



Openness and Intellect: An analysis of the motivational constructs underlying two aspects of personality



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ABSTRACT

Openness to Experience has been shown to subsume two aspects called Openness and Intellect. The aim of this study was to examine the discriminant validity of Openness and Intellect in their relationship to Values, Interests, and Major Life Goals. Participants were 893 adults recruited into three studies who completed an online survey consisting of the Big Five Aspect Scales, Schwartz's Values, Holland's Interests, and Major Life Goals. Openness positively predicted Universalism Values in Study 1, and both Artistic Interests and Aesthetic Major Life Goals in all three samples. In contrast, Intellect was not significantly predictive of Values, Interests and Major Life Goals in any of the three studies. The implications of these findings for the discriminant validity of the two aspects are discussed.

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1. Introduction

Of the five domains that comprise the five-factor model (John, Naumann, & Soto, 2008; McCrae & Costa, 1997; Saucier & Goldberg, 1996), arguably the most persistent debate has occurred around the label of the fifth factor. The most widely used label at present is Openness to Experience (DeYoung, Quilty, Peterson, & Gray, 2014). The compound label of Openness/Intellect is also used, reflecting the finding that Openness and Intellect are two separate but correlated traits of the same higher order domain (Jang, Livesley, Angleitner, Riemann, & Vernon, 2002; Johnson, 1994; Saucier, 1992). Examining the results of factor analyses including both the NEO-PI-R and the AB5C measures of the Big Five, DeYoung, Quilty, and Peterson (2007) identified Openness and Intellect as two distinct aspects of the fifth factor. Throughout this article, we refer to the fifth factor of personality by the compound label Openness/Intellect, to reflect both of these two separate aspects.

Openness/Intellect describes the general tendency to be imaginative, curious, perceptive, artistic, and intellectual (DeYoung et al., 2007). Intellect appears to reflect engagement primarily with abstract or semantic information. An individual high on Intellect might be described as intelligent, philosophical, erudite, and clever. Openness appears to

reflect engagement primarily with perceptual or sensory information. Individuals high on Openness have been described as artistic, perceptive, and poetic. Both Openness and Intellect are dispositional traits reflecting a tendency to show consistency in thoughts, feelings, and actions (McCrae & Costa, 2008). These two aspects underlie the fifth domain of the five-factor model (FFM), which also includes Neuroticism, Extraversion, Agreeableness, and Conscientiousness (John et al., 2008). The FFM adopts a dispositional theory of traits, which is supported by the strong predictive validity of the five trait dimensions in a series of consequential life outcomes (McAdams & Pals, 2006; Ozer & Benet-Martinez, 2006), a series of neurological, biological and genetic correlates (de Moor et al., 2012; Terracciano et al., 2010), and considerable stability in adulthood (Terracciano, McCrae, Brant, & Costa, 2005). In this paper, and consistent with these findings, both Openness and Intellect are treated as dispositional predictors of the remaining constructs.

Some evidence of these two separate but related constructs having been established, a remaining concern is whether discriminant validity can be demonstrated. DeYoung and colleagues (DeYoung, 2010; DeYoung, Shamosh, Green, Braver, & Gray, 2009; DeYoung et al., 2011), among others (Jang, McCrae, Angleitner, Rainer, & Livesley, 1998; Jang et al., 2002; Jung, Grazioplene, Caprihan, Chavez, & Haier, 2010), have contributed to our knowledge of the neurobiological sources and the cognitive correlates of both Openness and Intellect (Ashton, Lee, Vernon, & Jang, 2000; DeYoung, Grazioplene, & Peterson, 2012; DeYoung et al., 2009; DeYoung et al., 2011; Jung et al., 2010;

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Kaufman et al., 2010; McCrae, 1987; Moutafi, Furnham, & Crump, 2006; Nusbaum & Silvia, 2011; Peterson & Carson, 2000; Peterson, Smith, & Carson, 2002; Schretlen, van der Hulst, Pearson, & Gordon, 2010). For example, DeYoung et al. (2009) found that brain activity associated with working memory was correlated with Intellect, but not Openness. Nusbaum and Silvia (2011) demonstrated in a group of adults that Openness significantly predicted creativity but not fluid intelligence, whereas Intellect predicted fluid intelligence but not creativity. The evidence from these studies suggest that we can distinguish between Openness and Intellect using neurobiological indicators and cognitive abilities.

Openness/Intellect also has implications for the intention to act in certain ways. A recent study in 168 non-indigenous Australians found that Openness/Intellect predicted the intention to engage in bystander support of Indigenous Australians subjected to racist comments (Redmond, Pedersen, & Paradies, 2014). Openness/Intellect is also positively associated with academic motivation (Önder, Beşoluk, İskender, Masal, & Demirhan, 2014), student self-reported engagement in studies (Douglas, Bore, & Munro, 2015), the motivation to engage in exercise behaviours (Nikbakhsh, Azadeh, & Nasrin, 2014), and the propensity to engage in political protest (Brandstätter & Opp, 2014).

Many theories of personality structure and function address the role of intentional and motivational states in generating behaviour (Cattell, 1957; Mayer & Korogodsky, 2011; McAdams & Pals, 2006; Shoda & Mischel, 2000). According to the FFM, stable traits such as Openness and Intellect form the foundation from which more complex, flexible, and functional personality components develop with continued environmental input (Costa & McCrae, 1994). These more flexible personality components are referred to as Characteristic Adaptations, and can also be considered the motivational, social-cognitive, and developmental adaptations of dispositional traits. An individual's guiding principles about how they ought to behave, the kinds of occupations they are drawn to, and their aspirations to shape their lives in particular directions can be considered Characteristic Adaptations that are likely to be affected by traits such as Openness and Intellect. We sought to explore the discriminant validity of Openness and Intellect in the prediction of an individuals' Values (Schwartz & Bilsky, 1987), vocational Interests (Holland, 1959), and Major Life Goals (Roberts & Robins, 2000). Such constructs can be viewed as the motivational, socio-cognitive adaptations of dispositional traits (Olesen, 2011; Olesen, Thomsen, Schnieber, & Tonnesvang, 2010). Demonstrating the discriminant validity of Openness and Intellect beyond their neurobiological bases will establish the consequences of both these traits for how people think, feel and act on their environment in ways consistent with these traits.

1.1. Three motivational consequences of traits

1.1.1. Values

Values can be defined as guiding principles about how individuals ought to behave (Parks & Guay, 2009). The dominant taxonomy of values in the research literature is that posited by Schwartz and colleagues (Schwartz, 1992, 2011; Schwartz & Bardi, 2001; Schwartz & Bilsky, 1987, 1990; Schwartz et al., 2001), who demonstrated that values occur in a circumplex structure, with more highly positively correlated values located closer together, and opposing (negatively related) values located opposite one another. Schwartz found that the values clustered into ten types that were subsequently labelled Power, Achievement, Hedonism, Stimulation, Self-Direction, Universalism, Benevolence, Conformity, Tradition, and Security.

A recent meta-analysis established that Openness/Intellect was positively associated with Stimulation, Self-Direction, and Universalism values (Parks-Leduc, Feldman, & Bardi, 2015). This indicates that individuals higher on this trait value exciting life experiences, independent thought and the freedom to explore, and the protection of the welfare of all people and the environment (Schwartz & Bardi, 2001). Individuals higher on Openness/Intellect were less likely to endorse Conformity,

Tradition, and Security values (Parks-Leduc et al., 2015). This indicated that individuals higher on Openness/Intellect were more likely to violate social expectations and norms, have a lack of respect and acceptance for traditional ideas and customs, and place less value on national security and the stability of society respectively (Schwartz & Bardi, 2001).

It is clear from the above meta-analysis that the Openness/Intellect domain shares associations with values, but it is not clear how Openness and Intellect will be separately associated with the likelihood of endorsing certain values. Examination of research associating the Openness/Intellect facets with values might provide some clues. DeYoung et al. (2007) showed that seven of the nine facets from the AB5C-IPIP measure (Hofstee, de Raad, & Goldberg, 1992) had their highest loadings on the Intellect aspect, whereas five of the six NEO-PI-R facets (Costa & McCrae, 1992) marked the Openness aspect. Of the NEO-PI-R facets of Openness/Intellect, only Ideas loaded onto Intellect, whereas Fantasy, Aesthetics, Feelings, Actions, and Values all loaded onto Openness (DeYoung et al., 2007). This means that research investigating the association between the AB5C-IPIP measure gives us clues about the potential relationships with Intellect, while the NEO-PI-R facets tell us more about the potential associations with Openness.

Olver and Mooradian (2003) investigated the associations between the ten values and both the 60-item NEO-FFI (Costa & McCrae, 1992) and Saucier's (1994) 40-adjective mini-markers. Both measures of Openness/Intellect were positively associated with Universalism, Benevolence, Stimulation, and Self-Direction values. The NEO-FFI measure of Openness was negatively related to Conformity, while the mini-marker measure was not. Saroglou and Muniz-Garcia (2008) investigated the association of NEO-PI-R facets and values with religiosity. They found that Ideas, the only facet marker of Intellect from the NEO-PI-R, was the only facet to be significantly and negatively associated with Security values, the tendency to value national and family stability. In contrast, Roccas, Sagiv, Schwartz, and Knafo (2002) found that multiple facets of Openness/Intellect from the NEO-PI-R were negatively associated with Security values. From these findings with the facet measures, Openness might be negatively associated with Conformity, corresponding to a restraint of actions likely to violate social expectations and norms, in contrast to Intellect which might be negatively associated with the tendency to value the stability of societal structures, or Security Values. More clarity around the discriminant association of Openness and Intellect with Values is clearly needed, however our tentative hypothesis is as follows:

H1. Controlling for the other aspect of Openness/Intellect, Openness will be negatively and significantly associated with Conformity Values, while Intellect will be negatively related to Security Values.

1.1.2. Interests

Holland's RIASEC model consists of six vocational interest types labelled Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (Holland, 1959), and is designed to explain choice of vocation as an expression of personality (Larson, Rottinghaus, & Borgen, 2002). The model incorporates relationships with Openness/Intellect (Costa, McCrae, & Holland, 1984; Gottfredson, Jones, & Holland, 1993). A meta-analysis conducted by Larson et al. (2002) indicated that Openness/Intellect was primarily associated with Artistic and Investigative Interests. Individuals with a high preference for Artistic Interests prefer dealing with environmental problems through self-expression in artistic media, and gravitate towards being artists, musicians, writers, or dancers. Individuals with a strong investigative orientation prefer to think through problems, and have a marked need to observe and understand the world. Individuals high on Investigative Interests typically indicate a preference for scientific occupations (Ackerman & Heggstad, 1997)

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