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## Trait competitiveness as a composite variable: Linkages with facets of the big-five

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### ABSTRACT

We investigated the link between competitiveness and the facets of a comprehensive broad-bandwidth personality inventory. Conceptualizing trait competitiveness as a composite variable identified by two indicators, structural equation modeling was used to identify relationships between the 30 facets of the IPIP scales corresponding to the NEO-PI-R and trait competitiveness. Nine facets were related to trait competitiveness. Four of these nine (excitement-seeking, morality/straightforwardness, modesty, and sympathy/tender-mindedness) were uniquely related to trait competitiveness from a final model. Results suggest that facets within factors need not be related to a composite trait in the same direction, as two affiliative facets of extraversion were negatively related to trait competitiveness while two surgency facets of extraversion were positively associated with trait competitiveness.

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### 1. Introduction

The desire to win in interpersonal situations is both a folk concept and a personality trait of interest to scholars. Both parents and managers alike are often torn between fostering “winning” and “cooperating” among individuals. For instance, think of a team of individuals working toward group goals but personally driven by individual rewards. Consider a child who is developing as a competitive athlete but is having difficulty relating to teammates. Both “winning” and “cooperating” are valued traits, but are often at odds with one another.

While much of the research on competition has been on situations (Stanne, Johnson, & Johnson, 1999), there is a substantial literature from a trait perspective. Recent research has looked at the moderating effects of trait competitiveness from a person–environment fit perspective with respect to reward systems and perceptions of competitive work environments (Brown, Cron, & Slocum, 1998; Fletcher, Major, & Davis, *in press*) and as an interaction with other traits (Robie, Brown, & Shepherd, 2005).

While various streams of research on trait competitiveness have been conducted for several decades (for reviews see Houston, McIntire, Kinnie, & Terry, 2002; Ryckman, Libby, Borne, Gold, & Lindner, 1997; Spence & Helmreich, 1983), with few exceptions, little is known about how it is related to other personality traits – especially the Big-Five and its many facets (e.g., cooperation, achievement-striving, friendliness, assertiveness). The preponderance of research on competitiveness has been on various opera-

tionalizations of the trait, mostly (but not entirely) ignoring other traits.

Future research involving trait competitiveness, such as person–environment fit, will advance more quickly with a better understanding of the underlying components of this variable. We posit it is at least partially a composite variable, which includes elements of several facets across several factors of the Big-Five personality structure.

Ross, Rausch, and Canada (2003) is one of the few studies to empirically investigate the linkage of competitiveness to facet level traits. Ross et al. (2003) demonstrated that hypercompetitiveness (HCA) is negatively correlated with agreeableness, positively correlated with neuroticism, and not at all correlated with the global factor of conscientiousness. With respect to the facets of the Big-Five as measured with the NEO-PI-R, Ross et al. found HCA to be correlated with one neuroticism facet (angry-hostility), two extraversion facets (warmth and positive emotions), four openness facets (ideas, aesthetics, actions, and values), all six agreeableness facets and one conscientiousness facet (achievement-striving). While Ross et al. assessed three types of competitive-cooperative traits, they did not treat competitiveness as a composite nor a latent variable. Furthermore, the order and choice of inclusion of facets into their regression models is unclear.

Thus, the present study contributes to the understanding of competitiveness by (1) using an oft-used measure of a comprehensive broad-bandwidth inventory (i.e., International Personality Item Pool (IPIP) scales corresponding to the NEO-PI-R), (2) treating trait competitiveness simultaneously as a latent trait and a composite variable, and (3) simultaneously (not sequentially) estimating the relationships of the facets within each factor in comprising

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the composite-latent trait competitiveness. Our discussions of linkages to the Big-Five will be confined here to those facets found in the NEO-PI-R and the IPIP measures. We briefly describe the concept of composite traits followed by a review of the research on trait competitiveness before discussing research on the linkages between the facets of the Big-Five and trait competitiveness.

### 1.1. Composite traits

Hough and Schneider (1996) introduced the concept and utility of compound or emergent personality traits. Hough has described and provided a taxonomy for many of these compound traits (Hough, 2003; Hough & Ones, 2001). Others have described similar concepts such as composite variables (Jarvis, MacKenzie, & Podsakoff, 2003; Law & Wong, 1999), aggregate variables (Law, Wong, & Mobley, 1998), and formative models (Edwards & Baggozi, 2000). In short, these are multidimensional traits composed of elements, which span multiple factors from a broad-bandwidth inventory. Examples include but are not limited to: proactive personality (Bateman & Crant, 1993; Major, Turner, & Fletcher, 2006), integrity (Ones & Viswesvaran, 2001), and prosocial personality (Penner & Finkelstein, 1998).

McCrae and Costa (1989) linked measures of a circumplex of personality with their NEO-PI-R by crossing broad factors. In their study, being high in extraversion and low in agreeableness was associated with assured-dominant from the Interpersonal Adjective Scales. Likewise, being low in both extraversion and agreeableness was associated with cold-hearted. It is not only plausible, but also highly likely, that trait competitiveness is a composite trait formed by multiple indicators, which span several of the five factors. In this study we will investigate the theoretical and empirical linkages with facets from the Big-Five, which should comprise much of the construct labeled competitiveness in the literature.

A uniqueness of this composite approach is that formative indicators need not be correlated (Hough & Schneider, 1996). Therefore, as will be described below, facets within factors need not be related to a composite trait in the same direction – a point missed by simply crossing broad factors as done by McCrae et al. (1989).

### 1.2. Trait competitiveness

A recent review by Houston et al. (2002) summarizes the study of trait competitiveness over the last several decades. Briefly, researchers across various disciplines have developed more than seven instruments to assess competitiveness as a trait. Houston et al., found evidence for two general constructs underlying these scales, which they labeled self-aggrandizement and interpersonal success. The focus of the present study is on the self-aggrandizement component of competitiveness because self-aggrandizement is more akin to the concept of competitiveness (i.e., winning) whereas interpersonal success is more akin to a different but related construct, achievement-strivings (i.e., succeeding without regard to besting others).

The two most frequently researched measures of the self-aggrandizement component of competitiveness are hypercompetitive attitude (Ryckman, Hammer, Kaczor, & Gold, 1990) and general competitiveness (Helmreich & Spence, 1978). These are described in more detail below. Studies using both of these scales have demonstrated high correlations among these indices (cf. Burckle, Ryckman, Gold, Thornton, & Audesse, 1999; Houston et al., 2002).

There have been numerous studies that have linked various measures of competitiveness to values (Ryckman et al., 1997), traits (Bing, 1999; Houston et al., 2002; Ross et al., 2003), relationship styles (Ryckman, Thornton, Gold, & Burckle, 2002) and organizational climate perceptions (Fletcher et al., in press) suggesting that

trait competitiveness may be related to or comprised of a multidimensional set of underlying traits. To date, little systematic research has been conducted to investigate this hypothesis with respect to a broad structure of personality traits such as the Big-Five.

### 1.3. Linking competitiveness to the Big-Five

Given the history of the study of trait competitiveness, researchers have theoretically and empirically linked the variable to four of the five factors in the Big-Five: neuroticism, extraversion, agreeableness, and conscientiousness. With few noted exceptions, research has been limited at the facet level making it difficult to derive explicit hypotheses for the specific composition of trait competitiveness from facets of the Big-Five.

#### 1.3.1. Neuroticism

Ryckman et al. (1990) based their development of a measure of hypercompetitive attitude on theoretical work by Horney (1937). They defined hypercompetitive attitude as “an indiscriminate need by individuals to compete and win (and to avoid losing) at any cost as a means of maintaining or enhancing feelings of self-worth, with an attendant orientation of manipulation, aggressiveness, exploitation, and denigration of others across a myriad of situations” (p. 630). They explicitly link competitiveness to neuroticism and negatively to self-esteem. Ryckman and his colleagues have subsequently linked hypercompetitiveness to eating disorders in women (Burckle et al., 1999) and relationship difficulties among heterosexual couples (Ryckman et al., 2002). While previous empirical work has focused on neuroticism at a factor level, theoretical work by Horney and indeed the very definition proffered by Ryckman et al. describe facet level relations. To the extent that the facet anxiety is underlying the need to “compete and win” to enhance feelings of self-worth, we believe anxiety should be positively related to trait competitiveness. Likewise, the “aggression and exploitation of others” aspect is likely accounting for a positive relationship between the facet angry-hostility and trait competitiveness (see also Bing, 1999; Ross et al., 2003).

#### 1.3.2. Extraversion

A number of proprietary instruments assessing the Big-Five include a facet labeled competitiveness as part of their “extraversion” factor (e.g., GPI, Schmit, Kihm, & Robie, 2000; HPI, Hogan & Hogan, 1995, 2002). Evidence from several studies (Bing, 1999; Ross et al., 2003; Ryckman et al., 1997, 2002) would lead one to conclude that competitiveness should be positively related to the surgency facets of extraversion (e.g., dominance or assertiveness, activity, and excitement-seeking) and to a lesser extent, negatively related to the affiliative facets of extraversion (e.g., friendliness and cheerfulness).

This latter point is evident in individual reports of the use of the NEO-PI-R (Costa & McCrae, 1992; McCrae et al., 1989; Psychological Assessment Resources, 2007). The interaction style involving individuals low in extraversion and agreeableness is labeled competitors. A point of note here is that composite variables may be comprised of facets from broader factors operating in opposite directions (e.g., surgency vs. affiliation).

#### 1.3.3. Agreeableness

To the extent that competitiveness is construed as the inverse of cooperation (Martin & Larsen, 1976), competitiveness should be negatively related to the cooperation facet. Paulhus and Williams (2002) have linked Machiavellianism, narcissism, and psychopathy to agreeableness. Extant research has shown diverse measures of competitiveness to be related to dogmatism, hedonism, Machiavellianism, mistrust of others, and social concern (Bing, 1999; Martin & Larsen, 1976; Ryckman et al., 1990, 1997, 2002). The morality/

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