against an arts specialization because "there is no money to be made in those professions."

Summary

This study shows that dyadic perceptions of vocational interests have strong self-other agreement, moderate assumed similarity, and weak similarity and reciprocity. These findings are strongly aligned with findings in personality research. Furthermore, some differences are observed between perceptions of profile elevation and perceptions of vocational interests. Specifically, profile elevation shows moderate self-other agreement and strong assumed similarity, indicating that profile elevation in vocational interests is probably mostly a rater bias. Finally, compared to observers in different-gender dyads, observers in same-gender dyads overestimate their similarity in vocational interests to the target. All in all, this study shows that other-ratings are a highly useful complement to self-ratings in the assessment of vocational interests.

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