Openness to (Reporting) Experiences That One Never Had: Overclaiming as an Outcome of the Knowledge Accumulated Through a Proclivity for Cognitive and Aesthetic Exploration

Patrick D. Dunlop, Joshua S. Bourdage, Reinout E. de Vries, Benjamin E. Hilbig, Ingo Zettler, and Steven G. Ludeke


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Patrick D. Dunlop
University of Western Australia

Reinout E. de Vries
Vrije Universiteit Amsterdam

Ingo Zettler
University of Copenhagen

Joshua S. Bourdage
University of Calgary

Benjamin E. Hilbig
University of Koblenz-Landau

Steven G. Ludeke
University of Southern Denmark

Overclaiming—in which individuals overstate their level of familiarity with items—has been proposed as a potential indicator of positive self-presentation. However, the precise nature and determinants of overclaiming are not well understood. Herein, we provide novel insights into overclaiming through 4 primary studies (comprising 6 samples) and a meta-analysis. Based on past empirical work and theoretical discussions suggesting that overclaiming may be the result of several processes—including an egoistic tendency to self-enhance, intentional impression managing behavior, and memory biases—we investigate various potential dispositional bases of this behavior. We hypothesized that overclaiming would best be predicted by a dispositional tendency to be curious and explorative (i.e., high Openness to Experience) and by a dispositional tendency to be disingenuous and self-centered (i.e., low Honesty-Humility). All studies provided support for the first hypothesis; that is, overclaiming was positively associated with Openness. However, no study supported the hypothesis that overclaiming was associated with Honesty-Humility. The third and fourth studies, where multiple mechanisms were compared simultaneously, further revealed that overclaiming can be understood as a result of knowledge accumulated through a general proclivity for cognitive and aesthetic exploration (i.e., Openness) and, to a lesser extent, time spent in formal education.

Keywords: Openness to Experience, overclaiming, positive self-presentation, socially desirable responding, HEXACO

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Overclaiming—in which individuals overstate their level of familiarity with items—has attracted considerable attention in recent literature (Atir, Rosenzweig, & Dunning, 2015; Bing, 2016; Dunlop, School of Psychology, University of Western Australia; Joshua S. Bourdage, Department of Psychology, University of Calgary; Reinout E. de Vries, Department of Experimental and Applied Psychology, Vrije Universiteit Amsterdam; Benjamin E. Hilbig, Department of Psychology, University of Koblenz-Landau; Ingo Zettler, Department of Psychology, University of Copenhagen; Steven G. Ludeke, Department of Political Science, University of Southern Denmark.

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Correspondence concerning this article should be addressed to Patrick D. Dunlop, School of Psychology, University of Western Australia, M304,35 Stirling Highway, Crawley, Western Australia, Australia 6009. E-mail: patrick.dunlop@uwa.edu.au

Kluemper, Davison, Taylor, & Novicevic, 2011; Feeney & Goffin, 2015; Kam, Risavy, & Perunovic, 2015; Paulhus, Harms, Bruce, & Lysy, 2003; Ziegler, Kemper, & Rammstedt, 2013). Indeed, measures of overclaiming have been viewed as indicators of positive self-presentation, trait narcissism (Paulhus et al., 2003; Tonković, Galić, & Jernei, 2011; Ziegler et al., 2013), and of motivated “faking” behavior (i.e., deliberate positive impression management) in high-stakes settings (Bing et al., 2011; Paulhus, 2011). However, in spite of growing interest in overclaiming across different research and applied contexts, the precise nature and determinants of overclaiming behavior are not well understood. Accordingly, the current paper initially presents a study of three samples which investigate the relations between overclaiming and basic personality traits in terms of the six factors of the HEXACO (i.e., Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience) model of personality (Ashton & Lee, 2007), followed by an experimental study that examines personality-overclaiming relations in a high-stakes setting, two studies that investigate multiple mechanisms that may account for overclaiming behavior, and finally, a meta-analysis of all study samples.
The Advent of the Overclaiming Technique

One common criticism of the use of self-assessments is that they are potentially susceptible to response biases (Paulhus & Vazire, 2007). Perhaps of most concern is that individuals may be motivated in certain circumstances to portray themselves in an unduly favorable manner, rather than reporting on their “true” selves. This type of responding bias, which is often called socially desirable responding or positive self-presentation, is troubling to end users of personality assessments as it represents a form of systematic measurement error that potentially undermines the validity of observed personality scale scores (e.g., Heggstad, 2011; Morgen-son et al., 2007). Researchers have therefore been keen to find methods of detecting this response bias with the hope of eliminating it altogether or identifying individuals whose personality assessments might be particularly distorted. Arguably the most popular attempt thus far has been to incorporate “social desirability,” “impression management,” or “lie” scales into personality questionnaires that are thought to be sensitive to positive self-presentation. These scales typically aim to identify deliberate forms of positive self-presentation through items that capture unlikely virtues or socially desirable traits; that is, implausibly positive characteristics (e.g., always obeying all laws) or the denial of basic human failings (e.g., never swearing or littering). Though social desirability/impression management scales do indeed appear to be sensitive to self-enhancing behavior (Holden, 2007; Paulhus, Bruce, & Trapnell, 1995; Pauls & Crost, 2004), they have been criticized by researchers because they are confounded with meaningful variance of genuinely desirable traits collected from the self and knowledgeable others (e.g., spouses, friends, colleagues), who presumably have no reason to portray an unduly positive image of the target individual (De Vries, Zettler, & Hibig, 2014; Dunlop, Morrison, Koenig, & Silcox, 2012; Kurtz, Tarquini, & Jobst, 2008; McCrae & Costa, 1983), and are actually positively related to virtuous behavior (Zettler, Hibig, Moshagen, & De Vries, 2015).

In response to the above concerns, following the work of Phillips and Clancy (1972), Paulhus and his colleagues proposed an alternative method of identifying positive self-presentation, which they termed the overclaiming technique (Paulhus & Harms, 2004; Paulhus et al., 2003). These authors suggested that the tendency to overclaim could be assessed via overclaiming questionnaires (OCQs). When completing a typical OCQ, participants are asked to rate their familiarity with, or knowledge of, a set of items (examples of items include famous or historical people, books, poems, songs, events). Scattered among the larger set of legitimate items (“targets”) is a smaller set of “foils” (i.e., names of unremarkable people, titles of “books” that were never written, etc.). Thus, foils are items one cannot actually know or be familiar with, although they are constructed to be plausible, that is, resembling real items. In effect, respondents who report that they are familiar with these foils are thought to be “overclaiming.” Early research has revealed some associations between overclaiming in low-stakes situations and trait narcissism (Paulhus et al., 2003), as well as links between overclaiming and impression management behavior in simulated high-stakes personality assessments (Bing et al., 2011). Though overclaiming has shown potential in identifying positive self-presentation, the act of overclaiming remains somewhat poorly understood from a theoretical standpoint. Below, we discuss what little is known about the origins and nature of overclaiming behavior.

The Nature of Overclaiming Behavior

Interestingly, despite being described as resulting from “a deeper and broader personality syndrome” (Paulhus et al., 2003, p. 899), theoretical discussions of the nature of overclaiming behavior and its links to basic personality are relatively scant. In Paulhus et al.’s (2003) original discussion, the authors speculated that overclaiming is a manifestation of an ‘egoistic’ bias (which is also sometimes referred to by the term ‘agentic’ bias; Paulhus & John, 1998; Raskin, Novacek, & Hogan, 1991). An egoistic bias is often thought of as the “tendency to see oneself as exceptionally talented and socially prominent” (Paulhus & John, 1998, p.1034). This bias was captured by Paulhus et al. (2003) both via a factor comprising the discrepancy between self and knowledgeable other-rated Extraversion and Openness to Experience, and through Paulhus’ (1991) Self-Deception Enhancement scale of the Balanced Inventory of Desirable Responding (BIDR). Also in line with this reasoning, Paulhus and colleagues identified Narcissism as a likely determinant of overclaiming, because narcissists, by definition, are dispositionally prone to expressing an egoistic bias; that is, they regard themselves as being more confident, intellectually superior, and important than others (Paulhus, 2011; Paulhus et al., 2003; Paulhus & John, 1998).

In addition, Paulhus (2011) noted that overclaiming might be motivated; that is, consciously triggered by situational demands, such that it may represent a deliberate and explicit attempt to self-enhance. Indeed, it is this property of overclaiming behavior that is most important to demonstrate if OCQs are to be useful as a means of identifying intentional positive self-presentation in, for example, high-stakes assessments (Bing et al., 2011). Such conscious, motivated overclaiming is more consistent with the idea behind the Agentic Management scale of the Bidimensional Impression Management Index (Blasberg, Rogers, & Paulhus, 2014).

Finally, Paulhus (2011) also recently described overclaiming as a possible product of a “memory bias”; that is, people may vary in the extent to which they generally experience or perceive familiarity with things and overclaiming may be an expression of this. In support of this, a conference presentation by Williams, Paulhus, and Nathanson (2002) described a positive association between overclaiming behavior and a memory bias measure that they developed.

Although the three overarching potential mechanisms described above have been proposed to explain overclaiming behavior (i.e., an egoistic bias, intentional behavior/impression management, and a memory bias), theoretical discussions of these mechanisms have yet to acquire a substantial empirical grounding. The present series of studies aims to expand our understanding of the drivers of overclaiming by investigating it, initially, in relation to basic personality traits. Following our initial discoveries, we later consider mechanisms that tie personality, and other characteristics, to overclaiming. We propose that the relation of overclaiming with different aspects of personality may illuminate the nature of some of the aspects that drive it. This is particularly important given the number of potential mechanisms hypothesized to underlie overclaiming, and our relative lack of understanding of this behavior to date. In what follows, we introduce the HEXACO personality
framework and elaborate on the theoretical and empirical links between overclaiming behavior and the HEXACO factors.

The HEXACO Model of Personality

The HEXACO model captures the six factors of Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience (henceforth referred to as “Openness”). The six-factor structure of the HEXACO model has been demonstrated in lexical studies spanning a dozen different languages (Lee & Ashton, 2008). Within the HEXACO model, the Openness, Extraversion, and Conscientiousness factors generally correspond to their Big Five counterparts. The Emotionalness and Agreeableness factors of the HEXACO represent rotational variants of Neuroticism and Agreeableness in the Big Five. However, the most prominent difference between the HEXACO and the five-factor model is the addition of the HEXACO Honesty-Humility factor, which captures variance related to proclivities for dishonesty, fraud, materialism, and self-importance versus sincerity, fairness, greed avoidance, and modesty (Ashton & Lee, 2007; Ashton, Lee, & De Vries, 2014).

At a broader level, the inclusion of Honesty-Humility has helped to enhance our understanding of a number of important criteria, including counterproductive work behaviors (Lee, Ashton, & De Vries, 2005), moral disengagement (Ogunfowora, Bourdage, & Nguyen, 2013), cooperation and prosocial behavior (Hilbig, Glöckner, & Zettler, 2014), and several variables related to sexuality, materialism, and status-orientation (Lee et al., 2013). Further, Honesty-Humility has emerged as an important trait in understanding several self-presentational proclivities, including cheating and acts of dishonesty (Hilbig & Zettler, 2015) as well as job applicant faking behaviors (Griffith, Lee, Peterson, & Zickar, 2011; O’Neill et al., 2013). Given these relations with Honesty-Humility, we chose to couch our investigation of overclaiming within the context of the HEXACO model.

Theoretical and Empirical Links Between Overclaiming and Personality

In this investigation, we focus our attention on two personality factors in relation to overclaiming: Openness and Honesty-Humility. We believe that these two factors are the most theoretically relevant to understand overclaiming behavior. After describing their potential links to overclaiming, we turn briefly to the remaining factors.

Openness to Experience

There are several conceptual reasons to hypothesize a link between Openness and overclaiming behavior. Openness captures a tendency toward intellectual curiosity, creativity, unconventionality, and an appreciation of the beauty in art and nature versus a tendency toward conservative thinking, indifference toward the arts and nature, and an avoidance of intellectual or creative pursuits (DeYoung, 2015). Here, we propose two possible mechanisms that potentially link Openness to overclaiming behavior: The first is tied to the notion of overclaiming as egotistic self-enhancement, and the second falls in line with the memory bias account.

According to the egotistic self-enhancement account of overclaiming (Paulhus & John, 1998; Paulhus et al., 2003), variance should be shared between Openness and overclaiming as a product of a general desire for individuals to present themselves as intellectually superior, knowledgeable, and creative. Whether this goal to engage in positive self-presentation in such a manner is held consciously or unconsciously, individuals can strive for it by reporting high levels of Openness, and by claiming knowledge of (nonexistent) entities; thus resulting in a positive association between Openness and overclaiming. Building on this, some key components of Openness may drive an egotistic response toward overclaiming. For instance, Openness has been shown to be one of the primary personality dimensions underlying a wide array of personal, social, and political values (Lee et al., 2013). Therefore, one’s standing on Openness can be considered a major component of one’s identity. Moreover, given that a large component of Openness tends to be “intellect,” or a tendency to perceive one’s own intelligence or engagement in intellectual pursuits (DeYoung, Quilty, & Peterson, 2007), scoring highly on the types of topics included in an OCQ is likely to be important for somebody high on Openness. That is, a low score or an admission they are not familiar with these topics could be perceived as a threat to one’s ego and identity. Therefore, Openness may be associated with overclaiming through an egotistic self-enhancement bias. Note, however, that this association is not genuine, that is, due to actual differences in Openness, but rather driven by the social desirability inherent in Openness. Stated differently, overclaiming is more prominent among those who also claim to be high in Openness.

The second possible mechanism that ties Openness to overclaiming falls in line with the “memory bias” account (Paulhus, 2011). When individuals are asked to complete an OCQ, they are asked to report on their levels of familiarity with a set of stimuli. However, familiarity with a stimulus is inherently subjective and need not be aligned with objective experience or concrete knowledge of that stimulus. Indeed, Whittlesea and Williams (2000) explicitly noted this when they defined familiarity as “the subjective feeling of having prior experience, whether or not one actually has” (p. 547). In his discussion of “illusions of familiarity,” that is, the experienced familiarity with a novel stimulus, Whittlesea (1993) noted that the fluency associated with processing stimuli (e.g., whether novel or not) can be partly attributed to past experiences with stimuli of similar characteristics (see also Jacoby & Dallas, 1981). That is, because foils are plausible (they resemble targets), people will process these with fluency—a feeling that is incompatible with the fact that the item is meaningless. The perceived discrepancy is then resolved by (unconsciously) attributing the fluency to a prior experience of the item, thus giving rise to a feeling of familiarity (Whittlesea & Williams, 2001). Thus, the more plausible foils are to an individual, the more likely the illusion of familiarity.

In this vein, individuals who undertake relatively more creative, artistic, or intellectual pursuits (i.e., are high on Openness) will have had more exposure to stimuli throughout their lives that resemble the content of a typical OCQ. To them, OCQ foils will appear more plausible. By contrast, individuals lower on Openness, having read relatively fewer books, witnessed less artwork, visited fewer places, and so on, are perhaps less likely to have encountered and remembered such stimuli. In line with this, after controlling for other Big Five factors, fluid intelligence, gender,
and field of study, Silvia (2007) observed a sizable association ($\beta = .55$) between Openness and self-reported measures of knowledge of people and ideas in art history (e.g., impressionism), literacy (e.g., poetry), and decorative arts (e.g., Frank Lloyd Wright). Thus, when faced with an OCQ, those who are higher on Openness are arguably more likely than those who are lower on Openness to be at greater risk of experiencing an illusion of familiarity when encountering a foil.

Importantly, the mechanisms discussed above imply very different motives for overclaiming. The first suggests that overclaiming represents some form of positive self-presentation, whether consciously driven or otherwise. The second mechanism, however, suggests that overclaiming is simply a reflection of a person’s genuine sense of familiarity with a set of items (despite the fact that the items in question do not exist).

The few empirical studies that have concurrently investigated overclaiming behavior and broad personality support the notion that overclaiming and Openness are positively associated, with observed correlations typically falling within the .25-.30 range (Bing et al., 2011; Tonkovíc et al., 2011; Williams et al., 2002; Ziegler et al., 2013), an exception being a negligible correlation in Kam et al. (2015; $r = -.04$). Given the predominant theoretical and empirical support for the association between overclaiming and Openness, we propose the following hypothesis:

**Hypothesis 1:** Overclaiming behavior is positively associated with Openness.

### Honesty-Humility

Next to Openness, we argue that Honesty-Humility also has conceptual ties to overclaiming behavior consistent with the notions that overclaiming may be an intentional behavior or an expression of an egoistic bias. From an egoistic bias perspective, there have been empirical findings suggesting a link between overclaiming and Narcissism, with zero order and partial correlations typically falling in the .25-.30 range (Paulhus & Harms, 2004; Paulhus et al., 2003; Williams et al., 2002). (Low) Honesty-Humility has a strong conceptual and empirical overlap with Narcissism (Lee & Ashton, 2005; Lee et al., 2013), as both constructs capture content related to materialism and conceit. Indeed, individuals lower on Honesty-Humility tend to have an inflated sense of self-importance and have been shown to overstate their own abilities (as compared to their actual abilities, Hilbig, Heydasch, & Zettler, 2014). Given this, the notion of overclaiming as an egoistic bias (in terms of narcissism) creates a potential link with (low) Honesty-Humility.

In addition, the theoretical proposition that overclaiming may reflect motivated self-presentation is also consistent with a negative relation between Honesty-Humility and overclaiming. Specifically, individuals who are relatively low on Honesty-Humility tend to be less sincere to others, and are more comfortable engaging in cheating behaviors (Hilbig & Zettler, 2015). Thus, one would expect such individuals to harbor a stronger proclivity to act dishonestly, and deliberate self-presentation may be a means by which to do so. In line with this, researchers have previously argued that Honesty-Humility is relevant to understanding impression management/faking behaviors (Griffith et al., 2011). For instance, Lee, Ashton, Morrison, Cordery, and Dunlop (2008) and Marcus, Lee, and Ashton (2007) found positive links between Honesty-Humility and integrity test scores, and Bourdage, Wiltshire, and Lee (2014) found (low) Honesty-Humility to predict impression-management motivated workplace behaviors. Similarly, O’Neill et al. (2013) note that individuals low on Honesty-Humility and related traits are most likely to engage in personality questionnaire faking.

Together, these two lines of reasoning (i.e., overclaiming as a reflection of egoistic bias and as a motivated behavior) would point to a negative relation with Honesty-Humility. Nonetheless, a recent study that examined overclaiming behavior in relation to the HEXACO model failed to observe a an appreciable Honesty-Humility-overclaiming correlation ($r = -.06;$ Kam et al., 2015). However, besides the fact that one study cannot provide more than a first toe-hold (and thus needs to be conceptually replicated), given that multiple studies have shown relations between Honesty-Humility and overclaiming (Paulhus & Harms, 2004; Paulhus et al., 2003; Williams et al., 2002), we propose the following:

**Hypothesis 2:** Overclaiming behavior is negatively associated with Honesty-Humility.

### Additional Traits

Although there seem to be clear theoretical ties between overclaiming and both Openness and Honesty-Humility, the theoretical ties between overclaiming and the remaining factors of personality—Emotionality, Extraversion, Agreeableness, and Conscientiousness—are somewhat more ambiguous. Consistent with this lack of clear theoretical links, evidence of empirical relations between overclaiming and the other personality traits is absent or mixed. Because of this, we do not state explicit hypotheses with regard to the four remaining traits, although we do include them in all of the following studies.

### Study 1

In Study 1, we investigate the relations between the HEXACO personality traits and overclaiming in three samples, using a range of overclaiming instruments presented in different languages. Collectively, this study represents an initial investigation into the robustness of the relations between personality and overclaiming.

### Method

**Participants, measures, and procedure.** The key distinguishing methodological features of data collection from Samples 1–3 are summarized in Table 1. Common to all samples was the use of the HEXACO Personality Inventory (HEXACO-PI-R; Lee & Ashton, 2006) to assess personality; however, data collection from each of the samples involved slightly different methods, which are detailed below. Descriptive statistics and observed internal consistencies of each measure are provided in the results.

Sample 1 employed a straightforward cross-sectional investigation of the relations of overclaiming and the HEXACO personality scales in a Dutch sample recruited from a community participant pool. Participants of this sample completed the Dutch version of the 100-item HEXACO-PI-R (De Vries, Ashton, & Lee, 2009).
OVERCLAIMING AS AN EXPRESSION OF OPENNESS

and a Dutch-translated 25-item OCQ (with eight foils and 17 targets) first developed by Bing et al. (2011). In completing the latter, participants reported their familiarity with each item on a scale from 1 (never heard of it) to 5 (very familiar).

Participants of Sample 2 were German university students (of whom only 2% studied psychology) who initially completed the German version of the 60-item HEXACO-PI-R (Ashton & Lee, 2009; Moshagen, Hilbig, & Zettler, 2014). After an average of 41 days (SD = 12, range = 15 to 90), the participants completed the Vocabulary and Overclaiming Test (VOC-T), which is a measure of overclaiming (Ziegler et al., 2013), thus substantially separating in time the measurement of personality and overclaiming. The VOC-T was explicitly developed for use with German participants and consists of a total of 12 words (targets) and 3 nonwords (foils) with the words relating to the fields of Civics, Humanities, Mechanics, and Science. Participants responded on a scale ranging from 1 (do not know the word) to 7 (know the word very well).

Members of Sample 3 were recruited in Australia via several methods including direct contact, social networking websites, and snowball sampling. Recruits were asked to invite a second individual (a knowledgeable “other”) whom they had known for at least 1 year to participate as well; 84% of the recruits did so. Participants indicated that, most commonly, they and their nominees were in a romantic relationship (47.5%; either spouse or partner), followed by friends (24.5%), family members (18.0%), or colleagues (10.1%). Participants and nominees reported that they had known their counterparts for an average of 12.8 years (SD = 11.8) and provided a mean rating of 8.2 (SD = 1.2) when asked to rate from 0 to 10 how well they knew their counterpart. Both the recruits and their counterparts completed the 100-item self-report HEXACO-PI-R as well as the 100-item other-report version, with the participant-nominee counterparts being the referent of the other-reports.

In Sample 3, interspersed among the items in the self-report HEXACO-PI-R were the items from four scales that have been used in the past to directly assess self-presentation, namely the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960), the Social Desirability Scale-17 (Stöber, 2001), and the BIDR-7 (including Impression Management and Self Deception-Enhancement scales; Paulhus, 1991).1 Given the theoretical discussions of overclaiming as a sign of self-presentation (e.g., Paulhus, 2011; Paulhus & Harms, 2004; Paulhus et al., 2003) and to compare with past research which has investigated overclaiming and positive self-presentation (e.g., Mesmer-Magnus, Viswesvaran, Deshpande, & Joseph, 2006; Musch, Ostapczuk, & Klainer, 2012; Tonković et al., 2011), for this sample, we present the observed relations between these commonly used measures of socially desirable responding and overclaiming behavior. Finally, for this sample, we also calculated self-other discrepancy scores by

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1 This approach of mixing the self-presentation items with the HEXACO-PI-R items meant that the self-presentation items were presented with a 5-point response scale instead of the more traditional dichotomous response scale. In this study, we calculated mean responses to the self-presentation scales. Other research has suggested that the scoring method used here results in higher scale reliability and convergent validity (Stöber, Dette, & Musch, 2002), or that the scoring method has no appreciable effect on results (Lee, Gizzarone, & Ashton, 2003). Finally, we note a study employing item-response theory methods also recommends polytomous over dichotomous scoring (Vispoel & Kim, 2014).

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### Table 1

| Sample | Country (language) | Participant recruitment | n | Mean age (SD) | % Female | Response scale | Foils | Targets | HEXACO-PI-R version | Overclaiming measure | OCQ | Mean of 41-day delay | VOC-T | Mean of 41-day delay between personality and overclaiming assessment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Netherlands (Dutch) | Community participation | 114 | 21.3 (4.6) | 64 | 100 item OCQ Short (Dutch) | 8 | 17 | HEXACO-PI-R | Overclaiming | OCQ | 3 | VOC-T | 12 |
| 2 | Germany (German) | University students | 295 | 23.4 (3.3) | 74 | 60 item VOC-T b | 3 | 12 | HEXACO-PI-R as well as 100 item other-report version | Overclaiming | OCQ | 72 | VOC-T | 18 |
| 3 | Australia (English) | Direct contact, social networks, snowball | 149 (self) | 34.2 (15.2) | 61 | 100 item OCQ-90 (English) | 18 | 72 | HEXACO-PI-R | Self- and other-ratings: additional measures of self-presentation | OCQ | 136 (other) | VOC-T | 13 |

**Note.** HEXACO = Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience; HEXACO-PI-R = HEXACO Personality Inventory-Revised; OCQ = overclaiming questionnaire; VOC-T = Vocabulary and Overclaiming Test.

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For this sample, we also calculated self-other discrepancy scores by comparing with past research which has investigated overclaiming and positive self-presentation (e.g., Mesmer-Magnus, Viswesvaran, Deshpande, & Joseph, 2006; Musch, Ostapczuk, & Klainer, 2012; Tonković et al., 2011), or that the scoring method has no appreciable effect on results (Lee, Gizzarone, & Ashton, 2003). Finally, we note a study employing item-response theory methods also recommends polytomous over dichotomous scoring (Vispoel & Kim, 2014).
regressing, separately for each of the HEXACO scales, self-rated personality scores onto the corresponding other-rated personality scores and saving the resultant residuals. Thus, individuals who overstated their standing on a trait relative to their counterpart’s evaluation of their standing on that trait would exhibit higher residual scores (John & Robins, 1994).2

**Operationalizing overclaiming.** The existing research on overclaiming behavior has varied somewhat in how the behavior is operationalized and thus it is important to clearly specify the approach used. Throughout our studies, as recommended by Paulhus et al. (2003; Paulhus & Petrusic, 2007), we employed principles from signal detection theory (Swets, 1964). Two signal detection indices, namely c and d’, are most relevant to overclaiming. These indices are explained in detail below, but we first articulate a general strategy for their calculation.

In most research that employs signal detection, participants make a binary decision to either “accept” a stimulus or “reject” it. In the case of OCQs, however, response scales are often polytomous ratings of familiarity (e.g., 1 = never heard of it to 5 = very familiar). Signal detection indices cannot be computed in relation to “partial” acceptance/rejection. Therefore, to calculate the indices, a decision must be made as to when a particular response constitutes an acceptance versus a rejection. In other words, the polytomous response scale must be dichotomized such that responses below a certain threshold are considered “rejections” and responses that are at or above that threshold are considered “acceptance.” The strategy suggested by Paulhus et al. (2003) to accomplish this is to consider every possible threshold to dichotomize the response scale separately, calculate a unique set of signal detection indices on the basis of each of the thresholds, and then calculate the mean of this set of indices.

In the example above, the OCQ’s response scale comprises five options. Thus, one set of indices can be calculated using each possible familiarity rating, aside from the lowest possible option (i.e., “Never heard of it,” because this response can only imply a rejection), as the acceptance threshold. Thus, given the five response options in this example, four pairs of signal detection indices can be calculated using each of four familiarity rating indices at the four rating thresholds, and in concrete terms, it represents the “ability to discriminate between existent and nonexistent items” (Paulhus et al., 2003, p. 891). Thus, d’ increases as participants report familiarity with targets but not foils, decreases if they report familiarity with foils but not targets, and tends toward zero if the participants report similar levels of familiarity with the foils as they do for the targets.

It must be emphasized that the overclaiming bias (c) index is a parameter derived from a specific theory (signal detection) and thus tied to its assumptions. In particular, it defines overclaiming as one’s overall tendency to report familiarity (both for targets and foils). However, as a consequence, certain inherent properties of signal detection parameters also apply here, especially that a very high hit rate also leads to relatively high estimates of c, simply because the only way to achieve high hit rates is to have a very lenient criterion location. For this reason, some have suggested to assess the relation between c and criterion measures when controlling for accuracy (d’; see Ludeke & Makransky, 2015, for further discussion of accuracy and bias indices in the OCQ). We do so throughout this study, as well as controlling for participant age and gender (explained below).

However, because both c and d’ are tied to the same underlying theory, it seemed prudent to additionally include a more theory-free indicator of overclaiming and we will use the false-positive rate to this end. Arguably, the false-positive rate, which captures the extent to which foils alone are judged to be familiar, does provide a relatively direct indication of overclaiming. However, it is necessarily less reliable (typically being based on only a small sample of the four c indices calculated on the basis of the four rating thresholds and in concrete terms, it represents an estimate of “how strong the sense of familiarity has to be for a respondent to say ‘Yes, I am familiar with that item’” (Paulhus et al., 2003; p. 892). The less it takes to make a person respond that way, the more he or she is overclaiming.

The second parameter that is calculated is the accuracy index, which represents a participant’s ability to discriminate between targets and foils. Like the overclaiming bias, it is based on the mean of a set of indices that are calculated at each familiarity rating threshold. The index concerned is the d’ index, which was calculated using the following formula presented by Stanislaw and Todorov (1999; Equation [1], p. 142) and is as follows:

\[ d' = \Phi^{-1}(H) - \Phi^{-1}(F), \]

with the same meanings as per Equation 1. Thus, d’ increases as participants report greater familiarity with the targets (increased hit rate), but it decreases as participants report greater familiarity with the foils (increased false-positive rate). In the example of a five-option rating scale, a participant’s overall accuracy score is the mean of the d’ indices at the four rating thresholds, and in concrete terms, it represents the “ability to discriminate between existent and nonexistent items” (Paulhus et al., 2003, p. 891). Thus, d’ increases as participants report familiarity with targets but not foils, decreases if they report familiarity with foils but not targets, and tends toward zero if the participants report similar levels of familiarity with the foils as they do for the targets.

2 Except for Emotionality, where positive self-presentation typically involves reporting lower standings on this scale.

3 The formula of the c index normally includes a negative sign at the beginning. We removed the negative sign for interpretative convenience, however, so as to ensure higher scores reflected more overclaiming behavior.

4 It is not possible to convert a hit rate or false-positive rate of zero to a z score, because a zero probability would be associated with a z score of -∞. Where zero hit or false-positive rates were encountered, we employed the “loglinear” method, described by Stanislaw and Todorov (1999, p. 142).
number of foils) and does not take individuals’ ability into account. Therefore, we expected generally weaker relations to emerge with respect to the false-positive rate when compared to the c index. We also note that for all analyses of the false-positive rate, we first undertook arcsine-root transformations of this variable, which is appropriate for proportion variables (Winer, Brown, & Michels, 1971).

Results

Demographic correlates of overclaiming indices. Means and standard deviations of all measures and demographic variables along with a selection of intercorrelations are presented in Table 2 for all three samples. Age exhibited rather inconsistent relations with the overclaiming indices. Within Sample 1, younger participants exhibited stronger overclaiming biases, whereas within Sample 3, the opposite was true—but note that the age range was relatively restricted in Sample 1. In Samples 2 and 3, older participants were better than younger participants at distinguishing foils from targets. Gender differences, which we present for convenience in Table 2 as correlations, were also inconsistent across samples. In Samples 1 and 3, there were no statistically significant differences between men and women on any of the three overclaiming indicators. However, in Sample 2, mean differences emerged between men and women on both overclaiming bias and accuracy, such that men scored higher on both indices (Cohen’s \( d_s = .35 \) for overclaiming bias and .62 for accuracy). Given these inconsistencies, in addition to controlling for accuracy when testing hypotheses in relation to the overclaiming bias, we also control for gender and age throughout.

Personality correlates of overclaiming indices. Table 2 also shows the zero-order correlations of the HEXACO scales with overclaiming indices as well as the partial correlation of the HEXACO scales with overclaiming bias, controlling for accuracy, gender, and age. The zero-order correlations of overclaiming bias with Openness were statistically significant in all three samples. They ranged from .24 to .39 for self-reports and the correlation was .41 for the other-reports in Sample 3. Although controlling for accuracy, gender, and age attenuated some of the observed partial correlations relative to their zero-order counterparts, all partial correlations with Openness remained significant. Correlations of the transformed false-positive rate with Openness were also all positive and generally larger than those of any other HEXACO scale (Sample 3 being the exception where the correlation with Agreeableness was marginally larger). The correlations were statistically significant in Samples 2 and 3 (self-report), whereas for Samples 1 and 3 (other-reports), they would only be considered significant if a more liberal criterion for significance when testing hypotheses in relation to the overclaiming bias, we also control for gender and age throughout.

Interestingly, in Sample 1 and in both the self- and other-reports from Sample 3, accuracy also correlated positively and significantly with Openness, with correlations ranging from .26 to .37. This trend indicates that Openness may also be important to understanding the ability to accurately distinguish foils from targets. Sample 2 was the exception, where a near-zero correlation was observed between Openness and accuracy.

Contrary to Hypothesis 2, there were no signs of a relation between Honesty-Humility and either overclaiming bias or false-positive rates in any of the three samples, nor among the other-reports of Sample 3.

Significant correlations of overclaiming bias with the remaining HEXACO scales were rare and inconsistent across the samples. The correlation of Emotionality with overclaiming bias reached statistical significance only in Sample 2, whereas the correlation of Agreeableness only reached statistical significance in the self-reports of Sample 3.

Overclaiming and socially desirable responding scales. We noted earlier that socially desirable responding scales are of questionable validity as measures of self-presentation as they seem to capture substantive personality variance (e.g., De Vries et al., 2014; Zettler et al., 2015). Nonetheless, these types of scales do appear to be sensitive to self-presentation behavior (Connelly & Chang, 2016); in other words, high scorers on these scales are not necessarily self-presenting, but when self-presenting, people are more likely to obtain high scores. Consequently, we inspected the correlations of overclaiming bias and the set of scales designed to measure socially desirable responding and these are presented in Table 3. In contrast to the results of Randall and Fernandes (1991), in this study, the zero-order correlation of overclaiming bias with the BIDR Self-Deceptive Enhancement was not significant. After controlling for accuracy, gender, and age, however, the partial correlation was significant. Overclaiming bias did not correlate strongly with the BIDR Impression Management scale or the Social Desirability Scale-17, but the correlation with the Marlowe-Crowne scale did reach statistical significance. This correlation was still fairly modest and it remained significant after controlling for accuracy, age, and gender. The transformed false-positive rate did not correlate significantly with any measure designed to measure socially desirable responding. Further, when controlling for accuracy, gender, and age, overclaiming bias showed no correlations with any residual (discrepancy) scores of the HEXACO scales. Finally, we also investigated the relations of the HEXACO scales with overclaiming bias and the false-positive rate after controlling for these socially desirable responding scales and results were virtually unchanged.

5 Full correlation tables are available from the supplementary materials.
6 Although the correlations of Marlowe-Crowne with overclaiming bias was significantly greater than 0, it is not significantly different from the correlations of the Stöber scale and the Paulhus Impression Management scale with overclaiming bias. It remains possible that the slight differences in the magnitude of the correlations are merely due to idiosyncrasies in the three measures of socially desirable responding but there may remain a general correlation of socially desirable responding with overclaiming bias. To investigate this possibility, we used structural equation modeling to specify a model with a latent variable indicated by the three socially desirable responding scales, and examined the relation of overclaiming bias with this factor. Although we observed a statistically significant zero-order correlation of the factor with overclaiming bias, \( r = .18, p = .038 \), after controlling for accuracy, age, and gender, the relation between the factor and overclaiming bias fell short of significance, \( r = .16, p = .064 \). The relations of transformed false-positive rate and the factor were nonsignificant with and without control variables.
Table 2
Means, Standard Deviations, and Cronbach’s Alphas for HEXACO Factor Scales and Correlations With False-Positive Rates, Overclaiming Bias, and Accuracy Indices in Study 1, Samples, 1, 2, and 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study 1, Sample 1 (n = 114)</th>
<th>Study 1, Sample 2 (n = 295)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>False-positive rate (FPa)</td>
<td>.36</td>
<td>.19</td>
</tr>
<tr>
<td>Bias (c)</td>
<td>−.56</td>
<td>.40</td>
</tr>
<tr>
<td>Accuracy (d')</td>
<td>.95</td>
<td>.50</td>
</tr>
<tr>
<td>Gender (0 = M; 1 = F)</td>
<td>65% F</td>
<td>—</td>
</tr>
<tr>
<td>Age</td>
<td>21.28</td>
<td>4.57</td>
</tr>
<tr>
<td>Honesty-Humility</td>
<td>3.27</td>
<td>.50</td>
</tr>
<tr>
<td>Emotionality</td>
<td>3.21</td>
<td>.64</td>
</tr>
<tr>
<td>Extraversion</td>
<td>3.50</td>
<td>.49</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>2.97</td>
<td>.54</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>3.39</td>
<td>.54</td>
</tr>
<tr>
<td>Openness</td>
<td>3.24</td>
<td>.58</td>
</tr>
</tbody>
</table>

Note. HEXACO = Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience; M = male; F = female; Acc. = accuracy; Bias = overclaiming bias; pr = partial correlation with bias, controlling for accuracy, gender, and age. Unless otherwise stated, figures in cells are correlation coefficients.

* Variable has been arcsine-root transformed.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study 1, Sample 3 self-report (n = 149)</th>
<th>Study 1, Sample 3 other-report (n = 136)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>False-positive rate (FPa)</td>
<td>.22</td>
<td>.15</td>
</tr>
<tr>
<td>Bias (c)</td>
<td>−.85</td>
<td>.37</td>
</tr>
<tr>
<td>Accuracy (d')</td>
<td>1.32</td>
<td>.49</td>
</tr>
<tr>
<td>Gender (0 = M; 1 = F)</td>
<td>60% F</td>
<td>—</td>
</tr>
<tr>
<td>Age</td>
<td>33.92</td>
<td>14.89</td>
</tr>
<tr>
<td>Honesty-Humility</td>
<td>3.54</td>
<td>.55</td>
</tr>
<tr>
<td>Emotionality</td>
<td>3.28</td>
<td>.58</td>
</tr>
<tr>
<td>Extraversion</td>
<td>3.38</td>
<td>.55</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>3.00</td>
<td>.50</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>3.52</td>
<td>.54</td>
</tr>
<tr>
<td>Openness</td>
<td>3.42</td>
<td>.62</td>
</tr>
</tbody>
</table>

Discussion

The preceding study of three samples, from three countries, using three different overclaiming instruments, all in different languages, across different time-points and sources of data (i.e., self and other report) revealed that, apart from Openness, no personality factor within the HEXACO model, including Honesty-Humility, is consistently related to overclaiming. Indeed, the observed strength of the association of overclaiming and Openness was comparable to that observed in previous studies (aside from Kam et al., 2015) and persisted when personality was measured separately from overclaiming behavior (Sample 2) and when personality was assessed by knowledgeable others (Sample 3).

As sketched in the introduction, some could argue that such a relation is explained as a product of positive self-presentation; that is, some individuals who wish to appear knowledgeable or intellectual will do so by claiming knowledge of items and by “agreeing” with statements that measure the Openness trait. Such a proposition is difficult to reconcile, however, with the equally strong associations also observed between other-reported Openness and overclaiming bias in Sample 3, and the positive association of other-reported Openness and the transformed false-positive rate. Is having a sense of familiarity with things simply a sign of Openness, or are overclaimers successfully “fooling” others into believing they are more intellectual than they truly are? The latter explanation seems very unlikely in this case given that, in this sample, the participants and nominees apparently felt they knew each other very well and for a long time. Further, we also note that Sample 3 showed that overclaiming generally displayed nonsignificant or, at best, modest relations with other measures purportedly designed to tap into self-deceptive enhancement, as well as intentional enhancement. Instead, given that in both Samples 1 and 3 Openness was also positively associated with accuracy scores, it appears that individuals higher on Openness may simply “know more.” Openness, however, also apparently somehow drives the reporting of “false” memories in relation to the very same subject matter, as is further supported by the positive association with the false-positive rate. For example, an individual might mistakenly believe that an artist whose work they have seen was the same as a foil name mentioned in the OCQ. This is consistent with the notion that such individuals undertake relatively more cognitive exploration.

Nonetheless, it is possible that in all three of the samples of Study 1, a self-presentation responding bias was not being “activated”; that is, because all studies were undertaken in low-stakes settings, it might well be that relatively few participants saw
a need to engage in any form of positive self-presentation. Although such a conclusion seems to be at odds with Paulhus et al.’s (2003) observed relation between overclaiming and Narcissism even in their low-stakes studies (which implies that, for some individuals, there is an enduring tendency to positively self-present), it suggests that overclaiming is an expression or product of Openness rather than an expression of a general positive self-presentation bias. The question remains, however, whether circumstances that are likely to motivate people to positively self-present will influence the nature of the relations between personality and overclaiming behavior. We investigate this question in the following study.

Study 2

If overclaiming behavior represents an egoistic-driven self-enhancement and/or impression management mechanism, then the behavior might emerge as a response to situations that are highly relevant to the self or particularly threatening to the ego. Accordingly, in this study, an experimental manipulation was introduced that has been used in many studies to induce relevance and ego-threat (e.g., Gendolla, 1999; Gendolla & Richter, 2005; Pyszczynski & Greenberg, 1983; Rhodewalt & Fairfield, 1991). More precisely, some participants were informed that the overclaiming measure was in fact a test of knowledge that had been used previously to assess cognitive ability (as was indeed suggested by Paulhus et al., 2003). Thus, participants who encountered a foil or an otherwise unfamiliar item were expected to feel threatened. In response to this threat, some participants would be expected to engage in overclaiming behavior, whereas those participants who received no information about the overclaiming measure would engage in overclaiming to a lesser extent. In short, this manipulation was designed to target the “egoistic self-presentation” explanation of overclaiming. Thus, the following hypothesis was proposed:

Hypothesis 3: Participants informed that the OCQ is a test of cognitive ability will engage in overclaiming to a greater extent than those who are not.

Importantly, in this study, the experimental manipulation was introduced after the personality assessment, and thus any self-enhancing behavior that emerged as a result of the manipulation should be present only in the overclaiming measure, and not the personality questionnaire. If the previous null-results with respect to the relation of overclaiming behavior and Honesty-Humility were driven by low-stakes situations, it should be expected that the predicted relations can be observed in a high-stakes setting of personal relevance and potential ego-threat. In particular, if overclaiming is indeed an expression of egoistic self-enhancement and/or impression management, it should be more strongly and negatively related to Honesty-Humility in a high-stakes situation; that is individuals lower on Honesty-Humility should overclaim more than those who are higher on Honesty-Humility in the high-stakes situation only. We therefore specified the following hypothesis:

Hypothesis 4: The relation between Honesty-Humility and overclaiming behavior is moderated by ego-threatening experimental manipulation such that the relation is stronger in the ego-threatening condition than in the control condition.

Method

A German community sample of 226 individuals (69% female), aged 18 to 76 years (M = 25.6, SD = 10) completed the study voluntarily and without compensation. The entire study was administered via the Internet and recruitment was based on personal contact, social networks, and e-mail lists.

After providing informed consent and demographic information, participants completed the German version (Moshagen et al., 2014) of the 60-item HEXACO-PI-R (Ashton & Lee, 2009). Next, participants completed a 90-item measure of overclaiming. Specifically, they were shown 15 items in each of six content domains (Economy; Language; Arts, Humanities, and Social Sciences; Physics, Biology, and Chemistry; History and Politics; Society and Culture) the order of which was counterbalanced across participants. In the development of this OCQ, we used a similar procedure as Paulhus and Harms (2004). However, we developed a

Table 3

Means, Standard Deviations, and Cronbach’s Alphas for Self-Reported Positive Self-Presentation Measures and Correlations With False-Positive Rates, Overclaiming Bias, and Accuracy Indices in Study 1, Sample 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>FP*</th>
<th>Bias (c)</th>
<th>Acc. (df)</th>
<th>pr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marlowe-Crowne</td>
<td>3.01</td>
<td>.38</td>
<td>.80</td>
<td>.11</td>
<td>.18*</td>
<td>.05</td>
<td>.19*</td>
</tr>
<tr>
<td>Social Desirability Scale-17</td>
<td>3.29</td>
<td>.46</td>
<td>.76</td>
<td>.10</td>
<td>.16</td>
<td>.03</td>
<td>.17</td>
</tr>
<tr>
<td>BIDR-Impression Management</td>
<td>2.96</td>
<td>.48</td>
<td>.78</td>
<td>.04</td>
<td>.11</td>
<td>.07</td>
<td>.08</td>
</tr>
<tr>
<td>BIDR-Self-Deception Enhancement</td>
<td>3.05</td>
<td>.42</td>
<td>.72</td>
<td>.11</td>
<td>.10</td>
<td>-.07</td>
<td>.18*</td>
</tr>
</tbody>
</table>

Residuals from regressions of self-reports on other-reports

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>FP*</th>
<th>Bias (c)</th>
<th>Acc. (df)</th>
<th>pr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honesty-Humility</td>
<td>.00</td>
<td>.49</td>
<td>.01</td>
<td>.06</td>
<td>.08</td>
<td>.04</td>
<td></td>
</tr>
<tr>
<td>Emotionality</td>
<td>.00</td>
<td>.42</td>
<td>.06</td>
<td>.13</td>
<td>.04</td>
<td>.12</td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.00</td>
<td>.43</td>
<td>-.04</td>
<td>-.04</td>
<td>.00</td>
<td>-.05</td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.00</td>
<td>.52</td>
<td>-.12</td>
<td>-.01</td>
<td>.18*</td>
<td>-.08</td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.00</td>
<td>.55</td>
<td>-.15</td>
<td>-.07</td>
<td>.06</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.00</td>
<td>.48</td>
<td>.04</td>
<td>.20*</td>
<td>.23**</td>
<td>.13</td>
<td></td>
</tr>
</tbody>
</table>

Note. n = 149 for self-ratings, n = 136 for the residual scores. M = male; F = female; Bias = overclaiming bias; Acc. = accuracy; BIDR = Balanced Inventory of Desirable Responding; pr = partial correlation with bias, controlling for accuracy, gender, and age.

* Variable has been arcsine-root transformed.

p < .05. ** p < .01.
German version to rule out biases in terms of cultural differences on the familiarity with persons, songs, books and so on (see Musch et al., 2012). Each domain comprised 10 targets and five foils (displayed in random order) and, thus, the entire overclaiming measure was based on 60 targets and 30 foils. In contrast to the OCQs used in Study 1, the answer scale of this OCQ was binary (Yes, I have heard of this vs. No, this is unknown to me). Therefore, this study also provided an opportunity to demonstrate the replicability of findings in a case where a “yes” response to a foil is a more conclusive indication of overclaiming.

Exactly half of the participants were randomly assigned to the high-stakes condition and the other half were assigned to the low-stakes condition (113 in each), prior to completing the overclaiming measure but after completion of the personality inventory. In the high-stakes condition, the instruction explaining the overclaiming measure read (translated from German):

In the following task, we will test your general knowledge. This will be accomplished by means of a measure that has been used to assess intelligence in the past. Specifically your task is to point out whether you know (or have never heard of) a set of words from different content domains.

In the low-stakes condition, the instructions read “In the following task, we ask you to point out whether you know (or have never heard of) a set of words from different content domains.” Similar manipulations have been successfully used in previous research to vary self-relevance and/or induce ego-threat (e.g., Gendolla, 1999; Gendolla & Richter, 2005). After completion of the study, participants were thanked and debriefed.

Results

Initially, means and standard deviations were calculated for the overclaiming indices (i.e., overclaiming bias, false-positive rate, and accuracy), and all HEXACO scales for the two conditions separately. Following this, Hypothesis 3 was tested using a between-groups t test with Condition (high-stakes vs. low-stakes) being the factor, and overclaiming bias as the dependent variable. There was no significant difference in overclaiming bias across conditions (mean high-stakes = −0.20 vs. mean low-stakes = −0.17), t(224) = 0.49, p = .626, nor transformed false-positive rate (mean high-stakes = 0.54 vs. mean low-stakes = 0.58), t(224) = −1.78, p = .075. There was, however, a statistically significant difference between conditions in accuracy (mean high-stakes = 0.90 vs. mean low-stakes = 0.75), t(224) = 2.25, p = .025; that is, as one might expect from a motivational point of view, those in the high-stakes condition were better at discriminating between targets and foils.

The experimental manipulation, although clearly successful on a motivational level, apparently did not affect the engagement in overclaiming. Nonetheless, it is possible that the presence of the ego-threatening manipulation might interact with personality; that is, people low on Honesty-Humility may overclaim to a greater extent than people high on Honesty-Humility when under the experimental conditions (as implied by Hypothesis 4). To test this possibility, we undertook a moderated regression analysis of overclaiming bias on the experimental condition, Honesty-Humility, and the interaction between the experimental condition and Honesty-Humility, controlling for gender and age. The results of this analysis provided no evidence of moderation; overall $R^2 = .032, F(5, 220) = 1.45, p = .209; \Delta R^2$ (interaction term) = .001, $F(1, 220) = 0.13, p = .720$. Results were much the same with respect to the transformed false-positive rate; overall $R^2 = .041, F(5, 220) = 1.90, p = .095; \Delta R^2$ (interaction term) = .001, $F(1, 220) = 0.15, p = .702$. Hypothesis 4 was therefore not supported.

Because there were no signs of moderation,7 we combined the two subsamples into a single sample, and means, standard deviations, and intercorrelations were calculated and are presented in Table 4. In this study, age was a significant negative correlate of the transformed false-positive rate and significant gender differences were also observed, with men exhibiting higher scores than women on overclaiming bias (Cohen’s $d = .28$) and accuracy (Cohen’s $d = .68$), though this was not true of the false-positive rate.

To again test Hypotheses 1 and 2, we inspected the correlations of the HEXACO scales with the overclaiming indices. The only personality scale to correlate with overclaiming bias was Openness ($r = .32$), which increased in magnitude when accuracy, gender, and age were controlled for. Openness also correlated positively and significantly with the transformed false-positive rate ($r = .13$) and accuracy ($r = .26$). Therefore, only Hypothesis 1 was supported by the results of Study 2.

Discussion

The results of this study again revealed a positive association between Openness (but no other personality factors) and overclaiming behavior. Indeed, the openness–overclaiming relation persisted independently of the conditions under which the OCQ was completed. Participants who were informed that the OCQ was a measure of cognitive ability did not overclaim to a greater extent than those who were not given additional information about the test—although the former did display greater accuracy than the latter, implying that the manipulation was successful in eliciting motivation to demonstrate one’s ability. Further, there were no signs that individuals lower in Honesty-Humility were more prone to overclaiming, even in the high-stakes condition.

One additional finding of note is that the openness–overclaiming relation also emerged in spite of this study’s use of a dichotomous response scale in the OCQ. Whereas the response scales used in Study 1 provided participants with latitude to report varying levels of familiarity with the items, the dichotomous scale of this scale “forces” participants to make more absolute declarations of familiarity, or the lack thereof, with the items in the OCQ.

Collectively, the results thus far suggest that overclaiming behavior is associated with Openness. There remain unanswered questions about the mechanisms that drive this relation, however, and the contribution of Openness to overclaiming behavior in relation to other proposed correlates (e.g., a dispositional memory bias and Narcissism; Paulhus, 2011). These questions are investigated in the following two studies.

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7 Before combining the two groups, we first verified that the manipulation did not interact with any of the remaining HEXACO traits. Descriptive statistics and intercorrelations for the two separate samples are available from the authors on request.
Study 3

The two previous studies indicate that Openness is a robust predictor of overclaiming behavior across countries, measures of overclaiming, temporal periods, ego-threat versus non-ego-threat conditions, and personality rating sources. By contrast, the evidence that overclaiming is a product of attempts to positively self-present is notably absent (see also Feeney & Goffin, 2015; Ludeke & Makransky, 2015). Together, these findings raise the questions of exactly what it is that drives overclaiming, and why it is that overclaiming behavior is positively associated with Openness. In the following two studies, we argue that overclaiming is likely a consequence of the genuine accumulation of knowledge and experience; that is, with more extensive experiences and, by implication, more knowledge about a topic, individuals are more likely to fluently process even foils (because these are designed to be plausible and thus resemble targets in relevant ways). They then resolve the experienced discrepancy between this fluency and the fact that no meaning for the foil can be retrieved by attributing the fluency to prior experience which leads to the illusion of familiarity (Whittlesea & Williams, 2001). Stated simply, to more experienced and knowledgeable individuals, even foils genuinely feel familiar. We test this notion in the context of models that also simultaneously consider other proposed explanations of overclaiming.

Briefly, in this study, we test the model depicted in Figure 1, which portrays overclaiming as a product of five possible mechanisms (for brevity, we also present model fit information and path coefficients in Figure 1; these are discussed in the Results section). In so doing, we model separately overclaiming bias and transformed false-positive rates as indicators of overclaiming behavior. Each hypothesized mechanism is explained below.

The first mechanism (M1 in Figure 1) describes overclaiming as an associate of Openness, a link that is mediated by reported knowledge. Specifically, as we argued above, individuals who are high on Openness would tend more than those who are low to engage in cognitive exploration. That is, we expect that they will read more books, travel to more places, view more artwork and so on (DeYoung, 2015). In doing so, over time they will accumulate more "general" knowledge about subject matter that is common to OCQs. This general knowledge will then trigger illusions of familiarity when high-Openness individuals complete an OCQ, which then leads to overclaiming behavior. Consistent with this, in a recent set of studies, Atir et al. (2015) demonstrated a robust and, in one study, causal link between individuals’ self-perceptions of knowledge in a domain and overclaiming within that domain. However, they did not measure personality as higher order predictor of knowledge self-perceptions. Here we propose that a relation between Openness and overclaiming may emerge because individuals high in Openness tend to accumulate more general knowledge, which then leads to overclaiming due to general familiarity with the areas encompassed in a typical OCQ. Thus the following hypothesis was proposed:

**Hypothesis 5:** Reported knowledge of the OCQ topics mediates the positive relation between Openness and overclaiming behavior.

In addition to the mediation pathways for Openness through reported knowledge, we retained a direct path from Openness to overclaiming to determine if there was remaining unexplained covariance between Openness and overclaiming.

In addition to being driven by a proclivity to explore (i.e., Openness), it is also likely that being better educated will expose an individual to a greater variety and number of OCQ-type stimuli. Given this, we predict a second mechanism (M2 in Figure 1), such that years spent in formal education will statistically predict overclaiming behavior. Consistent with this, in a recent set of studies, Atir et al. (2015) demonstrated a robust and, in one study, causal link between years spent in education and overclaiming bias. Here we propose that a relation between education and overclaiming may emerge because individuals high in education tend to accumulate more general knowledge, which then leads to overclaiming due to increased knowledge with the areas encompassed in a typical OCQ. Thus the following hypothesis was proposed:

**Hypothesis 6:** Reported knowledge of the OCQ topics ("reported knowledge") mediates the positive relation between years of education and overclaiming behavior.
While the first and second mechanisms are predicated on the notion that individuals will overclaim as a result of a genuine history with and greater exposure to the types of stimuli included in OCQs (i.e., a memory bias due to an illusion of familiarity), a potential third mechanism (M3) is that some people may simply have a trait-like tendency to perceive even novel stimuli as being familiar, or at least a tendency to report a sense of familiarity with novel stimuli. This idea is more consistent with Paulhus (2011) and Williams et al. (2002) describing overclaiming as a product of a dispositional tendency to deceive, through a perceived ability to do so successfully. Overclaiming is operationalized by the c index and the arcsine-root transformed false-positive rate in two separate analyses. Parameters are separated, respectively, by a / symbol. Accuracy was not a control variable in the analyses of arcsine-root transformed false-positive rate. CFI = comparative fit index; RMSEA = root mean squared error of approximation; CI = confidence interval.

Hypothesis 7: Memory bias for novel stimuli (“memory bias”) has a direct positive relation with overclaiming behavior after controlling for other hypothesized correlates.

The fourth mechanism (summarized as M4 in Figure 1) falls in line with an egoistic bias/narcissistic account of overclaiming (Paulhus, 2011). Specifically, this mechanism would predict that overclaiming results from those with narcissistic tendencies reporting higher (inflated) levels of general knowledge, which will in turn lead to more overclaiming (M4a). We also considered a possible direct relation between Narcissism and overclaiming bias as the act of completing an OCQ might trigger a desire for narcissists to show off their knowledge independently of their previously reported knowledge. Thus, the following hypotheses were proposed:

Hypothesis 8a: Narcissism has a positive direct relation with overclaiming behavior after controlling for other hypothesized correlates.

Hypothesis 8b: Reported knowledge of OCQ topics mediates a positive relation of Narcissism with overclaiming behavior.

The fifth and final mechanism (M5) describes overclaiming behavior as a conscious deceptive behavior that is driven by low Honesty-Humility. Although Studies 1 and 2 did not reveal evidence to this effect, it seemed prudent to consider this possibility vis-à-vis other mechanisms and models, especially given the centrality of conscious distortion as a potential explanation of overclaiming. We expand this potential explanation by also proposing perceived ability to deceive as a mediator between low Honesty-Humility and overclaiming behavior. Previous research has found...
that perceived ability to deceive can be a key variable in understanding faking behavior (Schneider & Goffin, 2012). Specifically, we hypothesize that only those participants who believed they were capable of deceiving others would attempt to do so on the OCQ. Given this, even if Honesty-Humility does not directly predict overclaiming, it may do so indirectly through this mechanism.

**Hypothesis 9:** Low Honesty-Humility is indirectly related to overclaiming behavior through perceived ability to deceive.

Finally, past research has noted that responses to OCQs—in particular, accuracy scores—are related to intelligence (Paulhus et al., 2003; Paulhus & Harms, 2004), so we controlled for cognitive ability. We additionally controlled for gender and age in all analyses and for accuracy in the analyses of overclaiming bias (but not in the analyses of the false-positive rate) to be consistent with the analyses undertaken in the preceding studies.

**Method**

**Participants and procedure.** Participants were recruited using Amazon’s Mechanical Turk platform, which is an electronic freelancing site that connects participants to researchers and provides a means to remunerate anonymously and remotely. This source is often used by researchers in the fields of social and personality psychology (see Mason & Suri, 2012; Paolacci, Chandler, & Ipeirotis, 2010). Potential participants were informed that the study would be conducted in two phases, with approximately a week in between, and that only participants who completed Phase 1 would be invited or able to access the Phase 2 task. A total of 315 residents of the United States (61% female) completed the Phase 1 survey. The mean participant age was 40.0 (SD = 12.7) years. Participants reported a mean of 15.6 years of formal education since childhood (SD = 2.3) and that they had worked full-time for an average of 16.2 years (SD = 11.9).

The Phase 2 survey was only accessible seven days after the last participant in Phase 1 completed his or her questionnaire. In total, participants were remunerated $5 for their time ($1 at Phase 1, $4 at Phase 2). Of the 315 participants that completed Phase 1, 256 also completed Phase 2, but of these, six were excluded due to failure to “pass” at least three of the four attention check questions we included, and a further 9 were excluded because they had reported that they had previously encountered the stimuli in the memory bias task (see below). The final sample size was therefore 241, yielding an effective return rate of 76.5%. The mean participant age was 41.6 (SD = 13.0) years, 64% were female, and they reported a mean of 15.7 years of formal education since childhood (SD = 2.3) and that they had worked full-time for a mean of 17.5 years (SD = 12.2).

**Measures.** Unless otherwise specified, all measures employed a 1 (strongly disagree) to 5 (strongly agree) scale. Cronbach’s coefficient alphas are shown in Table 5. Aside from cognitive ability and overclaiming behavior, all measures were collected in the Phase 1 survey.

**Personality.** We collected self-reports on the 100-item HEXACO-PI-R, which uses 16-items per factor. However, because Openness was of central interest to this study, to maximize reliability we used the items from the full-length HEXACO-PI-R (Lee & Ashton, 2004), which captures Openness using 32 items.

**Reported knowledge of overclaiming topics.** We asked participants to report on their perceived “general knowledge” of the 10 topics that appear in the OCQ-150, which appeared in the Phase 2 questionnaire (see below) by rating their knowledge of each from 0 (I know nothing about this topic) to 6 (I know a great deal about this topic). For brevity, we refer to this variable (i.e., the mean of the responses to the 10 topics) as “reported knowledge.” In collecting the data for this variable, we were concerned about the possibility that asking participants to report their knowledge of certain topics may lead them to investigate the topics in between the time they completed the Phase 1 and Phase 2 surveys. We therefore included seven additional topics (sports and athletics, TV shows, classical music, computer software, movie actors, groceries, and finance and banking) so as to increase the overall breadth of knowledge being assessed and reduce the chances of participants independently investigating the topics in the OCQ.

**Memory bias for novel stimuli.** To measure participants’ proneness to recall novel stimuli (which we term memory bias), participants completed a memory recall task that was developed by Whittlesea and Williams (2000) and used by other researchers (e.g., Cleary, Morris, & Langley, 2007). In the task, participants were informed that they would be presented with a set of word-like stimuli (e.g., WERPIL, SPLINKIT) one at a time, for 2 seconds each. They were asked to pay careful attention to the words, and to bear in mind that it was important for the research that they rely on their memory during the task and should thus not document the words in any way. Upon starting the task, participants were presented with a list of 30 word-like stimuli in boldface, all-caps 20-point Arial font, one at a time, for 2 seconds each. Following the presentation of all 30 “words,” participants were presented, again one at a time, with a list of 60 word-like stimuli. Half of the 60 appeared in the original list, and the other half were novel. Participants were asked to indicate for each whether the stimulus appeared in the original list, or whether it was new. Memory bias was operationalized as the c index (i.e., the same index used to operationalize overclaiming behavior), coded so that higher scores are indicative of a stronger memory bias.8 The stimulus set we used is the “regular nonwords” set presented by Whittlesea and Williams (2000). We chose this stimulus set because it was important that participants had not previously encountered the stimuli (thus mandating the use of nonwords rather than legitimate words), but also that the nonwords could be processed fluently, as is likely the case with the overclaiming foils (and as opposed to Whittlesea and Williams’ “irregular nonwords”; e.g., “STOFWUS” and “PNAFTED”). After the task, we asked participants if they had previously encountered the stimuli and excluded from analyses participants who indicated that they had.

**Narcissism.** Narcissism was measured using the nine-item Narcissism subscale of Jones and Paulhus’ (2014) short Dark Triad measure. Sample items include “People see me as a natural leader” and “I have been compared to famous people.”

**Perceived ability to deceive.** This construct was assessed via Schneider and Goffin’s (2012) six-item scale. An example item is...
### Table 5

**Means, Standard Deviations, Cronbach’s Alphas, and Intercorrelations Among All Variables in Study 3**

| Variable                                | M   | SD  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |
|-----------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1. False-positive rate*                 | .33 | .20 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2. Overclaiming bias (c)               | .49 | .51 | .79 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3. Accuracy (d)                        | 1.68| .70 | .51 | .10 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 4. Gender (0 = M; 1 = F)               |    |    |    | .64 |    |    | .06 | .12 | .09 |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 5. Age                                  | 41.56| .08 | .22 | .39 | .08 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 6. Years of education                  | 15.73| .11 | .21 | .23 | .13 | .15 | .11 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 7. Honesty-Humility                    | 3.56| .67 | .00 | .07 | .12 | .19 | .21 | .06 | .86 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 8. Emotionality (d)                    | 3.23| .69 | .04 | .02 | .04 | .08 | .41 | .00 | .17 | .87 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 9. Extraversion                        | 3.26| .72 | .17 | .19 | .18 | .07 | .01 | .08 | .07 | .37 | .90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 10. Agreeableness                      | 3.18| .64 | .14 | .10 | .07 | .00 | .16 | .02 | .33 | .07 | .87 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 11. Conscientiousness                  | 3.51| .58 | .42 | .21 | .07 | .02 | .06 | .15 | .09 | .25 | .17 | .22 | .91 |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 12. Aesthetic appreciation             | 3.61| .83 | .21 | .38 | .42 | .19 | .21 | .01 | .21 | .20 | .21 | .24 | .29 | .82 | .85 |     |     |     |     |     |     |     |     |     |     |     |
| 13. Inquisitiveness                    | 3.70| .74 | .11 | .31 | .30 | .26 | .07 | .07 | .14 | .15 | .01 | .22 | .23 | .78 | .54 | .82 |     |     |     |     |     |     |     |     |     |     |
| 14. Creativity                         | 3.29| .74 | .15 | .24 | .26 | .12 | .02 | .04 | .06 | .05 | .33 | .08 | .20 | .81 | .61 | .43 | .79 |     |     |     |     |     |     |     |     |     |
| 15. Unconventionality                 | 3.42| .66 | .08 | .14 | .18 | .07 | .05 | .09 | .00 | .04 | .03 | .01 | .06 | .02 | .71 | .36 | .46 | .48 |     |     |     |     |     |     |     |     |
| 16. Openness                           | 3.81| .67 | .16 | .32 | .31 | .18 | .05 | .05 | .09 | .09 | .14 | .48 | .16 | .44 | .59 | .43 | .48 | .54 | .39 |     |     |     |     |     |     |     |
| 17. Intellect aspect                   | 3.77| .71 | .20 | .31 | .35 | .12 | .21 | .05 | .03 | .21 | .28 | .17 | .11 | .24 | .79 | .78 | .48 | .68 | .50 | .43 |     |     |     |     |     |     |
| 18. Openness aspect                    | 2.57| .72 | .14 | .07 | .09 | .15 | .11 | .14 | .06 | .48 | .26 | .56 | .09 | .05 | .23 | .11 | .13 | .35 | .15 | .29 | .12 | .83 |     |     |     |
| 19. Narcissism                         | 2.76| 1.05| .20 | .40 | .44 | .26 | .18 | .07 | .34 | .07 | .10 | .10 | .09 | .15 | .50 | .34 | .50 | .26 | .35 | .44 | .31 | .13 | .86 |     |
| 20. Reported knowledge                 | 1.75| .89 | .02 | .15 | .08 | .22 | .03 | .29 | .08 | .09 | .01 | .06 | .07 | .05 | .04 | .08 | .10 | .02 | .06 | .05 | .06 | .11 | .04 |     |
| 21. Memory bias accuracy (d)           | .04| .32 | .02 | .08 | .07 | .11 | .05 | .02 | .05 | .03 | .08 | .01 | .00 | .02 | .04 | .01 | .10 | .04 | .01 | .03 | .07 | .00 | .05 | .05 |
| 22. Memory bias response bias (c)      |    |    |    | .85 |    |    | .06 | .04 | .05 | .03 | .01 | .11 | .04 | .20 | .11 | .07 | .13 | .03 | .10 | .14 | .22 | .06 | .00 |     |

**Note.** N = 241. For all |r| ≥ .13, p < .05. For all |r| ≥ .17, p < .01. 2 pr = partial correlation with overclaiming bias, controlling for accuracy, gender, and age. Where applicable, Cronbach’s coefficient alpha is provided along the diagonal in parentheses.

* Variable has been arcsine-root transformed.
“I would be better than the average person at lying on my resume without getting caught.”

Cognitive ability. During Phase 2, participants completed the 16-item version of the International Cognitive Ability Resource (Condon & Revelle, 2014). This test was untimed and comprises questions that involve verbal reasoning, matrix reasoning, letter and number series, and three-dimensional rotation (four questions each). Questions were presented in random order, one page at a time. This measure was developed from administration to nearly 97,000 participants in 199 countries completing the measure online, and testing on smaller subsamples has shown convergence with commercially available measures of cognitive ability (Condon & Revelle, 2014).

Overclaiming. Also in Phase 2, participants completed the OCQ-150, which consists of 10 overclaiming topics and 15 items per topic, 12 of which are targets and three are foils (Paulhus et al., 2003). Participants were asked to rate their familiarity with the items from 0 (never heard of it) to 6 (very familiar).

Results

Relations of overclaiming with demographic variables. Following the analytical strategy of the preceding studies, we first inspected relations of the overclaiming and accuracy indices with gender and age, which are shown in Table 5. Although the observed gender difference was not statistically significant, age was a significant positive correlate of overclaiming bias ($r = .22$) and accuracy ($r = .39$), but not the transformed false-positive rate where the correlation was negative and nonsignificant ($r = -.08$).

Relations of overclaiming indices with personality. Next, we inspected correlations of the overclaiming and accuracy indices with the personality factor scales, also shown in Table 5. In this study, Extraversion ($r = .19$), Agreeableness ($r = .14$), and Conscientiousness ($r = .15$) all correlated positively and significantly with overclaiming bias, though relatively more modestly when compared to Openness ($r = .35$). Extraversion ($r = .17$), Agreeableness ($r = .14$), and Openness ($r = .18$) also correlated positively and significantly with the transformed false-positive rate. Honesty-Humility and Narcissism were both essentially uncorrelated with overclaiming bias, although the latter did correlate significantly with false-positive rate ($r = .14$). Partial correlations of the personality measures with overclaiming bias, after controlling for accuracy, gender, and age were approximately on par with their zero-order counterparts, although the partial correlation of Agreeableness was nonsignificant.9

Of the HEXACO scales, only Openness was a significant (positive) correlate of accuracy ($r = .21$); however, Narcissism was a modest negative correlate ($r = -.15$).

Relations of overclaiming indices with other variables. In relation to other variables, overclaiming bias was positively correlated with years of education ($r = .21$), and reported knowledge ($r = .40$). Partial correlations were again of a similar magnitude. On the other hand, the transformed false-positive rate was positively and significantly correlated with reported knowledge ($r = .20$), but not with years of education. Memory bias, perceived ability to deceive, and cognitive ability were neither significantly associated with overclaiming bias nor the false-positive rate.

Cognitive ability ($r = .31$), reported knowledge ($r = .26$), age ($r = .39$), and years of education ($r = .13$) were all positively associated with accuracy, supporting the notion that these variables are markers of the genuine accumulation of knowledge.

Overclaiming mechanisms. Finally, to test Hypotheses 5–9, we specified the path model depicted in Figure 1 using Mplus 7.3. In the model, we allowed all predictors to covary, and all residual variances of the mediator variables to covary with the predictors not involved in the mediating relation. The model was specified twice; once with overclaiming bias as the dependent variable and a second time with transformed false-positive rate as the dependent variable (accuracy was omitted as a control in the latter model). Maximum-likelihood estimation was employed in both analyses.

The model of overclaiming bias fit the data reasonably well, $\chi^2(3, N = 241) = 8.47, p = .037$, comparative fit index (CFI) = 0.979, root-mean-square error of approximation (RMSEA) = 0.087, 90% confidence interval (CI) [0.019, 0.159], $p$-close = .146. Similarly, the overall fit of the model of transformed false-positive rate was good, $\chi^2(3, N = 241) = 4.17, p = .244$, CFI = 0.994, RMSEA = 0.040, 90% CI [0.000, 0.122], $p$ close = .475. The standardized regression coefficients that emerged are shown for both models in Figure 1 and they revealed that overclaiming bias could be attributed to three main sources: a direct relation with age, a direct relation with Openness, and potentially as an indirect outcome of years of education and Openness through reported knowledge. By contrast, the transformed false-positive rate appeared to be driven primarily by cognitive ability, although the standardized regression parameter for reported knowledge exhibited a $p$ value of .057.

Standardized indirect effects were estimated by bootstrapping 5,000 samples and applying bias-corrected confidence intervals.10 In the model of overclaiming bias, only two of the hypothesized indirect effects were statistically significant, and these were the indirect effects of Openness and years of education on Overclaiming, both through reported knowledge. The standardized indirect effect of Openness on overclaiming bias was .163 (95% CI [.078, .249]), and this represented 42.6% of the total effect of Openness (.382, 95% CI [.282, .482]). The standardized indirect effect of years of education on bias was .106 (95% CI [.042, .170]). The remaining indirect effects were near to zero and are omitted here for brevity. The total percentage of variance explained in overclaiming bias was 28.3%.

In the model of the transformed false-positive rate, the standardized indirect effect of Openness, through reported knowledge, was

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9 We also measured Big Five Openness using parallel forms of the NEO-PI-R Openness facets from the Internationality Personality Item Pool (60 items in total, Cronbach’s $\alpha = .93$). This measure of Big Five Openness correlated very strongly with the HEXACO Openness scale ($r = .82$), and also correlated positively with overclaiming bias ($r = .27$). Further, we measured the Big Five Openness to Experience aspects (DeYoung et al., 2007), namely Openness and Intellect. Correlations of the Intellect aspect and overclaiming indices were .32 (overclaiming bias; $pr = .26$), .16 (transformed false-positive rate), and .18 (accuracy). Correlations of the Openness aspect and the same overclaiming indices were .31 ($pr = .21$), .20, and .11 ($ns$).

10 For this study and Study 4, we present 95% confidence intervals for all indirect effects analyses involving the $c$ index, and 90% confidence intervals for all analyses involving the transformed false-positive rate. We specified more liberal confidence intervals for the latter as we were concerned about avoiding Type II errors with respect to this index of overclaiming, which as we noted earlier, is conservative.
significant (.067, 90% CI [.002, .131]) and represented 37.4% of the total effect of Openness (.179, 90% CI [.082, .276]). The standardized indirect effect of years of education on the false-positive rate was .043 (90% CI [.000, .086]). The lower bound of this bootstrapped confidence interval was rounded by the statistical package to 0.000 and it is impossible to determine whether or not this confidence interval crosses zero. We therefore concluded only tentatively that this indirect effect was significant but note that in the study that follows, we will revisit this same mechanism. As was the case for overclaiming bias, the indirect effects of Narcissism and Honesty-Humility on the transformed false-positive rate were nearly zero and nonsignificant.

Collectively, none of the results supported Hypothesis 7 (the memory bias for novel stimuli explanation), Hypotheses 8a or 8b (the Narcissism explanation of overclaiming), or Hypothesis 9 (the low Honesty-Humility/deception explanation). Support was found for Hypothesis 6 in that years of education did predict overclaiming bias and transformed false-positive rate (tentatively) through its effect on reported knowledge. Further, consistent with all studies above, Openness was a relatively strong predictor of overclaiming behavior. However, although approximately two-fifths of this relation was explained by the mediating role of reported knowledge (consistent with Hypothesis 5), Openness still exhibited a significant direct relation with overclaiming bias (but not with the transformed false-positive rate).

**Discussion**

This study provided additional support for an association between overclaiming behavior and Openness, which persisted despite statistically controlling for other potential explanatory mechanisms. Importantly, it appears that almost two fifths of the openness–overclaiming association can be explained by the tendency of more open individuals to accumulate more general knowledge about the world; an account corroborated by the observed indirect effect of education on overclaiming through the same mechanism. Nonetheless, a direct relation of Openness on overclaiming behavior remained, suggesting there are further, and as yet unexplored, mechanisms that tie Openness to the act of overclaiming.

So far, we propose that a core mechanism underlying overclaiming is the true accumulation of knowledge and experience with various topics and stimuli, which triggers an illusion of familiarity when completing the OCQs. In other words, we believe that people actually do know more about these topics. However, in Study 3, we measured this mediating mechanism using self-reports of knowledge. Although Atir et al., (2015) found that self-reports of knowledge predict overclaiming after controlling for actual knowledge as measured by a knowledge test (and vice versa), it remains possible that overclaimers on the OCQ are simply prone to overstating their general knowledge in a similar manner to how they overstate their knowledge of specific items in an OCQ—thus conceptually confounding our knowledge measure with overclaiming bias. To draw stronger conclusions about these mediating mechanisms, we thus undertook an additional study where we introduce a more objective test of participants’ knowledge.

**Study 4**

In this study, we investigate the mechanisms that have shown the most promise in explaining overclaiming behavior, but incorporate a test of actual accumulated knowledge of four topics that is independent of self-report biases (see Atir et al., 2015). Specifically, we simultaneously investigate two theoretical mechanisms of overclaiming that hinge on the accumulation of knowledge. These are depicted in Figure 2, which, for brevity, also shows path coefficients and model fit information. The first set of mechanisms ties Openness to overclaiming (M1 in Figure 2). Specifically, we propose two pathways. First, because Openness reflects in part the tendency to be intellectually curious, we expected Openness to predict participants’ genuine accumulation of knowledge about certain topics (i.e., their actual knowledge). As described previously, we argue that this accumulation of knowledge will trigger illusions of familiarity when encountering stimuli purportedly from the same domain, and hence will lead to overclaiming (M1a).

Second, consistent with Study 3, we predict that individuals high on Openness will be more inclined to report holding knowledge of topics, which will then predict overclaiming (i.e., consistent with a self-presentation bias account; M1b). In contrast to Study 3, however, in this study, in testing this prediction we also control for participants’ actual knowledge. We should also note that in our model, we again specified a direct path between Openness and overclaiming, to determine if this direct relation remains after accounting for the mediators. We therefore proposed the following hypotheses:

*Hypothesis 10a:* Reported knowledge of the OCQ topics (“reported knowledge”) mediates the positive relation between Openness and overclaiming behavior (analogous to Hypothesis 5 of Study 3).

*Hypothesis 10b:* Actual knowledge of the OCQ topics (“actual knowledge”) mediates the positive relation between Openness and overclaiming behavior.

The second mechanism we proposed was that which ties years of formal education to Overclaiming (M2 in Figure 2). As with Study 3, we expected that relatively better educated individuals would overclaim more. However, here we test the genuine rather than just the reported accumulation of knowledge as the mediating mechanism. To this end, we propose the following hypotheses:

*Hypothesis 11:* Actual knowledge mediates the positive relation between years of education and overclaiming behavior.

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11 Using archival data analyzed in a previous publication (Ludeke & Makransky, 2015), we had the opportunity to provide another preliminary test of this idea. In this data, from the Eugene-Springfield community sample, participants completed an OCQ about musical artists, a measure of the HEXACO, and indicated their ownership of a variety of musical albums. We proposed this self-reported musical album ownership as a supplementary proxy test of “knowledge,” and hence as a mediator of the relation between overclaiming behavior and Openness. Analyses of overclaiming bias supported the findings of the present article; however, the analyses of the false-positive rate did not. We attribute the latter to the fact that the false-positive rate (i.e., claims of familiarity with nonexistent musical bands) was extremely low in that sample (before transformation, .015). Detailed information about this study is provided in the downloadable supplementary materials.
Finally, as we did previously, in this study, we also control for cognitive ability, gender, age, and accuracy (the latter being an exception when the false-positive rate was modeled).

Method

Participants and procedure. As with Study 3, participants were recruited using Amazon’s Mechanical Turk platform, though no participants from Study 3 were permitted to participate in this study. Potential participants were informed that the study would be conducted in two phases, with approximately a week in between, and that only participants who completed Phase 1 would be invited or able to access the Phase 2 task. A total of 378 residents of the United States (55% female) completed the Phase 1 survey. The mean participant age was 36.1 (SD = 11.3) years. Participants reported a mean of 15.8 years of formal education since childhood (SD = 2.46) and that they had worked full-time for an average of 12.6 years (SD = 10.6). The Phase 2 survey was only accessible six days after the last participant in Phase 1 completed his or her questionnaire. In total, participants were remunerated $4 for their time ($1 at Phase 1, $3 at Phase 2). Of the 378 participants that completed Phase 1, 303 also completed Phase 2, but of these, one was excluded due to failure to correctly respond to at least two of the three attention check questions we included. The final sample size was therefore 302, yielding an effective return-rate of 79.9%.

Measures. Cronbach’s coefficient alphas for all measures are shown in Table 6. Aside from cognitive ability and overclaiming behavior, all measures were collected in the Phase 1 survey.

Personality. We collected self-reports of personality using the extended version of the HEXACO-PI-R also used in Study 3, which consists of 32 items that measure Openness and five sets of 16 items that measure the remaining five factors.

Reported knowledge of target topics (“reported knowledge”). We asked participants to report on their perceived “general knowledge” of a total of 20 topics. We refer to four of these topics as the “target topics” as these were the topics on which we later assessed participants’ actual knowledge and overclaiming behavior. The target topics were historical names and events, geographical and historical landmarks, religion and religious concepts, and politics and political concepts. Although only the mean of reported knowledge on these four topics was used to calculate the reported knowledge score, we included an additional 16 topics to guard against people researching the target topics. The order of the topics was randomized in the questionnaire and participants were not informed that there were any particular topics that would be investigated in depth later. Participants rated their knowledge of each topic from 0 (“I know nothing about this topic”) to 6 (“I know a great deal about this topic”).

Target topic knowledge test (“actual knowledge”). We assessed participants’ actual knowledge of the four Target Topics via a 40-item multiple-choice quiz that we developed based on materials sourced from a website that hosts over 3,000 quizzes on a very large range of topics, including the target topics (JetPunk, 2015). The quiz we created included 10 items for each of the target topics, which we developed from the website materials. To create a five-option multiple-choice quiz, in addition to including the correct answer, we ensured there were three distractors for each item, and one “I don’t know” option. Example items include, “Who was the first of King Henry VIII of England’s wives to be...
beheaded?” (historical names and events) and, “In which of the following countries is Uluru located?” (geographical and historical landmarks).

Prior to this study, we undertook a pilot study of this measure using a sample recruited from Mechanical Turk (n = 123). The results of the pilot revealed that the test exhibited internally consistent total scores (Cronbach’s alpha = .86), which in turn exhibited a normal distribution (Shapiro-Wilk p = .457), centered on a mean of 20.9 out of a maximum of 40.

In this study (and the pilot study), participants were informed that there were no prizes or incentives for better performance, and they were asked therefore not to look the answers up. Hereafter, we refer to this variable as “actual knowledge” to distinguish it from reported knowledge. Detailed information about the construction of this instrument can be obtained from the downloadable supplemental materials.

Cognitive ability. During Phase 2, participants completed the 16-item version of the International Cognitive Ability Resource, which was also used in Study 3 (Condon & Revelle, 2014).

Overclaiming behavior. Finally in Phase 2, participants completed a new four-topic OCQ which incorporated 12 targets and six foils within each of the four target topics (i.e., 48 targets and 24 foils in total). Participants were asked to rate their familiarity with the items from 0 (never heard of it) to 6 (very familiar). We created a new OCQ for this study because we were concerned that Mechanical Turk participants may be exposed to other OCQs previously (e.g., Atir et al., 2015). In so doing, we generated a pool of 20 targets (drawn from web searches) and 20 foils (created by the research team and verified as foils via web searches) for each of the Target Topics and then presented them, in the form of an OCQ, to a new pilot sample of 125 Mechanical Turk workers.12 For this study, we then selected a final subset of 12 targets and 6 foils that exhibited a certain range of mean familiarity ratings; that is we wanted to include foils and targets that were of varying “difficulty.” Detailed information about the construction of this instrument can be obtained from the downloadable supplemental materials.

Results

Prior to undertaking substantive analyses, means, standard deviations, and intercorrelations among all variables were inspected and are presented in Table 6. Several important correlations are noted below.

**Construct validity of the target topic knowledge test.** First, we sought to establish the construct validity of the newly developed measure of Actual Knowledge. In support of its construct validity, performance on the test correlated positively and appreciably with five variables that it would be expected to, namely reported knowledge of target topics (r = .44), cognitive ability (r = .42), the accuracy index of the OCQ (r = .42), Openness (r = .34), and years of education (r = .26).

**Relations of overclaiming indices with demographic variables.** We next examined the relations of the overclaiming indices with age and gender. Relative to women, men exhibited...
a significantly higher overclaiming bias than women (Cohen’s $d = .40$) and exhibited a significantly greater transformed false-positive rate (Cohen’s $d = .26$). However, there were no significant gender differences in accuracy scores. Age was not significantly correlated with either indicator of overclaiming behavior, but was positively associated with accuracy ($r = .28$).

**Relations of overclaiming indices with personality.** We next inspected the relations of the overclaiming indices with personality. Openness again emerged as the strongest correlate of overclaiming bias ($r = .34$) and accuracy ($r = .16$). Emotionality ($r = -.17$) and Extraversion ($r = .14$) also correlated significantly with overclaiming bias, but these correlations were relatively small. Openness ($r = .22$) and Extraversion ($r = .13$) were the only personality scales to correlate significantly with the transformed false-positive rate. The partial correlations were virtually identical to their zero-order counterparts.

**Relations of overclaiming indices with other variables.** In contrast to Study 3, and in conflict with Hypothesis 11, the zero-order correlations of years of education with overclaiming bias and the transformed false-positive rate were very small and nonsignificant ($r = -.03$; $r = .06$, respectively). By contrast, both overclaiming bias and the transformed false-positive rate correlated with reported knowledge of target topics ($r = .38$; $r = .26$) and performance on the actual knowledge test ($r = .42$ and $r = .19$, respectively).

**Overclaiming mechanisms.** Finally, we specified the path models depicted in Figure 2 in Mplus 7.3 and calculated maximum-likelihood estimates twice; once with overclaiming bias as the dependent variable, and once with the transformed false-positive rate (accuracy was not a control variable in the latter model). In both models, we allowed all predictors to covary, and the residual variances of the two mediator variables to covary with the control variables. The overall fit of the model of overclaiming bias was excellent, $\chi^2(2, N = 302) = .58, p = .748$, CFI = 1.00, RMSEA = 0.000, 90% CI [0.000, 0.079], $p$ close = .868, as was the fit of the model of the transformed false-positive rate, $\chi^2(2, N = 302) = 1.43, p = .488$, CFI = 1.00, RMSEA = 0.000, 90% CI [0.000, 0.104], $p$ close = .695.

The standardized regression coefficients that emerged in both models are also shown in Figure 2 and they revealed that overclaiming bias was statistically predicted by three main sources: a direct effect of Openness, and as a product of reported and actual knowledge (see below). The transformed false-positive rate was also statistically predicted by Openness and reported knowledge, though we also note that the $p$ value for the regression parameter of actual knowledge was .064. Nonetheless, if we remove reported knowledge from the path model, actual knowledge “reemerged” as a significant predictor of false-positive rate (.18, $p = .005$) suggesting that the effect of reported knowledge is substantive rather than based on a shared responding bias.

Standardized indirect effects of Openness and years of education on overclaiming bias and transformed false-positive rates were estimated by bootstrapping 5,000 samples and applying bias-corrected confidence intervals. The total standardized indirect effect of Openness on overclaiming bias was .184 (95% CI [.115, .252]), which represented 49.3% of the total effect of Openness (.373, 95% CI [.281, .465]). All three specific standardized indirect effects were significant. First, Openness predicted overclaiming bias via its direct effect on reported knowledge (.044, 95% CI [.005, .083]), supporting Hypothesis 10a. Second, Openness predicted overclaiming bias through its effect on actual knowledge (.123, 95% CI [.068, .179]), supporting Hypothesis 10b. Third, Openness also predicted overclaiming bias through its indirect effect on reported knowledge, via actual knowledge, though we note that this effect’s 95% confidence interval borders zero (.016, 95% CI [.000, .031]).

The standardized total indirect effect of years of education on overclaiming bias was .112 (95% CI [.058, .166]), supporting Hypothesis 11. This effect was almost entirely attributable to the effect of years of education on overclaiming bias through actual knowledge (.099, 95% CI [.048, .151]), as opposed to its effect on overclaiming through reported knowledge and actual knowledge (.013, 90% CI [.002, .023]). Thus, while the zero-order correlation of years of education with overclaiming bias was not significant, years of education indirectly affected overclaiming through its effects on genuinely accumulated knowledge. This result is consistent with the logic of Hypothesis 11, although we acknowledge the absence of significant zero-order correlation of years of education with Overclaiming precludes a traditional mediation interpretation.

For the transformed false-positive rate, some results were similar, although some differed. Specifically, the total standardized indirect effect of Openness on the transformed false-positive rate was .105 (90% CI [.047, .162]), and this represented 45.2% of the total effect of Openness (.232, 90% CI [.141, .323]). The specific effect of Openness on transformed false-positive rate through its effect on reported knowledge was significant (.046, 90% CI [.009, .083]), supporting Hypothesis 10a, however, in contrast to Hypothesis 10b, its effect through actual knowledge was not (.042, 90% CI [.003, .088]). The specific effect of Openness through both actual and reported knowledge was small but significant (.017, 90% CI [.002, .031]).

The total indirect effect of years of education on the transformed false-positive rate was significant (.047, 90% CI [.013, .082]), supporting Hypothesis 11, despite the nonsignificant zero-order correlation between these two variables. Although the specific indirect effect of years of education on false-positive rate through actual knowledge was the larger of the two, it was not significant (.034, 90% CI [.002, .070]). By contrast, the specific effect through actual and reported knowledge was smaller but significant (.013, 90% CI [.002, .025]). That is, better educated participants tended to perform better on the knowledge test, report more knowledge of the topics in the OCQ, and then claim greater familiarity with the foils of the OCQ.

**Discussion**

The results of this study provide a sixth replication of the openness–overclaiming relation. This study revealed, however, that Openness acts as a correlate of the genuine accumulation of knowledge which, in turn, predicts the overclaiming of knowledge in the same topic areas as the accumulated knowledge. The notion that the genuine accumulation of knowledge leads to overclaiming is supported by the indirect effect of years of education on overclaiming through reported and actual knowledge, although these effects were somewhat weaker than those of Openness.
As was observed in Study 3, however, Openness also predicted overclaiming indirectly via its impact on participants’ self-reported knowledge. Such a result could potentially be explained as a product of a tendency to exaggerate one’s Openness and one’s knowledge.

**Study 5**

Although the preceding studies revealed fairly robust positive associations between Openness and both overclaiming bias (with, and without controlling for age, gender, and accuracy) and transformed false-positive rate, the corresponding relations of the remaining HEXACO factors were somewhat fickle across the studies with respect to size, direction, and statistical significance. Thus, in this brief and final study, we present a meta-analysis of the correlations in all of the preceding studies to provide summary estimates of the relations of the HEXACO factor scales with the overclaiming indices, as observed in the six study samples.

**Method, Results, and Discussion**

We calculated meta-analytic estimates of the zero-order correlations of the six HEXACO factor scales with overclaiming bias and transformed false-positive rate, and the partial correlations of the six HEXACO factor scales with overclaiming bias, controlling for age, gender, and accuracy. In so doing, we employed a random effects model because the studies all used different questionnaires to measure overclaiming, and the study populations were quite varied in their demographic composition (Hedges, 1992). We did not apply any statistical adjustments for unreliability of measures, because the goal of the analysis was to summarize the findings of the studies presented herein, rather than attempt to derive population estimates of the overclaiming-personality relation. Results are shown in Table 7.

Of all six HEXACO factors, Honesty-Humility, which was hypothesized to be negatively associated with overclaiming, was the factor exhibiting the weakest meta-analytic correlation with both indicators of overclaiming. By contrast, the meta-analytic correlation of Openness with both indicators of overclaiming was the strongest. Of the remaining scales, Emotionality (negative), Extraversion (positive), Conscientiousness (positive) all showed very weak but statistically significant relations with overclaiming bias (with and without control variables). Extraversion and Conscientiousness also correlated positively, and significantly greater than zero (although still very weakly) with the transformed false-positive rate.

### General Discussion

The overclaiming technique has been suggested as a device that might be useful for detecting or controlling for positive self-presentation in self-report assessments in both low and (simulated) high-stakes settings (Bing et al., 2011; Paulhus, 2011; Tonković et al., 2011). If one wishes to consider the use of the overclaiming technique as a means of capturing positive self-presentation, it is important to understand precisely what overclaiming behavior represents, and thus how it relates to measures of personality. However, the theory on the underlying nature and motives for overclaiming behavior remains somewhat underdeveloped. The views recently offered by Paulhus (2011) are that overclaiming behavior represents a combination of unconscious egocentric self-enhancement (with trait-narcissism being a direct predictor), intentional self-enhancement, and a trait-like memory bias. Below, we first discuss our findings in terms of these theoretical perspectives, and then conclude by offering some alternative accounts.

In the series of studies we presented here, we found no evidence of a link between the Honesty-Humility factor and overclaiming behavior; in fact, out of the six HEXACO factors, this factor exhibited the weakest relation with overclaiming. The absence of a relation between Honesty-Humility and overclaiming was somewhat surprising because such a relation is implied partly in the narcissistic (egoistic) self-presentation and even more so in the impression management mechanisms proposed by Paulhus (2011). Narcissism is a known strong negative correlate of Honesty-Humility (Lee et al., 2013), and in previous studies it was found to be a modest to moderate correlate of overclaiming. It did not correlate with overclaiming bias in our Study 3 although it did correlate modestly with the transformed false-positive rate. Alternatively, low Honesty-Humility might predict overclaiming due to the proclivity of individuals low on Honesty-Humility to be deceitful and manipulative. Thus, a negative association between Honesty-Humility and overclaiming should emerge to the extent that overclaiming is a product of intentional deceit (i.e., impression management). Yet none of our studies showed such a relation. Indeed, in Study 3, where perceived ability to deceive was proposed as a mediator, this variable did not correlate with overclaiming behavior either. Further, in Study 2, we introduced a well-established ego-threatening manipulation (e.g., Gendolla, 1999; Gendolla & Richter, 2005) and found it to be effective in principal given that it apparently boosted participants’ accuracy scores. Nonetheless, it did not appear to affect overclaiming nor did it moderate the relation of Honesty-Humility with overclaiming.

### Table 7

**Meta-Analytically Derived Correlations of HEXACO Scales and Overclaiming Using a Random Effects Model**

<table>
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<tbody>
<tr>
<td>Overclaiming bias (c)</td>
<td>.01 [-.04, .07]</td>
<td>-.11*** [-.16, -.06]</td>
<td>.09** [+03, .14]</td>
<td>.04 [-.05, .13]</td>
<td>.09** [.04, .14]</td>
<td>.32** [.27, .37]</td>
</tr>
<tr>
<td>Overclaiming bias (c) pr</td>
<td>.01 [-.05, .06]</td>
<td>-.07 [-.12, -.01]</td>
<td>.05** [.03, .14]</td>
<td>.04 [-.06, .14]</td>
<td>.10*** [.04, .15]</td>
<td>.33*** [.28, .38]</td>
</tr>
<tr>
<td>Transformed false-positive rate</td>
<td>-.01 [-.08, .04]</td>
<td>-.02 [-.07, .04]</td>
<td>.09** [.04, .14]</td>
<td>.07 [.00, .14]</td>
<td>.06 [.00, .11]</td>
<td>.18*** [.13, .23]</td>
</tr>
</tbody>
</table>

**Note.** N = 1,327; K = 6. HEXACO = Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience; pr = partial correlations after controlling for age, gender, and accuracy. Figures in brackets are 95% confidence intervals.

* p < .051. ** p < .005. *** p < .001.
ing. Although this raises some doubts about the notion that overclaiming is an expression of self-enhancement or deceitfulness, we encourage future researchers to investigate the associations between overclaiming and Honesty-Humility in relation to a broader suite of experimental situations conclusively known to promote or encourage self-enhancement or deceit (e.g., personnel selection; see Feeney & Goffin, 2015). The experimental manipulation in Study 2 was only one of many possible types, so different manipulations that may trigger positive self-presentation behavior might be used in future research on overclaiming.

Across all six study samples, we also found very little support for associations between overclaiming behavior and indicators of the “egoistic self-enhancement” factor. First, in Sample 3 of Study 1, the correlation of overclaiming and the Self Deception Enhancement scale was negligible. This null finding is consistent with the findings of Ludeke and Makransky (2015) from the Eugene-Springfield Community Sample. Second, in Study 2, we did not observe any signs of an egoistic response to the instruction set designed to elicit such a response. Overclaiming behavior also did not appear to be strongly associated with Emotionality in any of the studies, although we did observe a weak but significant negative meta-analytically derived correlation between overclaiming bias and Emotionality (but not the false-positive rate). Generally speaking, even though the meta-analytic Extraversion and Conscientiousness correlations with overclaiming behavior were statistically significant, they were very small in size.

By contrast, a relatively strong correlation of overclaiming behavior and Openness was observed across all studies. Though such an observation might be speculated to confirm an overclaiming-egoistic bias relation, which is characterized in part by a desire to appear intellectually superior to others, this relation persisted even when Openness was rated by knowledgeable others (Study 1, Sample 3), when it was self-rated at a different point in time from the overclaiming activities (Study 1, Sample 2, and Studies 3 and 4), whether or not an egoistic manipulation was used (Study 2), and when controlling for Narcissism (Study 3) and measures often used to capture socially desirable responding (Study 1, Sample 3). Consequently, overclaiming appears to be a behavior that is characteristic of individuals higher on Openness, rather than a product of a common bias that also affects responses to items measuring Openness.

One mediating mechanism we investigated in Studies 3 and 4 to explain the openness–overclaiming relation was knowledge of the subject matter of the corresponding OCQ. In these studies, two indicators of knowledge, namely self-reported knowledge and performance on a knowledge test both partially mediated the relation of Openness and overclaiming. We therefore strongly suspect that the accumulation of knowledge is symptomatic of a general tendency to explore and be open to new experiences. Indeed, the fact that education in Studies 3 and 4 also predicted overclaiming, through knowledge, supports this viewpoint, although we acknowledge that more research is required on demographic predictors of overclaiming before drawing firm conclusions.

Even after controlling for knowledge, a direct association of Openness with overclaiming still emerged, which implies that there is at least one other mechanism that ties the two constructs together. An unmeasured variable that might yet explain this direct relation is apophenia. Apophenia describes a tendency to see patterns, logic, and meaning where none exist (DeYoung, Grazioplene, & Peterson, 2012; Fyfe, Williams, Mason, & Pickup, 2008). According to DeYoung et al. (2012), Openness and Intellect can be conceptualized as a simplex that is bounded by intelligence (cognitive ability) on the one hand and apophenia on the other. Cognitive ability was nearly unrelated to overclaiming bias in our studies and was negatively associated with the false-positive rate in Study 4; perhaps then some of the observed openness–overclaiming relation might be explained by the apophenia part of the Openness/intellect simplex; that is, perhaps a proclivity to identify patterns when there are none generalizes to perceiving familiarity in novel stimuli.

Whereas Paulhus (2011) described overclaiming as a possible product of a general propensity to report feeling familiar with novel stimuli (see also Williams et al., 2002), the results of our third study did not support this explanation. Indeed, the memory bias index we collected, based on truly novel stimuli, did not correlate strongly with Openness or overclaiming, thus seemingly ruling out this mechanism. Although there may be limitations of undertaking a memory bias task in an unproctored online questionnaire, we note that (a) the task was carefully timed by the online survey platform, (b) the distribution of memory bias scores in our study was very close to normal, (c) the accuracy score it yielded was positively correlated with cognitive ability, and (d) we excluded participants we suspected of failing to pay attention. Still, we believe that further consideration of this pathway is warranted. For example, it is not clear from our study whether the memory bias is trait-like or merely a fleeting phenomenon. If the latter, it is unlikely to account for overclaiming tendencies; however, its association with cognitive ability would imply the presence of at least some trait-like component. In addition, it may be that the limited single exposure participants were given to the stimuli in this task was not enough to create a memory for these nonwords that would then lead to an illusion of familiarity for similar words, and so perhaps future research could try longer or repeated exposure to these novel stimuli, or alternate memory tasks.

It is also interesting to note that the relation between overclaiming behavior and Openness persisted irrespective of the content of the different OCQs used across the studies and the differences in response scales (e.g., binary vs. polytomous). Other studies have shown that the exhibition of overclaiming is fairly consistent across domain areas within the same OCQ (e.g., Kam et al., 2015), and the present findings indicate that the openness–overclaiming relation is largely invariant across OCQ content. Nonetheless, one could argue that the six measures of overclaiming used in our studies predominantly capture academic or artistic topics (e.g., vocabulary, art, history). Given that an interest in intellectual and artistic pursuits are common characteristics of individuals high on Openness, the possibility remains that the openness–overclaiming relation repeatedly observed here is a by-product of the intellectual or artistic content of the OCQs used in our studies. Indeed, Openness also tended to correlate with the accuracy indices, with the exception of the VOC-T used in Sample 2 of Study 1; perhaps that relation was absent in this sample because the content of the VOC-T is simply a set of words, rather than broader set of academic or artistic concepts. It may therefore be the case that overclaiming behaviors assessed by OCQs that contain lay topics that are less intrinsically attractive to individuals high on Openness
will be more strongly driven by some mechanisms other than those involving the Openness trait.

In sum, it appears that overclaiming is driven in part by a combination of Openness, and to a lesser extent time in formal education, which together lead to the accumulation of knowledge about a variety of topics. The accumulated knowledge then triggers the tendency toward “illusions of familiarity” when faced with foils in an OCQ. Nonetheless, we also found a persistent direct association between Openness and overclaiming even after controlling for reported and actual knowledge, suggesting that accumulated knowledge is not the only mechanism that links this trait to overclaiming.

**General Limitations**

Although we have discussed several limitations and future directions in the Discussion sections specific to each study, a few overall limitations should be noted. First, aside from Study 2, all studies were undertaken in low-stakes circumstances; that is, participants completed questionnaires knowing they were for research purposes only. Because of this, there may not have been sufficient reason to engage in overclaiming. Nonetheless, apparently people still reported familiarity with foils to some extent with raw (i.e., untransformed) false-positive rates ranging from .05 (Study 1, Sample 3) to .28 (Study 2). Indeed, Paulhus et al. (2003) observed variance in overclaiming behavior even though there was no objectively motivating reason engage in it, and in our studies, many individuals claimed some level of familiarity with some of the foils. Despite this, we should note that where there is a concrete incentive to overclaim (e.g., to impress a potential employer), it may be the case that—for people low on Honesty-Humility—the drivers of overclaiming behavior change. In such situations where there is an extrinsic reward tied instrumentally to overclaiming, perhaps overclaiming will lose its association with Openness, and instead relate to traits that are associated with deceptive behavior, such as Honesty-Humility (as we had anticipated in Study 2). Although there is as of yet not any concrete evidence to support such moderator effects, future research might like to further explore these relations by comparing them in low-stakes versus real-life high-stakes settings.

Second, we acknowledge some of the limitations of the test we employed to capture actual knowledge. We deliberately developed the test to contain a broad range of content within the four Target Topics. However, its breadth, along with the breadth of the items in the OCQ makes it very difficult to measure deep levels of knowledge that has been accumulated through education, experience, and, in particular a dispositional proclivity to explore the world, that is, Openness to Experience.

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OVERCLAIMING AS AN EXPRESSION OF OPENNESS


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