



Truth and fiction in the association between Openness and education: The role of biased responding



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ABSTRACT

Previous research has identified Openness to Experience as a significant predictor of differences in educational attainment, with higher levels of Openness reported among more educated individuals. Using data from a large community sample, we argue that this association contains fiction as well as truth. We found that educational attainment was correlated not only with Openness as indicated by self- and peer report, but also with the tendency to exaggerate one's level of Openness. The association between education and overclaiming of Openness was mediated by views of the desirability of Openness: Openness was seen as a more desirable trait by more educated individuals, and those who viewed Openness as more desirable were more likely to overstate their levels of the trait in self-reports. These results highlight the importance of non-self-report data in personality research and the role of individual views of trait desirability for biasing self-reports.

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1. Introduction

Differences in the amount of education completed, or educational attainment, account for a wide range of disparities between adults, including differences in health, longevity, and income (Gakidou, Cowling, Lozano, & Murray, 2010). Although efforts to understand the origins of differences in educational attainment have often focused on variables such as cognitive ability and parental resources (e.g. Luster & McAdoo, 1996), several studies point to a role for personality characteristics (for a review, see Almlund, Duckworth, Heckman, & Kautz, 2011). The trait of Openness to Experience, which captures differences in creativity, imaginativeness, and intellect, has been frequently identified as personality characteristic most associated with educational attainment (Costa et al., 1986; Goldberg, Sweeney, Merenda, & Hughes, 1998; Jokela, 2009; O'Connell & Sheikh, 2011; Van Eijck & de Graaf, 2004), though the reality and meaning of this association are discussed further below.

As with most research in personality, studies in this domain tend to rely on self-report measures of personality. Although the utility of self-report assessments of personality is well established (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007), concerns regarding the vulnerability of these assessments to dishonest or otherwise inaccurate reporting have been raised for over half a century (Edwards, 1953). This may be a particular challenge for identifying the personality correlates of education, as a meta-analysis by Ones, Viswesvaran, and Reiss (1996) indicated that educational attainment is significantly associated with scores on measures of *socially desirable responding* (SDR), which aim to identify

individuals who are inaccurately claiming high levels of traits viewed as desirable by society. This result creates room for doubt regarding which apparent personality differences between those with different levels of education in fact represent true trait differences and which instead reflect differential tendencies to provide biased self-reports. However, because SDR measures have been shown to capture true personality variance as much or even more than the tendency to misrepresent one's traits (McCrae & Costa, 1983; Ones et al., 1996), the association of education with SDR measures must be interpreted with caution: it may reflect real differences in personality, differences in the tendency to provide biased self-reports, or both.

An additional cause for concern with respect to the identification of the personality correlates of educational attainment comes from a recently identified source of bias in self-report measures of personality. This bias stems from the tendency of individuals to overclaim specifically those traits they personally view as desirable. Because individuals differ in the traits they view as most desirable, there are predictable differences in which traits an individual will overclaim (Ludeke, Weisberg, & DeYoung, 2013; see also Borkenau, Zaltauskas, & Leising, 2009). This bias is labeled *idiographically desirable responding* (IDR); in contrast to SDR, which identifies the tendency to exaggerate traits that society in general views as desirable, IDR is thus particularly concerned with the individual's views of the desirability of a characteristic. To illustrate IDR by example, someone who highly values Extraversion is likely to exaggerate his Extraversion in self-report to a greater extent than someone who does not value Extraversion.

Whereas assessment of SDR merely requires knowing what traits are generally desirable, an assessment of IDR requires asking each participant about their views of the desirability of each trait. Because IDR has been demonstrated in a sample where personality and trait desirability were

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not simultaneously assessed (Ludeke et al., 2013), the correlations between ratings of trait desirability and overclaiming do not appear to be induced by the assessment itself. Instead, IDR might be interpreted as an illustration of the more general tendency to feel that one has positive qualities (as illustrated by the “better than average effect;” Alicke & Govorun, 2005), consistent with the observation that the tendency appears more pronounced among those with higher levels of self-esteem (Ludeke et al., 2013). Importantly, IDR does not imply that the association between views of trait desirability and self-reported personality are exclusively based on fiction. In fact, ratings of trait desirability are correlated both with true trait levels and with overclaiming (Ludeke et al., 2013): the individual who rates Extraversion as highly desirable is thus likely to actually be relatively extraverted, though not as extraverted as he will claim to be.

The importance of IDR for identifying the personality correlates of educational attainment is highlighted by research on the value differences between those with differing levels of education. For example, previous research has found that more educated individuals tend to have a particularly positive view of Openness-related characteristics such as creativity, novelty, and independence (Schwartz, 2006). The phenomenon of IDR implies that the strong value educated individuals attach to Openness would cause them to be particularly prone to overclaim their levels of this trait – a result which would be all the more interesting given that self-reported Openness appears to be the most pronounced Big Five correlate of educational attainment in adult samples (e.g. Goldberg, Sweeney, Merenda, & Hughes, 1998; Van Eijck & de Graaf, 2004).

The need for an explicit test of the association between educational attainment and misrepresentation in self-report is thus highlighted by research in both SDR and IDR. To the best of our knowledge, no such test has been previously reported. Conducting such a test requires comparing self-reports against a criterion, such as ratings of trait levels provided by knowledgeable peers.

To the extent that education is found to predict misrepresentation in self-reports, an explanation for this association should be sought among the previously described mechanisms of biased responding. Specifically, one could attempt to identify mediators between education and self-report misrepresentation. If SDR is the best explanation for such an association, then a measure assessing differences in the tendency to engage in SDR should at least partially mediate the connection between educational attainment and self-report misrepresentation. Alternatively, if the association between education and misrepresentation in self-reports is best accounted for by IDR, one might expect education's association with misrepresentation in self-reports to be mediated by ratings of trait desirability. A recent study reported that differing patterns of misrepresentation in self-reports of personality among those with differing sociopolitical attitudes could be accounted for by IDR (Ludeke, Tagar, & DeYoung, 2014), providing some expectation that IDR will also be able to account for the association between education and misrepresentation in self-reported personality. As a result, although the present study's primary aim is to clarify the association between education and personality, it may additionally serve to test the relative utility of SDR and IDR for explaining misrepresentation in self-reports.

2. Materials and methods

2.1. Participants

Participants were members of the Eugene–Springfield Community Sample, a predominantly middle-aged group ($M = 51.76$ years, $SD = 11.72$, range = 31–80) drawn from lists of homeowners in the Eugene–Springfield area of Oregon. Participants (57.1% female) were predominantly (97%) Caucasian and reported a range of educational attainment, with a median of two years of post-secondary education. Surveys were completed by mail over 14 years in exchange for money, beginning in 1994. Not all participants in this study provided

data for each assessment. Because younger participants have had less time to complete whatever level of education is most consistent with their personal attributes, prior to conducting analyses we excluded all participants aged 30 or younger from further analysis, which eliminated 14 participants from our sample. Supplementary analyses including these participants showed the same results as those presented below. After excluding two participants whose responses indicated obvious inattention (all 97 trait desirability ratings were marked as “neither desirable nor undesirable”), 521 participants for whom data were available for self-reported personality, trait desirability, and two or more peer-reports of personality were included.

2.2. Measures

2.2.1. Big Five

The Big Five personality traits were assessed in 1998 with the 44-item Big Five Inventory (BFI; John & Srivastava, 1999) and Saucier's (1994) 40-item Mini-Markers (MM). Both of these inventories differ modestly from some alternative measures of the Big Five such as the NEO-PI-R (Costa & McCrae, 1992) and NEO-FFI (Costa & McCrae, 1989); in assessing Openness, for example, neither the BFI nor MM includes items assessing openness to actions and openness to values (John, Naumann, & Soto, 2008; Saucier, 1994).

Participants were instructed to provide additional copies designed for peer ratings to any three people who knew them “very well.” Participants described 2.2% of the informants as “significant other”, 23.1% as “spouse”, 27.8% as “friend”, 11.5% as “co-worker”, 6.8% as “other”, and 27.6% as “relative”. No relationship status was provided for .9% of informants. When provided, data from all three informants was used, though for 17% of the sample only two informant reports were available.

All instruments utilized 5-point Likert scales. Scores for Big Five personality for both self- and peer-report were obtained by taking the means of all items for each trait from both the BFI and MM, yielding alphas between .84 and .94. As discussed in previous work on this sample (DeYoung, 2006), the average inter-rater correlations exhibited in this sample were highly comparable to that reported in meta-analyses on the topic ($\sim .35$; Connelly & Ones, 2010).

2.2.2. Trait desirability

In 2001, participants were asked to rate “how desirable or undesirable you feel it is for others to be or act this way” for a list of 97 characteristics using a 9-point Likert scale, with responses translated into trait desirability measures for the Big Five based on Saucier and Goldberg's (1996) analysis of which of these adjectives fell within each Big Five construct.

2.2.3. Education

Participants self-reported their highest level of completed education in 1993, indicating whether they had not graduated from high school ($N = 5$), were a high school graduate ($N = 53$), had vocational/technical schooling ($N = 27$), had attended some college ($N = 137$), had completed college ($N = 114$), had attended some post-college education ($N = 55$), or had a post-college degree ($N = 130$).

2.2.4. Socially desirable responding

Tendencies towards socially desirable responding (SDR) were assessed in the ESCS in 1998 with the Balanced Inventory of Desirable Responding (BIDR; Paulhus & Reid, 1991). In this edition of the BIDR, two different dimensions of SDR are assessed: Impression Management (IM) and Self-Deceptive Enhancement (SDE). IM captures moralistic denial of socially-deviant behaviors, while SDE measures egoistic overconfidence and claims to superiority. The alphas for these scales ($IM = .82$; $SDE = .68$) were comparable to that found in previous work (Li & Bagger, 2007).

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