

Is she the one? Personality judgments from online personal advertisements

AARON C. WEIDMAN,^a JOEY T. CHENG,^b CHANDRA CHISHOLM,^a
AND JESSICA L. TRACY^a

^aUniversity of British Columbia, Canada; and ^bUniversity of Illinois at Urbana-Champaign

Abstract

The authors examined the linguistic cues that inform personality judgments from online personal advertisements, and whether these judgments are accurate. Advertisers reported their personality, and 2 sets of naïve judges—including one that was seeking a romantic partner—rated advertisers' personality after reading their ads. Judges' impressions of extraversion, agreeableness, and emotional stability—3 traits that are strongly desired in a romantic partner—were influenced by particular lexical cues, such as word count, emotionality, and profanity. Both sets of judges formed accurate impressions for extraversion, but not other traits. These findings suggest that online daters use linguistic cues to judge the desirability of a potential romantic partner's personality, but that the impressions driven by these cues are not always accurate.

Online dating sites have altered the ways in which individuals form romantic relationships. Singles now frequently learn about potential partners through digital profiles that provide information about likes, dislikes, and personality, rather than through more traditional face-to-face interactions. In 2005, 74% of single Americans reported having used the Internet to find a romantic partner, and over

50 million American adults knew at least one person who had gone on a date initiated online (Madden & Lenhart, 2006). Based partly on these data, relationship researchers suggest that online dating has fundamentally altered the dating landscape (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Despite the ubiquity of this relatively new form of relationship formation, however, psychologists have begun to investigate only the ways in which online daters initiate relationships.

One factor that likely contributes to an individual's interest in and decision of whether to pursue a potential romantic partner encountered in an online context is the inference drawn about that potential partner's personality. Explicit beliefs about one's ideal romantic partner personality often guide daters' initial interest in and pursuit of a relationship in digital mediums (Eastwick, Finkel, & Eagly, 2011). Importantly, online dating profiles allow for inferences about personality because they contain both intentional identity claims (e.g., descriptions of hobbies) and inadvertent "behavioral residue" (i.e., physical traces left by our actions; e.g., spelling errors and exclamation points) that

Aaron C. Weidman, Department of Psychology, University of British Columbia, Vancouver, British Columbia, Canada; Joey T. Cheng, Department of Psychology, University of Illinois at Urbana-Champaign, Champaign, Illinois; Chandra Chisholm, Department of Psychology, University of British Columbia, Vancouver, British Columbia, Canada; Jessica L. Tracy, Department of Psychology, University of British Columbia, Vancouver, British Columbia, Canada.

We thank William L. Dunlop, Nicholas S. Holtzman, and Lauren J. Human for their insightful comments and suggestions on earlier versions of this manuscript. We also acknowledge the generous support of the Social Sciences Research Council of Canada Standard Research Grant #410-2009-2458; a Michael Smith Foundation for Health Research Scholar Award [CI-SCH-01862(07-1)]; and an Canadian Institute for Health Research New Investigator Award.

Correspondence should be addressed to Aaron C. Weidman, University of British Columbia, Department of Psychology, 2136 West Mall, Vancouver, BC V6T 1Z4, Canada, email: acweidman@psych.ubc.ca.

may offer cues regarding the advertiser's personality (Gosling, Gaddis, & Vazire, 2008). An important question thus concerns how personality impressions are formed in online dating contexts. This study provides the first investigation of this question, by examining cue utilization (i.e., which linguistic cues are utilized by observers to infer the personality of online dating profile owners) and accuracy (i.e., degree of correspondence between observers' personality inferences and dating profile owners' self-reported personality) of personality judgments made from personal ads.

Which linguistic cues affect personality impressions?

One important question concerning personality impressions made from online dating profiles is which linguistic cues influence individuals' perceptions of the profile owners' personality. If specific linguistic cues reliably convey the impression of certain personality traits, the presence or absence of these cues may influence relationship initiation. Prior research suggests that individuals seek a specific trait profile when evaluating a potential partner whom they have not yet met; in both first-impression (e.g., speed-dating) and long-term (e.g., dating and marriage) contexts, individuals who exhibit low levels of neuroticism but high levels of extraversion, agreeableness, and conscientiousness are consistently seen as desirable romantic partners (Figueredo, Sefcek, & Jones, 2006; Fletcher, Simpson, Thomas, & Giles, 1999; Luo & Zhang, 2009). Furthermore, individuals with these trait profiles tend to experience greater satisfaction and longevity in their relationships (Watson, Hubbard, & Wiese, 2000); in particular, low neuroticism and high conscientiousness assessed early in marriage predict a decreased likelihood of later divorce (Kelly & Conley, 1987).

Which linguistic cues in an online dating profile might promote inferences of these traits? Prior studies of online social networking profiles suggest that judges rely heavily upon cues such as the amount and kind of personal information disclosed (Marcus, Machilek, & Schütz, 2006). In particular, advertisers who provide more information about their hobbies

and beliefs are judged to be higher in extraversion, openness, and agreeableness. In addition, the types of words used are likely to be relevant; judges of self-narratives, and everyday conversations tend to perceive targets as more neurotic if they use more negative emotion words, fewer positive emotion words, and more swear words. Conversely, judges perceive targets as more agreeable if they use more positive emotion words, fewer negative emotion words, and fewer swear words (Küfner, Back, Nestler, & Egloff, 2010; Mehl, Gosling, & Pennebaker, 2006; Rodriguez, Holleran, & Mehl, 2010).

Can accurate personality impressions be formed from online dating profiles?

A second question concerning personality judgments made from online dating profiles is whether individuals can form accurate impressions of potential romantic partners. Accurate perceptions of one's partner (along with positive partner perceptions) play an important role in relationship initiation and satisfaction (Fletcher & Kerr, 2010; Gagne & Lydon, 2004). In first-impression contexts, accurately perceived individuals tend to be liked more than those who are less accurately perceived, and accurately perceiving a new acquaintance may lead individuals to invest more time and energy in getting to know that person (Human, Sandstrom, Biesanz, & Dunn, 2012). In addition, individuals perceive greater intimacy in their romantic relationships when they feel that their partners hold accurate perceptions of their personalities (Lackenbauer, Campbell, Rubin, Fletcher, & Troister, 2010), and individuals involved in happy marriages tend to hold accurate personality impressions of each other (Luo & Snider, 2009). As a result, accurately perceiving a potential partner's personality is an important first step in relationship formation.

Although accurate first impressions are important in early relationship satisfaction, certain factors may hinder the formation of accurate personality judgments from online personal ads. Like most individuals seeking romantic relationships, online daters may be motivated to present their ideal, as opposed

to actual, self. Somewhat unique to the online dating context, however, is the ease of presenting an idealized image, resulting from daters' increased control over information flow compared to traditional face-to-face dating (McKenna & Bargh, 2000). The result may be greater self-enhancement and reduced relevance of personality-related cues in online dating, compared to face-to-face interactions (but see Back et al., 2010). Furthermore, individuals self-enhance more when interacting with unacquainted opposite-sex others (Leary et al., 1994)—precisely the audience for the majority of personal ads. Indeed, many online daters strategically self-enhance in their profiles (Toma, Hancock, & Ellison, 2008), and individuals who meet partners both online and face-to-face report that those partners frequently misrepresent their physical and psychological attributes, including personality (Whitty, 2008).

Nonetheless, certain traits may still yield accurate judgments, given that targets' online personal ads will inevitably contain cues that observers can use to infer targets' level on a given trait (John & Robins, 1993; Vazire, 2010). However, observers' ability to accurately judge certain traits based on personal ads will vary depending on whether the ads contain cues related to that trait. For example, based on the cue utilization research reviewed above, extraversion and openness may be accurately judged from the sheer quantity of information provided in an ad. This is especially true, given that self-presentational concerns are unlikely to influence ad length (i.e., an advertiser motivated to increase his or her apparent openness may be unlikely to write extensively about hobbies and activities that do not exist). In contrast, traits such as neuroticism, conscientiousness, and agreeableness, which are predominantly conveyed through thoughts and feelings that tend to be less easily observable (John & Robins, 1993; Vazire, 2010), may be more difficult to evaluate from personal ads. Judges may infer neuroticism and agreeableness from negative and positive emotion words, but curbing negative and augmenting positive word use may be a relatively easy way for advertisers to present an idealized self-image that deviates from their

actual personality. Conscientiousness may also be relatively less observable in this context, as prior studies have thus far failed to identify valid observable cues of this trait from textual sources (e.g., Küfner et al., 2010).

The present research

In this study, we examined personality judgments made on the basis of online personal ads written by individuals on Craigslist Vancouver. We recruited participants and ads from Craigslist because, unlike many larger dating sites (e.g., Match.com), there are no strict guidelines or restrictions for Craigslist ads, thus increasing the likelihood that personality information will be transmitted in a spontaneous and relatively unconstrained manner. Our goal was to address two questions: (a) Which linguistic cues do judges use to form personality impressions? and (b) Are these impressions accurate? To increase the ecological validity of our design and provide the opportunity to internally replicate our results, we examined judgments made by two groups of unacquainted observers that differed in motivation. One group was composed of individuals who were not explicitly seeking a romantic partner, and were given no incentive to form accurate judgments (Sample 1). In contrast, the second group was composed of individuals interested in seeking a romantic partner, who were told that they would have the opportunity to meet the individuals whose profiles they were judging, in order to incentivize accurate judgments (Sample 2).

Based on prior findings, we had several predictions for this research. First, we predicted that judges would use particular linguistic cues to form impressions of targets' personalities; specifically, we expected judges to infer (a) high extraversion and openness from longer ads; (b) high neuroticism on the basis of more negative and fewer positive emotion words, and more profanity; and (c) high agreeableness from more positive emotion words and fewer negative emotion words, and less profanity. Second, we predicted that personality judgments would be most accurate for extraversion and openness, and least accurate for neuroticism, agreeableness, and conscientiousness,

with accuracy defined as a high degree of self–other agreement. In other words, for a given trait, accuracy would be evidenced by a significant positive correlation between advertisers’ self-reported personality and observers’ reports of advertisers’ personalities.

Method

Participants

Targets were 100 adults (53% female; $M_{\text{age}} = 33.13$, $SD = 10.88$, range = 18–61) from the greater Vancouver area who had posted a personal ad on Craigslist Vancouver, a classifieds site that attracts 10–20 new ads per day. Targets were recruited from Craigslist pages for “men seeking women” and “women seeking men”; as a result, although we did not ask participants to report their sexual orientation, we can infer that targets were interested in heterosexual relationships. Targets were selected at random and recruited via e-mail; specifically, we wrote a computer code for a program that identified every fifth posted personal ad on both the men seeking women and women seeking men pages, and for each selected ad, recorded the URL, author’s e-mail address, the date and time the ad was posted, and full text of the ad. The program then automatically sent the author of the ad an invitation to complete an online survey as part of this study. A total of 300 personal ads were initially selected, and their authors contacted via e-mail. Those who agreed to participate—approximately one third of all advertisers contacted—completed personality questionnaires online, and consented to our use of their ads in the study.

Two samples of undergraduates at the University of British Columbia (UBC) served as naïve judges in exchange for partial course credit (Sample 1: $n = 219$, 73% female; Sample 2: $n = 117$, 54% female; $M_{\text{age}} = 20.64$; $SD = 1.78$; 68% East Asian, 19% Caucasian; 4% Middle Eastern, 9% Other.¹

Data regarding the judges’ sexual orientation were not available. However, records of prescreening responses from the 2013–2014 academic year—the year when Sample 2 was recruited—indicate that 90%–95% of students in the UBC psychology human subjects pool self-identified as heterosexual.² Furthermore, although we do not have prescreening data available from the year when Sample 1 was recruited, we have no reason to expect that the proportion of heterosexual students enrolled in psychology courses at the same university has shifted substantially. We can therefore be reasonably confident that almost all judges in our two samples were heterosexual. We can also be reasonably confident that the age and ethnic breakdown of Sample 1 judges are similar to that of Sample 2. Finally, judges in Sample 2 (but not Sample 1) were selected on the basis of their responses to prescreening questionnaires, indicating that they were: (a) not currently involved in a long-term, committed relationship and (b) interested in looking for a romantic partner.

Procedure

Ads were presented to judges in plain-text form, and contained a mean of 189.61 words ($SD = 149.40$, $Mdn = 155.50$, range = 15–977). All judges in both samples read and rated ads written by advertisers of the opposite sex (e.g., female judges read ads written by male advertisers). Judges in Sample 1 were told that ads were written by adults on the website Craigslist, and that we were interested in the ability of unacquainted individuals to accurately judge personality from personal ads. Judges each read 14 ads, randomly chosen from a pool of 100 (one per target; i.e., one ad was included for each target in the study) and, immediately after reading each ad, rated

judge gender differences, so collapsed across gender for all analyses.

1. Judge age was not collected in Sample 1, to minimize participant burden; however, these judges were students at the University of British Columbia, and we can therefore assume that they were of typical university age, similar to Sample 2. In addition, we found no significant

2. Although we cannot verify the sexual orientation of the judges in our sample from these records, because we did not collect identifying information that would allow us to link judges in our sample to their prescreening responses, it is likely that the proportion of heterosexual participants in the population as a whole maps onto that within our sample.

the target's personality. Each ad was rated by 12–21 judges. By randomly assigning judges to targets, we eliminated systematic variance in perceiver effects across targets and thus can draw conclusions regarding consensus and accuracy (Kenny, 1994).

Unlike judges in Sample 1, judges in Sample 2 were told that they were participating in a study of dating impressions. They were told that they would be reading ads written by other UBC students who were also single and had participated in the same study, and that at the end of the study, they would have the opportunity to receive contact information for any targets whom they wished to meet on the basis of having viewed their ads. However, this cover story was not true; we did not subsequently connect judges to Craigslist advertisers. This deception was used to increase the ecological validity of the study; our aim was for judges in Sample 2 to read the ads while adopting the same goal as held by the ads' intended audience: to determine whether the advertiser would make a suitable romantic partner. The use of deception was approved by the UBC Institutional Review Board, and participants were fully debriefed after completion of the study. Judges each read 11–12 ads, randomly chosen from a pool of 89 and, immediately after reading each, rated the target's personality.³ Each ad was rated by 10–12 judges.

We submitted all ads to the Linguistic Inventory and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001), a text-analysis program that provides word counts for various linguistic categories. These frequency data allowed us to examine the linguistic cues that judges used to form impressions. Given our predictions, we examined the following eight LIWC indices: (a) total word count of each ad, (b) first-person singular pronouns, (c) swear words, (d) positive emotion words, (e) negative emotion words, (f) anger words, (g) anxiety words, and (h) sadness words. The specific emotion categories of anger, anxiety, and sadness are the

only distinct emotion categories available in the LIWC software program. Table 1 presents intercorrelations and descriptive statistics for all linguistic cues.

Measures

Accuracy criteria

All targets completed the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003)—which assesses trait Extraversion, Neuroticism, Conscientiousness, Agreeableness, and Openness to Experience—by rating the extent to which each of 10 adjectives (e.g., quarrelsome and quiet) characterized their personality, using a 7-point scale (1 = *disagree strongly*, 7 = *agree strongly*). Because the TIPI traits are each measured on the basis of only two adjectives that were designed to capture multiple and diverse facets of that trait, TIPI scales tend to be high in bandwidth and predictive validity but low in internal consistency (Credé, Harms, Niehorster, & Gaye-Valentine, 2012; Gosling et al., 2003). In this study, scale alphas were as follows: Neuroticism (.54), Extraversion (.51), Openness to Experience (.28), Agreeableness (.27), and Conscientiousness (.20).

The TIPI was used in this study to maximize participant recruitment success. We anticipated that advertisers would be reluctant to complete a lengthy study, which would necessarily result from the use of other Big Five scales that contain 40 or more items. Furthermore, although the TIPI's low alphas restrict observed correlations between advertisers' self-rated personality and judges' ratings of their personality (i.e., accuracy of personality judgments), they are not relevant to observed correlations between ad cues and judges' ratings (i.e., personality impressions made from ads). It is also noteworthy that several lines of evidence support the validity of the TIPI. Specifically, studies have found that: (a) the scales have high test–retest reliability coefficients, equivalent to those exhibited by longer Big Five personality measures; (b) the individual trait scales show strong convergent correlations with individual trait scales taken from longer Big Five measures; and (c) the

3. Eleven advertisements that were rated by judges in Sample 1 were not rated by judges in Sample 2 because they contained content clearly indicating that they were not written by UBC undergraduates.

Table 1. Intercorrelations and descriptive statistics for linguistic cues in personal advertisements

	Word count	First-person singular pronouns	Swear words	Positive emotion words	Negative emotion words	Anger words	Anxiety words	Sadness words
Word count	—	.09	.08	-.13	.13	.09	.06	.01
First-person singular pronouns		—	.10	-.33*	.13	-.03	.22*	.30*
Swear words			—	-.10	.18	.26*	-.02	.12
Positive emotion words				—	-.15	-.08	-.16 [†]	-.14
Negative emotion words					—	.70*	.32*	.25*
Anger words						—	.09	-.09
Anxiety words							—	-.03
Sadness words								—
Descriptive statistics								
Mean	189.61	7.78	0.15	8.05	1.13	0.36	0.16	0.19
Median	155.50	7.82	0.00	7.47	1.09	0.00	0.00	0.00
Standard deviation	149.40	3.38	0.42	4.83	1.15	0.65	0.31	0.41
Minimum	15	0.00	0.00	1.04	0.00	0.00	0.00	0.00
Maximum	977	18.37	2.67	41.18	7.41	3.70	1.27	2.04

Note. $N = 100$. Intercorrelations between linguistic cues are presented in the top half of the table. Descriptive statistics: Values for word count are raw totals (e.g., mean = average number of words across all ads); values for linguistic categories are percentages (e.g., mean = average percentage of words in each ad that fell into a given category).

[†] $p < .10$. * $p < .05$.

scales show a similar pattern of correlations with external criteria as longer and more reliable Big Five measures (Gosling et al., 2003).

Observer ratings

Judges rated each target's personality on the TIPI after viewing the target's ad. Given that each ad was rated by a different number of judges in both Sample 1 (12–21 judges per ad) and Sample 2 (10–12 judges per ad), interrater reliabilities are not comparable across samples. To facilitate comparison of judge reliabilities, we thus calculated reliabilities based on a randomly selected subsample of 10 judges assigned to rate each ad in each sample. Based on these reliabilities, judges showed high levels of agreement with one another across all traits; Sample 1: mean ICC (1, 10) = .80; range = .74 to .83 across traits; Sample 2: mean ICC (1, 10) = .78; range = .73 to .83 across traits; see Table 2 for reliabilities for individual traits).

Results

Which linguistic cues do people use to judge the personality of online personal advertisers?

We first tested our prediction that judges would use specific linguistic cues present in ads to form impressions of targets' personalities. We modeled judges' ratings of the advertisers' personality, on each of the five traits, as a function of advertisers' scores on each of the eight linguistic cues separately (i.e., 40 models were estimated), using multilevel modeling in *R* with maximum likelihood estimation (see Table 3). Advertisers' scores on each linguistic cue were treated as a Level 2 predictor of judges' personality ratings, with an associated fixed slope. Given that each unique judge rating of personality was nested within one advertiser, the mean trait rating received by each advertiser was treated as a Level 2 intercept, and was allowed to vary randomly.

This analytical procedure resulted in a large number of statistical inference tests. To minimize the likelihood of Type 1 errors, we

Table 2. Consensus and accuracy of personality judgments based on personal advertisements

Trait	Consensus		Accuracy
	Single judge	Mean of 10 judges	
Sample 1			
E	.32***	.82***	.11*
N	.22***	.74***	.03
C	.29***	.81***	.08
A	.33***	.83***	.06
O	.26***	.78***	-.04
Sample 2			
E	.31***	.82***	.12*
N	.27***	.79***	.05
C	.27***	.79***	.001
A	.26***	.78***	.03
O	.21***	.73***	.08

Note: Sample 1: $N = 100$; Sample 2: $N = 89$. Consensus coefficients are intraclass correlations for single perceivers, ICC (1, 1), and the mean of 10 randomly selected perceivers for each judge, ICC (1, 10). Accuracy coefficients are unstandardized regression coefficients (i.e., fixed effect slopes) predicting judge rating from target rating on each trait, using multilevel modeling. Given that each unique judge rating of personality was nested within one advertiser, the mean trait rating received by each advertiser was treated as a Level 2 intercept, and was allowed to vary randomly. E = extraversion; N = neuroticism; C = conscientiousness; A = agreeableness; O = openness.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

discuss here only relations between linguistic cues and personality judgments that attained at least marginal significance ($p < .10$) across both studies, as these are likely to be the most robust and reliable effects. We opted not to employ a formal Bonferroni alpha adjustment, however, because doing so substantially decreases statistical power and also results in evaluating the meaning and importance of effects entirely on the basis of whether other effects were also examined, rather than on the size of the effect, or whether there is theoretical reason to expect the particular effect in question (e.g., Feise, 2002; O’Keefe, 2003; Tutzauer, 2003). Indeed, several researchers have suggested that the use of Bonferroni (and other similar) adjustments is inconsistent with recent calls in social-personality psychology

to focus on effect size estimation and interpretation, rather than on whether effects are statistically significant (e.g., Cumming, 2014; Eich, 2014; Funder et al., 2014).

Results from these models are shown in Table 3. In support of our predictions, across both samples, word count positively predicted judgments of extraversion and openness. Also as predicted and across both samples, advertisers who used more swear words were seen as more neurotic, and less agreeable and conscientious, whereas advertisers who used fewer positive emotion words were seen as more neurotic and less agreeable. The use of negative emotion words was also positively associated with impressions of neuroticism across both samples. With respect to specific negative emotions, across both samples: (a) anger words were associated with impressions of high neuroticism and low agreeableness, (b) anxiety words were relatively nonpredictive of personality impressions, and (c) sadness words predicted impressions of high neuroticism.

Which linguistic cues uniquely drive personality impressions?

Across both samples, swear words and negative emotion words, as well as words related to the specific negative emotions of anger, anxiety, and sadness, were the most consistent predictors of personality impressions. However, these five linguistic categories are not mutually exclusive; all words in the anger, anxiety, and sadness categories are also included in the negative emotion category, and some swear words are included in the anger and negative emotion categories.⁴ The overlap between these five linguistic cues is reflected in the finding that they generally show some degree of positive association, particularly anger and negative emotion ($r = .70$; see Table 1).

Given this overlap, we examined the unique power of each of these categories in predicting personality impressions (see Table 3). First, we examined the respective predictive power of anger, anxiety, and sadness words

4. No swear words are included in the anxiety or sadness categories, meaning that all overlap between swear words and negative emotion words is due to the overlap between swear words and anger words.

Table 3. Cue utility in personality judgments based on personal advertisements

Cue	E	N	C	A	O
Sample 1					
Word count ^a	.20**	.01	.10*	-.08	.20***
LIWC category					
First-person singular pronouns	-.005	.04 [†]	-.009	-.01	.004
Swear words	-.01	.35*	-.35*	-.38*	-.15
Controlling for anger words	-.07	.28 [†]	-.32 [†]	-.30 [†]	-.18
Positive emotion words	-.0004	-.03*	.02	.03*	-.01
Negative emotion words	-.01	.13*	-.06	-.09	-.005
Controlling for anger, anxiety, sadness words	-.13	.04	-.05	.02	-.04
Anger words	.14	.22*	-.13	-.26*	.05
Controlling for swear words	.15	.17 [†]	-.07	-.21 [†]	.08
Controlling for negative emotion words	.29 [†]	.11	-.09	-.29 [†]	.11
Anxiety words	.10	-.04	.38	.12	-.005
Controlling for negative emotion words	.12	-.21	.51*	.25	.001
Sadness words	-.21	.26 [†]	-.20	-.01	-.08
Controlling for negative emotion words	-.22	.18	-.16	.05	-.08
Sample 2					
Word count	.30***	-.01	.07	-.03	.20***
LIWC category					
First-person singular pronouns	.05 [†]	.007	.04	.01	.06*
Swear words	.24	.54**	-.59***	-.62***	.02
Controlling for anger words	.13	.51***	-.54***	-.55***	-.01
Positive emotion words	-.02	-.03*	.008	.03*	-.03 [†]
Negative emotion words	.14*	.10 [†]	-.08	-.13*	.08
Controlling for anger, anxiety, sadness words	-.09	.03	.03	-.002	.04
Anger words	.33**	.16 [†]	-.22*	-.28*	.09
Controlling for swear words	.31*	.08	-.13	-.19*	.10
Controlling for negative emotion words	.31 [†]	.07	-.24	-.25 [†]	-.01
Anxiety words	.54*	-.09	.32	.17	.13
Controlling for negative emotion words	.40	-.25	.48 [†]	.38	.03
Sadness words	-.02	.37 [†]	-.27	-.28	.22
Controlling for negative emotion words	-.14	.30	-.22	-.19	.16

Note: Sample 1: $N = 100$; Sample 2: $N = 89$. Coefficients are unstandardized regression coefficients (i.e., fixed effect slopes) predicting judge rating from the target's score on each cue, using multilevel modeling. Given that each unique judge rating of personality was nested within one advertiser, the mean trait rating received by each advertiser was treated as a Level 2 intercept, and was allowed to vary randomly. Lines referring to a "controlled" cue present unstandardized regression coefficients for the cue listed directly above, with the controlled cue held constant as a covariate (e.g., the "controlling for swear words" line below "anger words" presents the unstandardized regression coefficients for anger words, with swear words held constant). E = extraversion; N = neuroticism; C = conscientiousness; A = agreeableness; O = openness.

^aTo facilitate interpretation, unstandardized regression coefficients for word count are indicated in units of 100 words. For example, in Study 1, the coefficient of .20 indicates that a 100-word increase in word count predicts a .20-unit increase in judge-rated extraversion. [†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

when controlling for negative emotion words. Across both samples, the observed effects of anger, anxiety, and sadness words on personality impressions showed small to moderate attenuation, at times falling below statistical significance, indicating that expressing anger, anxiety, or sadness in personal ads is predictive of personality impressions somewhat—but

not entirely—independently of negative emotionality more broadly. Second, we examined the predictive power of negative emotion words when simultaneously controlling for anger, anxiety, and sadness words. Across both samples, the effects of negative emotion words on personality impressions were dramatically reduced, indicating that expressing negative

emotions other than anger, anxiety, or sadness (e.g., embarrassment, guilt, or shame, all of which are included in the negative emotion category, but not the anger, anxiety, or sadness categories) does not predict personality impressions.

Third, we examined the simultaneous predictive power of swear words and anger words in the same model. Across both samples, the effects of swear words on personality impressions remained large and of similar magnitude, whereas the effects of anger words showed a modest reduction in magnitude, and tended to fall below statistical significance. These results indicate that both swear words and anger words uniquely predict personality impressions, though swear words likely exert a stronger effect.

Can judges form accurate personality impressions from online personal ads?

Next, we tested our predictions regarding accuracy by modeling judges' ratings of advertisers' personality, on each of the five traits, as a function of advertisers' self-reported personality scores on each of those traits (i.e., five models were estimated), again using multilevel modeling in *R*. Advertisers' self-reported personality on each trait was treated as a Level 2 predictor of judges' personality ratings, with an associated fixed slope. Given that each unique judge rating of personality was nested within one advertiser, the mean trait rating received by each advertiser was treated as a Level 2 intercept, and was allowed to vary randomly. In support of our predictions, across both samples, judges achieved modest accuracy in their impressions of targets' extraversion (as indexed by a positive and significant slope), but no significant fixed effects emerged for accuracy in impressions of neuroticism, conscientiousness, or agreeableness (see Table 2). In addition, our prediction that judges would form relatively accurate impressions of targets' openness was not supported.

Discussion

This study provides the first evidence that online daters use specific cues to form

personality impressions from online personal ads. First, judges view targets who write longer ads as more extraverted and open to experience, presumably because these ads portray targets as more outgoing and talkative, and as having a more vibrant social life, as well as more hobbies and interests (Marcus et al., 2006). Second, judges who view profiles exhibiting more profanity—above and beyond the extent to which profanity causes advertisers to appear angry—perceive targets as more neurotic and less agreeable, suggesting that swearing conveys a socially undesirable image in an online dating profile. Third, judges who view profiles exhibiting less positive emotionality and more negative emotionality, particularly expressions of anger, perceive targets as more neurotic and less agreeable, suggesting that judges may view these linguistic cues as indicative of an anxious, hostile, and unpleasant personality profile (Küfner et al., 2010; Mehl et al., 2006).

We also found that judges' impressions of targets' levels of extraversion are somewhat accurate, consistent with prior research, suggesting that extraversion is a relatively observable trait that can be inferred from behavioral residue (John & Robins, 1993; Vazire, 2010; see Tskhay & Rule, 2014, for a meta-analysis). However, judges' impressions were relatively inaccurate for other traits. This observed lack of accuracy for the majority of traits should be interpreted with caution, however, given that the low internal consistency of targets' self-reported traits on the TIPI necessarily deflates relations with judge reports of targets' traits (i.e., a correlation between two variables can be no higher than the reliability of either individual variable). Future studies are thus needed to examine whether individuals can accurately perceive personality through online personal ads when advertisers' personality is assessed using personality scales with higher internal consistencies.

How might an online dater appear to be the one?

This study suggests that online daters who wish to be perceived as more consistent with the ideal romantic partner personality profile (i.e.,

highly extraverted, agreeable, and emotionally stable; Figueredo et al., 2006; Fletcher et al., 1999; Luo & Snider, 2009) should write fairly lengthy ads that use an abundance of positive emotion words, and refrain from any negative emotionality or cursing. Importantly, the finding that advertisers who used negative emotion words and swear words were perceived as relatively disagreeable and neurotic—despite the low rates of swear words and negative emotion words displayed in the ads included here—suggests that even a trace amount of negative emotionality or profanity in an online dating profile is sufficient to convey an undesirable impression. The aspiring online dater may therefore be best served in keeping his or her profile overtly positive and upbeat, given that crafting profiles with these linguistic characteristics appears to give off the impression of a socially desirable personality. Furthermore, in light of evidence that online daters tend to rely on their explicit beliefs about ideal personalities when meeting potential romantic partners (Eastwick et al., 2011), individuals who use linguistic cues to convey an ideal set of traits are more likely to attract interest from other online daters. Importantly, the same linguistic cues that are indicative of a romantic partner's ideal personality may convey to observers that the potential partner is well suited to enter into a satisfying, long-lasting romantic relationship (e.g., Kelly & Conley, 1987; Watson et al., 2000).

Despite the presence of specific linguistic cues that online daters can use to convey socially desirable personality impressions, we found that online daters' personalities are, on the whole, perceived relatively inaccurately by unacquainted observers. These findings are consistent with the expectation that self-enhancement motives that operate when individuals interact with potential romantic partners may make it difficult to form accurate impressions in online dating contexts (Leary et al., 1994; Toma et al., 2008; Whitty, 2008; though see Human, Biesanz, Parisotto, & Dunn, 2012). Unfortunately, if presenting an inauthentic representation of one's personality in an online dating profile hinders the formation of accurate impressions—as suggested by the present results—this self-presentational

strategy may backfire. Individuals who form accurate impressions of others upon first meeting tend to like those individuals more, and tend to invest more effort into becoming acquainted with that person (Human, Sandstrom, Biesanz, & Dunn, 2012); as a result, online daters who are unable to accurately judge the personalities of potential romantic partners may be less likely to engage in the steps necessary to foster that relationship. The aspiring online dater may therefore also benefit from providing a relatively accurate portrayal of themselves in their profiles, while still keeping that portrayal as upbeat and overtly positive as possible.

Importantly, though, the relative inaccuracy observed in this study seems to have resulted primarily from a lack of available information, rather than a lack of motivation on the part of the judges (Funder, 1999). Our two samples of judges showed roughly equivalent levels of accuracy, despite the fact that only one sample was explicitly seeking partners and believed that they would have the opportunity to meet the individuals whose profiles they viewed. This finding is somewhat surprising in light of prior research showing that individuals who are motivated to form accurate impressions of unacquainted others indeed achieve greater accuracy (Biesanz & Human, 2010). Given the importance of accurate personality impressions in fostering initial attraction, as well as long-term relationship satisfaction among dating and married couples (Lackenbauer et al., 2010; Luo & Snider, 2009), future research should investigate steps that online daters can take to increase the degree to which their profiles are perceived accurately. For example, online daters might include additional cues indicative of their personalities in their profiles (e.g., a photo of them partaking in their favorite hobby), in an effort to provide potential romantic partners with more diagnostic information on which to base their personality impressions.

This study also has several limitations, all of which suggest possible directions for future research. First, the correlational nature of this study precludes causal claims regarding the relation between linguistic cues and romantic attraction. In future work, researchers could manipulate the linguistic content of online

dating profiles to isolate the specific cues that lead an online dater to be perceived as an attractive potential romantic partner. Second, our work does not determine whether personality impressions gleaned from online personal ads directly affect romantic interest in online daters, and whether romantic interest based on personality impressions in turn fosters the formation of romantic relationships over time. Several researchers have recently noted a lack of conclusive evidence regarding whether stated preferences for personality traits in a romantic partner actually translate into initial attraction or efforts to foster a long-term committed relationship (e.g., Campbell & Stanton, 2014; Eastwick, Luchies, Finkel, & Hunt, 2014). It is therefore important for future work to employ longitudinal designs to examine whether romantic attraction initiated by personality impressions leads to the formation of romantic relationships. Third, we did not collect data on targets' race or ethnicity, so future studies are needed to examine whether these findings generalize across individuals from different ethnic backgrounds. For example, due to cultural differences in self-enhancement and self-effacement (Heine, Lehman, Markus, & Kitayama, 1999; Yik, Bond, & Paulhus, 1998), advertisers from East Asian cultural backgrounds may be less inclined to minimize the appearance of negative traits and exaggerate culturally valued traits in an online dating profile, which may in turn increase observers' ability to accurately judge advertisers' personalities; this is an important question that should be addressed in future work. Fourth, given that nearly all individuals in this study were heterosexual, another important future direction is to examine whether the present findings hold among gay and lesbian individuals seeking same-sex partners through personal ads. Fifth, although we chose to use the TIPI to measure advertisers' self-reported personality, due to the scale's brevity and established construct validity (Gosling et al., 2003), the five individual trait scales demonstrated low internal consistencies in this study. Future research is therefore needed to replicate these effects using a scale with greater internal consistency, to ensure that the low self–other agreement accuracy correlations observed reflect true

weak associations, and not merely the low reliability of the TIPI.

Conclusion

This study provides the first empirical examination of personality judgments made from online personal ads. We found that naïve perceivers of ads infer a more socially desirable profile from daters who write longer ads and use an overtly positive emotional tone, and a less desirable profile from daters who use profanity, or whose ads display negative emotions. In addition, perceivers can form accurate judgments for extraversion, though they generally fail to accurately perceive other personality traits. Given that online dating has profoundly altered contemporary relationship formation (Finkel et al., 2012), the present findings represent an important first step toward understanding the personality processes underlying the way in which many people currently form romantic relationships.

References

- Back, M. D., Stopfer, J. M., Vazire, S., Gaddis, S., Schmuckle, S. C., Egloff, B., & Gosling, S. D. (2010). Facebook profiles reflect actual personality, not self-idealization. *Psychological Science, 21*, 372–374.
- Biesanz, J. C., & Human, L. J. (2010). The cost of forming more accurate impressions: Accuracy-motivated perceivers see the personality of others more distinctively but less normatively than perceivers without an explicit goal. *Psychological Science, 21*, 589–594.
- Campbell, L., & Stanton, S. C. E. (2014). The predictive validity of ideal partner preferences in relationship formation: What we know, what we don't know, and why it matters. *Social and Personality Psychology Compass, 8*, 485–494.
- Credé, M., Harms, P., Niehorster, S., & Gaye-Valentine, A. (2012). An evaluation of the consequences of using short measures of the Big Five personality traits. *Journal of Personality and Social Psychology, 102*, 874–888.
- Cumming, G. (2014). The new statistics: Why and how. *Psychological Science, 25*, 7–29.
- Eastwick, P. W., Finkel, E. J., & Eagly, A. H. (2011). When and why do ideal partner preferences affect the process of initiating and maintaining romantic relationships? *Journal of Personality and Social Psychology, 101*, 1012–1032.
- Eastwick, P. W., Luchies, L. B., Finkel, E. J., & Hunt, L. L. (2014). The predictive validity of ideal partner preferences: A review and meta-analysis. *Psychological Bulletin, 140*, 623–665.

- Eich, E. (2014). Business not as usual. *Psychological Science*, 25, 3–6.
- Feise, R. J. (2002). Do multiple outcome measures require *p*-value adjustments? *BMC Medical Research Methodology*, 2, 8.
- Figuredo, A. J., Sefcek, J. A., & Jones, D. N. (2006). The ideal romantic partner personality. *Personality and Individual Differences*, 41, 431–441.
- Finkel, E. J., Eastwick, P. W., Karney, B. R., Reis, H. T., & Sprecher, S. (2012). Online dating: A critical analysis from the perspective of psychological science. *Psychological Science in the Public Interest*, 13, 3–66.
- Fletcher, G. J. O., & Kerr, P. S. G. (2010). Through the eyes of love: Reality and illusion in intimate relationships. *Psychological Bulletin*, 136, 627–658.
- Fletcher, G. J. O., Simpson, J. A., Thomas, G., & Giles, L. (1999). Ideals in intimate relationships. *Journal of Personality and Social Psychology*, 76, 72–89.
- Funder, D. C. (1999). *Personality judgment*. San Diego, CA: Academic Press.
- Funder, D. C., Levine, J. M., Mackie, D. M., Morf, C. C., Sansone, C., Vazire, S., & West, S. G. (2014). Improving the dependability of research in personality and social psychology: Recommendations for research and educational practice. *Personality and Social Psychology Review*, 18, 3–12.
- Gagne, F., & Lydon, J. (2004). Bias and accuracy in close relationships: An integrative review. *Personality and Social Psychology Review*, 8, 322–338.
- Gosling, S. D., Gaddis, S., & Vazire, S. (2008). First impressions based on the environments we create and inhabit. In N. Ambady & J. J. Skowronski (Eds.), *First impressions* (pp. 334–356). New York, NY: Guilford Press.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big Five personality domains. *Journal of Research in Personality*, 37, 504–528.
- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, 106, 766–794.
- Human, L. J., Biesanz, J. C., Parisotto, K. L., & Dunn, E. W. (2012). Your best self helps reveal your true self: Trying to make a good impression leads to more accurate personality impressions. *Social Psychological and Personality Science*, 3, 22–30.
- Human, L. J., Sandstrom, G. M., Biesanz, J. C., & Dunn, E. W. (2012). Accurate first impressions leave a lasting impression: The long-term effects of distinctive self-other agreement on relationship development. *Social Psychological and Personality Science*, 4, 395–402.
- John, O. P., & Robins, R. W. (1993). Determinants of interjudge agreement on personality traits: The Big Five domains, observability, evaluativeness, and the unique perspective of the self. *Journal of Personality*, 61, 521–551.
- Kelly, E. L., & Conley, J. J. (1987). Personality and compatibility: A prospective analysis of marital stability and marital satisfaction. *Journal of Personality and Social Psychology*, 52, 27–40.
- Kenny, D. A. (1994). *Interpersonal perception: A social relations analysis*. New York, NY: Guilford Press.
- Küfner, A. C. P., Back, M. D., Nestler, S., & Egloff, B. (2010). Tell me a story and I will tell you who you are! Lens model analysis of personality and creative writing. *Journal of Research in Personality*, 44, 427–435.
- Lackenbauer, S. D., Campbell, L., Rubin, H., Fletcher, G. H. O., & Troister, T. (2010). The unique and combined benefits of accuracy and positivity bias in relationships. *Personal Relationships*, 17, 475–493.
- Leary, M. R., Nezlek, J. B., Downs, D., Radford-Davenport, J., Martin, J., & McMullen, A. (1994). Self-presentation in everyday interactions: Effects of target familiarity and gender composition. *Journal of Personality and Social Psychology*, 67, 664–673.
- Luo, S., & Snider, A. G. (2009). Accuracy and biases in newlyweds' perceptions of each other: Not mutually exclusive but mutually beneficial. *Psychological Science*, 20, 1332–1339.
- Luo, S., & Zhang, G. (2009). What leads to romantic attraction: Similarity, reciprocity, security, or beauty? Evidence from a speed-dating study. *Journal of Personality*, 77, 933–963.
- Madden, M., & Lenhart, A. (2006). *Online dating*. Pew Internet & American Life Project. Retrieved from <http://www.pewinternet.org/Reports/2006/Online-Dating.aspx>.
- Marcus, B., Machilek, F., & Schütz, A. (2006). Personality in cyberspace: Personal websites as media for personality expressions and impressions. *Journal of Personality and Social Psychology*, 90, 1014–1031.
- McKenna, K. Y. A., & Bargh, J. A. (2000). Plan 9 from cyberspace: The implications of the Internet for personality and social psychology. *Personality and Social Psychology Review*, 4, 57–75.
- Mehl, M. R., Gosling, S. D., & Pennebaker, J. W. (2006). Personality in its natural habitat: Manifestations and implicit folk theories of personality in everyday life. *Journal of Personality and Social Psychology*, 90, 862–877.
- O'Keefe, D. J. (2003). Colloquy: Should familywise alpha be adjusted? Against familywise adjustment. *Human Communication Research*, 29, 431–447.
- Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). *Linguistic Inventory and Word Count: LIWC 2001*. Mahwah, NJ: Erlbaum.
- Rodriguez, A. J., Holleran, S. E., & Mehl, M. R. (2010). Reading between the lines: The lay assessment of sub-clinical depression from written self-descriptions. *Journal of Personality*, 78, 575–597.
- Toma, C., Hancock, J. T., & Ellison, N. B. (2008). Separating fact from fiction: An examination of deceptive self-presentation in online dating profiles. *Personality and Social Psychology Bulletin*, 34, 1023–1036.
- Tskhay, K. O., & Rule, N. O. (2014). Perceptions of personality in text-based media and OSN: A meta-analysis. *Journal of Research in Personality*, 49, 25–30.

- Tutzauer, F. (2003). On the sensible application of familywise alpha adjustment. *Human Communication Research, 29*, 455–463.
- Vazire, S. (2010). Who knows what about a person? The self-other knowledge asymmetry (SOKA) model. *Journal of Personality and Social Psychology, 98*, 281–300.
- Watson, D., Hubbard, B., & Wiese, D. (2000). General traits of personality and affectivity as predictors of satisfaction in intimate relationships: Evidence from self- and partner-ratings. *Journal of Personality, 68*, 413–449.
- Whitty, M. T. (2008). Revealing the “real” me, searching for the “actual” you: Presentations of the self on an Internet dating site. *Computers in Human Behavior, 24*, 1707–1723.
- Yik, M. S. M., Bond, M. H., & Paulhus, D. L. (1998). Do Chinese self-enhance or self-efface? It's a matter of domain. *Personality and Social Psychology Bulletin, 24*, 399–406.