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Extraversion, Empathy, and Humor Style: An Investigation of the Introverted Sense of Humor

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Extraversion, Empathy, and Humor Style:
An Investigation of the Introverted Sense of Humor

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Abstract

The present study assesses the effects of extraversion, empathy, and humor style on humor score, while specifically focusing on the introverted sense of humor. 129 participants recruited through Amazon Mechanical Turk took a survey consisting of the extraversion subscale of the Ten Item Short Version of the Big Five Inventory, the Humor Styles Questionnaire, and the Interpersonal Reactivity Index. The study supported previous findings in which extraversion positively relates to humor such that extraverts reported a greater usage of humor than did introverts. More specifically, both extraverts and introverts use adaptive humor styles (i.e. affiliative and self-enhancing humor) more than they use maladaptive humor styles (i.e. aggressive and self-defeating humor). Additionally, empathy and humor style interact such that empathetic individuals favor adaptive humor styles while unempathetic individuals have relatively heightened usage of the maladaptive humor styles while still primarily using the adaptive humor styles, no matter the level of extraversion.

*Keywords:* extraversion, introversion, empathy, perspective-taking, humor, style
Introduction and Literature Review

Nature of Humor

Humor is a multidimensional construct consisting of at least one of three possible responses: cognitive, affective, and behavioral (Martin, Puhlik-Doris, Larsen, Gray & Weir, 2003; Nilsen & Nilsen, 2000; Özyeşil, Deniz, & Keisici, 2013; Warren & McGraw, 2014). The cognitive aspect of humor involves recognizing, comprehending, and mentally evaluating something as humorous. The affective component entails the emotional experience of amusement. The behavioral component includes enjoying or performing humor (e.g. laughing or telling a joke). Collectively, these aspects of humor function to bring enjoyment to oneself and others. An individual with a good sense of humor understands, sympathetically accepts, and finds benevolent enjoyment in the absurdities of life and human limitations.

Benefits of humor. A sense of humor, when assessed as a unidimensional, continuous construct, is characteristic of positive psychological well-being (Özyeşil et al., 2013), as possessing a sense of humor positively relates to life satisfaction, happiness (Cann & Collette, 2014), cheerfulness (Ruch & Carrell, 1998), enjoyment, creativity (Warren & McGraw, 2016), and optimism (Lefcourt, 2001). Additionally, humor can function as an adaptive defense mechanism (Martin et al., 2003; Özyeşil et al., 2013) which reduces social distress (Hampes, 2006), stress more generally (Lefcourt & Martin, 1986; Martin & Lefcourt, 1983; Nezu, Nezu, & Blissett, 1998; Samson & Gross, 2012), and facilitates higher emotional stability (Deaner & McConatha, 1993). The psychological benefits of humor are further evidenced by the negative relationship between humor and depression (Deaner & McConatha, 1993; Frewen, Brinker, Martin,
Dozois, 2008; Kuiper, Martin, & Dance, 1992; Thorson & Powell, 1994). Transcending mental life, humor may also positively influence one’s physical health, as Costa et al. (2014) found that medical patients who were treated by healthcare professionals who used humor had an increased likelihood of positive health outcomes following treatment.

**Humor styles.** More specifically, one’s sense of humor can be categorized as a “humor style” which refers to one’s characteristic manner of expressing humor both internally, e.g. maintaining a lighthearted attitude, and externally, e.g. joking with others (Ford, McCreight, & Richardson, 2014; Hampes, 2005, 2006; Martin, et al., 2003). In developing the Humor Styles Questionnaire (HSQ) Martin et al. (2003) identified four major types of humor: affiliative, self-enhancing, aggressive, and self-defeating.

**Affiliative humor.** Affiliative humor is an interpersonal form of humor that functions to improve social relations by benevolently amusing others (Ford et al., 2014; Martin et al., 2003). Consequently, affiliative humor has been linked to improved psychological well-being (Cann & Collette, 2014), as it can facilitate positive interpersonal relations through greater social intimacy, higher relationship satisfaction (Cann & Collette, 2014; Cohen, 2004; Holt-Lunstad, Smith, & Layton, 2010), and satisfactory conflict resolution (Campbell, Martin, & Ward, 2008; Cann, Zapata, & Davis, 2011; Hampes, 2006; Martin et al., 2003; McGraw & Warren, 2010).

**Self-enhancing humor.** Self-enhancing humor involves maintaining a humorous perspective and attitude toward life. Self-enhancing humor functions as a healthy defense mechanism which promotes a mirthful perspective, even in the face of adversity (Frewen et al., 2008; Lefcourt & Martin, 1986; Martin et al., 2003). Self-enhancing humor involves “positive reframing,” which cognitively and emotionally distances oneself from
potentially harmful stimuli so as to reduce the experience and/or intensity of distress by viewing stressors in a more humorous light (Abel, 2002; Kuiper, McKenzie & Belanger, 1995; Lefcourt, Davidson, Shepherd, Phillips, Prkachin, & Mills, 1995; Lefcourt, Davidson, Shepherd, & Phillips, 1997; Lefcourt & Martin, 1986; Martin & Lefcourt, 1983; Martin, 2002). Such positive reframing promotes psychological well-being, resilience, and creativity (Cann & Collette, 2014). Accordingly, self-enhancing humor constitutes an effective coping mechanism in which one is able to good-naturedly laugh at oneself thereby reducing excessive seriousness or self-importance (Lefcourt et al., 1997; Lefcourt, 2001; Kuiper et al., 1993). Lefcourt and Shepherd (1995) supported this defensive function by demonstrating that individuals with higher levels of “perspective-taking humor” (presumably similar to self-enhancing humor) were more willing to be an organ donor – indicating an increased ability to contemplate and accept one’s own mortality.

Similar to affiliative humor, self-enhancing humor is also positively correlated with improved and sustained psychological well-being (Ford et al., 2014), positive affect (Geisler & Weber, 2010; Kuiper et al., 1992), happiness (Cann, Stilwell, & Taku, 2012), self-esteem (Kuiper, Martin, & Olinger, 1993; Saroglou & Scariot, 2002; Stieger, Formann, & Burger, 2011), optimism, and social support while negatively correlating with depression, anxiety, and negative affect (Martin et al., 2003; Özyeşil et al., 2013).

**Self-defeating humor.** Self-defeating humor amuses others by deprecating oneself (Martin et al., 2003). Belittling oneself in such a manner is a maladaptive coping mechanism, as it denies one’s true feelings toward one’s weaknesses (Kazarian & Martin, 2004) and impedes the cultivation of a positive self-view (Özyeşil et al., 2013). Self-
defeating humor usually indicates a disproportionate, exaggerated focus on personal weaknesses (Kuiper & McHale, 2009) rather than effectively dealing with negative feelings regarding one’s shortcomings (Ford et al., 2014). As a maladaptive coping mechanism, self-defeating humor is positively associated with depressive symptoms (Frewen et al., 2008; Martin et al., 2003), anxiety (Ford, Lappi, & Holden, 2016), and hostility (Cann & Collette, 2014). Furthermore, self-defeating humor negatively relates to optimism, hope, self-esteem, and happiness (Cann et al., 2012; Hampes, 2006; Martin et al., 2003; Saroglou & Scariot, 2002; Stieger et al., 2011). Self-defeating humor can be indicative of feelings of low self-worth which can come off as overly negative; thus, the humor style can induce and perpetuate negative intrapersonal and interpersonal experiences (Frewen et al., 2008). This effect is evident in self-defeating humor’s association with lower satisfaction from interpersonal relationships (Kuiper & Leite, 2010), greater social rejection (Ford et al., 2014), and insecure adult attachments (Saroglou & Scariot, 2002).

Aggressive humor. Aggressive humor makes fun of and puts down others ostensibly to entertain others (aside from the mocked target) and possibly establish and/or reflect feelings of superiority in the aggressor by making others feel worse about themselves, e.g. racist or sexist jokes (Ford et al., 2014; Kazarian & Martin, 2004; Kuiper & Leite, 2010; Martin et al., 2003; Saroglou & Scariot, 2002). Hampes (2006) supported the self-elevating function of aggressive humor by finding that individuals high in the usage of aggressive humor had generally high self-esteem. Though aggressive humor can entertain others, it is generally harmful to relationships (Cann et al., 2011; Ford et al., 2014).
**Sex differences in humor style.** The research has consistently shown men to score higher than women in general humor appreciation (Johnson, 1992) and usage (Kazarian & Martin, 2006; Yip & Martin, 2006). More specifically, men have consistently been found to use and enjoy aggressive humor more than women (Crawford & Gressley, 1991; Frewen et al., 2008; Johnson, 1992; Yip & Martin, 2006; Zillman & Stocking, 1976), with fewer studies demonstrating that men also have a higher usage of self-enhancing (Wu et al., 2016) and self-defeating humor (Kazarian & Martin, 2006; Saroglou & Scariot, 2002). One study even demonstrated a higher usage of all four humor styles by men (Martin et al. 2003). The recurrent sex difference of men favoring aggressive humor more than women could be an effect of socialization and masculine gender roles which encourage and relatively accept aggression in males. Additionally, males have a higher tendency to outwardly express aggression including the use of aggressive humor (Hampes, 2006).

It must be noted, though, that men were found to be higher in only aggressive humor when the population was from the U.S. Findings that support men being higher than women in other humor styles, specifically self-enhancing and self-defeating humor, have mainly been derived from international populations (e.g. China, Belgium, and Lebanon). In fact, research on U.S. populations has contrarily found that females were more likely to enjoy and use self-defeating humor (Hampes, 2006; Zillmann & Stocking, 1976). Moreover, shyness positively correlated with self-defeating humor for females only and positively correlated with aggressive humor for males only (Hampes, 2006), which provides some ground to predict that introverted females could frequently use self-defeating humor while introverted men could frequently use aggressive humor insofar as
shyness is related to, but not the same as introversion (Jones, Schulkin, & Schmidt, 2014). Introversion implies shyness to the extent that there is a negative relationship between extraversion and shyness (Pazouki & Rastegar, 2009).

**Dimensions of humor styles.** These humor styles can be categorized as either adaptive, i.e. self-enhancing and affiliative, or maladaptive, i.e. self-defeating and aggressive (Martin et al., 2003). Adaptive humor styles reflect an affirmative view of and concern toward oneself and others (Ford et al., 2014), whereas maladaptive humor styles reflect a negative view toward oneself and others (Ford et al., 2016; Galloway, 2010; Özyeşil et al., 2013). If we feel positively about and comfortable with ourselves, we are predisposed to use self-enhancing humor. Likewise, if we feel positively toward others, we are predisposed to use affiliative humor. Thus, adaptive humor aids in cultivating and preserving positive views of oneself and others (Kuiper & McHale, 2009). However, if we feel negatively toward ourselves we are predisposed to use self-defeating humor, and, if we feel negatively toward others, we are predisposed to use aggressive humor (Saroglou & Scariot, 2002). This adaptive or maladaptive distinction is supported in the research, as affiliative humor is moderately positively correlated with self-enhancing humor, while self-defeating humor is positively correlated with aggressive humor (Frewen et al., 2008).

The adaptive humor styles are positively correlated with happiness, whereas the maladaptive humor styles are negatively correlated with happiness (Cann & Collete, 2014; Ford et al., 2014; Ford et al., 2016). More specifically, adaptive humor positively correlates with optimism, self-esteem, and coping abilities while negatively correlating with depression, anxiety, and loneliness (Ford et al., 2016; Frewen et al., 2008; Hampes,
2006; Martin et al., 2003). Conversely, maladaptive humor negatively correlates with optimism and self-esteem (Ford et al., 2016; Kuiper, Grimshaw, Leite, & Kirsh, 2004; Martin et al., 2003; Stieger et al., 2011; Yue, Liu, Jiang, & Hiranandani, 2014) and positively correlates with depression (Cann & Collette, 2014; Kuiper, Grimshaw, Leite, & Kirsh, 2006), high attachment anxiety, and daily distress (Ford et al., 2014).

The adaptive humor styles, especially self-enhancing humor, help one remain happy even when faced with potentially harmful stressors (Ford et al., 2016; Martin et al., 2003). Maintaining such a positive outlook requires mental reframing, which explains adaptive humor’s positive relation with mindfulness (i.e. heightened present awareness which can reduce negativity). Meanwhile, maladaptive humor negatively correlates with mindfulness (Özyeşil et al., 2013). Mindfulness, in turn, is positively associated with improved psychological well-being including higher relationship satisfaction, positive affect, and life satisfaction while being negatively associated with psychological distress (Özyeşil et al., 2013).

Furthermore, adaptive humor is positively correlated with extraversion, which in turn is positively associated with social support and relationship satisfaction (Özyeşil et al., 2013) gained through and aided by relatively high levels of intimacy, social competence, trust, and empathy (Hampes, 1999, 2001, 2010). For instance, one study (Kuiper & Leite, 2010) demonstrated that those who used adaptive humor styles left positive impressions with others while those with maladaptive humor styles engendered more negative impressions. More specifically, individuals who primarily used affiliative humor left more positive impressions than those who used self-enhancing humor while individuals who expressed aggressive humor induced more negative impressions than
those who displayed self-defeating humor. The adaptive humor styles embody socially desirable traits that help build relationships and reduce loneliness (Zhao, Kong, & Wang, 2012); In contrast, the maladaptive humor styles may be perceived as unattractive and work to worsen relationships, possibly resulting in feelings of social rejection and isolation (Ford et al., 2014; Kuiper & Leite, 2010).

Regularly using adaptive humor maintains happiness both within the self through self-enhancing humor and with others via affiliative humor (Ford et al., 2016; Kuiper et al., 1993). However, it must be noted that self-enhancing humor is the only humor style which has been consistently shown to contribute to and maintain positive affect (Cann & Collette, 2014; Martin et al., 2003). It should also be noted, though, that using the maladaptive humor styles does not inexorably lead to lower life satisfaction, as Leist and Müller (2013) found no relationship between humor styles and life satisfaction in individuals who displayed both maladaptive and adaptive humor styles: using maladaptive humor does not guarantee maladjustment, though individuals who use only maladaptive humor are more likely to have negative psychological well-beings (Cann & Collette, 2014).

Nevertheless, the adaptiveness distinction of humor styles is not infallible, as both affiliative and self-enhancing humor positively correlate, albeit weakly, with aggressive humor (Frewen et al., 2008). The distinction of adaptive versus maladaptive is more a helpful schema than a precise reflection of the actual relation between the humor styles. Similarly, the humor styles can also be grouped by social orientation with self-defeating and self-enhancing representing self-oriented humor and aggressive and affiliative being other-oriented (Martin et al., 2003). Interestingly, previous researchers (Cann & Collette,
2014; Ford et al., 2016) have found that the self-directed humor styles contribute more to happiness than other-directed humor. This finding is partially supported by the fact that only self-enhancing humor has consistently been shown to contribute to happiness. Moreover, because self-defeating humor reflects low feelings of self-worth whereas aggressive humor can engender feelings of superiority and high self-esteem, it seems plausible that self-defeating humor would contribute more to maladjustment than would aggressive humor.

**Nature of Empathy**

**Types of empathy.** Empathy is the ability and propensity to seek to understand and engage in the viewpoint of another, as well as emotionally respond to that viewpoint while still being aware of and responsible for one’s own internal viewpoint (Davis, 1983; Gehlbach, 2004). Though previous researchers such as Hoffman (1977) portray empathy as a solely affective response, current research tends to conceive of empathy as including both affective and cognitive components (e.g. Gladstein, 1983). In this paper, “empathy” represents both an affective and cognitive interpersonal response. The emotional aspect of empathy, what Davis (1983) terms “empathic concern,” entails emotional sensitivity in being able to share in the feelings of another, as well as emotional expressivity, in being able to emotionally respond to others such as showing concern to people in negative emotional states (Riggio, Tucker, & Coffaro, 1989). The cognitive aspect of empathy involves the ability to take the perspective of another via interpreting a person’s nonverbal and verbal communication (Riggio et al., 1989). This conceptualization of empathy is supported by the research which demonstrates a significant positive relation between empathic concern and perspective-taking across the sexes (Davis, 1983).
Benefits of empathy. Developmental psychologists including Piaget and Kohlberg view perspective-taking as an essential social skill that is vital to cognitive, social, and moral development. As children, we are incredibly egocentric and then gradually realize that others have independent thoughts in which they may perceive situations differently than we, i.e. we gain theory of mind (Gehlbach, 2004; Riggio et al., 1989). As our perspective-taking capacities develop, we are pulled toward empathic concern which provides the sympathetic and compassionate basis for social life (Davis, 1983). By allowing us to feel another’s pain, this sympathetic element of empathy promotes cooperation and altruism (Gehlbach, 2004; Hoffman, 1977; Imuta, Henry, Slaughter, & Selcuk, 2016; Johnson, 1975). For instance, perspective-taking further facilitates positive interpersonal relationships, as it aids in understanding where others are coming from and is related to satisfactory conflict resolution skills as well as reduced prejudice (Gehlbach, 2004). The interpersonal benefits of empathy lead to positive social support, as seen in empathy being negatively related to social dysfunction and loneliness and positively related to self-esteem and social competence (Davis, 1983). However, Gladstein (1983) specifies that empathy has the capacity to, but does not inevitably, increase cooperation and prosocial behavior more generally. Instead, one must be motivated to serve altruistic ends to be compelled toward pro-social behavior.

Cultural and sex differences in empathy. Similar to maturation and motivation, gender roles and cultural values also affect empathetic ability and accuracy. In many cultures, women may be socialized to perceive more holistically and attend more to interpersonal relations, which in turn could foster higher levels of emotional intelligence in women than in men (Graham & Ickes, 1997). In fact, the research repeatedly supports
this sex difference with women scoring higher in empathy than men (Davis 1983; Hoffman, 1977; Wu, Lin, & Chen, 2016). There is a similar cultural effect on empathy such that collectivist cultures, e.g. those in East Asia, engage more in perspective-taking due to a cultural emphasis on the holistic group compared to the Western emphasis on the individual (Morris & Peng, 1994).

**Nature of Extraversion**

Extraversion is a personality trait that refers to one’s dispositional social behaviors and attitudes. Extraversion exists on a continuum wherein individuals high in extraversion are termed “extraverts” while individuals low in extraversion are termed “introverts” (i.e. introversion is equivalent with low extraversion; Costa & McCrae, 1978). Extraverts are conceptualized as mentally and physically active, assertive, intensely interpersonal, and outwardly oriented. Conversely, introverts are conceptualized as reticent, withdrawn, intensely intrapersonal, and inwardly-oriented.

**Benefits of extraversion.** Extraversion is a critical and consistent positive correlate of happiness across sexes and cultures (Diener, Sandvik, Pavot, & Fujita, 1992; Ford et al., 2016; Pavot, Diener, & Fujita, 1990;). Moreover, extraverts demonstrate better mood regulation than introverts, resulting in extraverts having a more positive affect (Lischetzke & Eid, 2006). This elevated affect could in part be due to increased social support among extraverts (Ford et al., 2016; Lu, Shih, Lin, & Ju, 1997). Conversely, introverts may be predisposed to develop depression, as individuals low in extraversion tended to score higher on depression scales. (Hampes, 2006).

**Humor Style and Extraversion**
Humor, as a general construct, is related to extraversion (Deaner & McConatha, 1993), which may be a function of extraverts possessing high levels of trust and self-esteem (Hampes, 1999). These characteristics in turn promote comfort in performing interpersonal humor and a positive self-view which is characteristic self-enhancing humor. Moreover, humor is negatively correlated with social avoidance, which suggests that introverts engage in humor less than extraverts insofar as introverts tend to be socially avoidant (Hampes, 2006). Because extraverts possess a natural proclivity for social engagement and are relatively self-assured, they display more confidence that their jokes will be well-received whereas introverts may be more insecure and feel misunderstood in their use of humor, thus explaining the positive association between humor and extraversion. Moreover, it is possible the poor mental state seen in introverts leads to and is worsened by infrequently engaging in humor.

Refining the view of humor beyond a unidimensional, continuous construct, a meta-analysis of 15 studies examining the relationship between humor styles and personality traits found significant relationships between extraversion and the humor style one primarily uses (Mendiburo-Seguel, Paez, & Martínez-Sánchez, 2015). Specifically, affiliative humor positively correlated with extraversion (Hampes, 2006; Martin et al., 2003) and negatively correlated with shyness (Hampes, 2005). Hampes (2005, 2006) specified that introversion is more properly classified as a behavioral component of shyness consisting of social withdrawal. Furthermore, shyness is related to low social competence and self-esteem as well as high anxiety especially in social contexts, which could work to inhibit the use of adaptive humor by introverts while promoting their using self-defeating and aggressive humor to, respectively, reaffirm
negative self-concepts and respond to social threats including uncomfortable social situations (Hampes, 2005, 2006). Though individuals high in aggressive humor were generally extraverted (Hampes, 2006), it is possible introverts could also use aggressive humor to perpetuate a negative self-fulfilling prophecy in which they cause their own social rejection and isolation by using aggressive humor as a stress response to social situations. Over time, this social rejection and isolation can create a negative self-view which can manifest as self-defeating humor. The research concretely supports this relationship, as self-defeating humor positively correlated with shyness (Fitts, Sebby, & Zlokovich, 2009) and loneliness (Hampes, 2006), i.e. two possible manifestations of introversion.

**Sex Differences in Personality**

Males have scored higher than women on self-esteem (Feingold, 1994), which is related to self-enhancing humor (Kuiper & Martin, 1993, 1998; Saroglou & Scariot, 2002). However, men have only been found to be higher in self-enhancing humor within non-U.S. samples. A meta-analysis of sex differences in personality factors revealed that females are generally higher in extraversion (Feingold, 1994), which is related to affiliative humor (Hampes, 2006; Martin et al., 2003). Despite women’s higher extraversion, the research has demonstrated a higher usage of affiliative humor by men (Kazarian & Martin, 2006; Yip & Martin, 2006), meaning that female extraversion could manifest itself in ways other than affiliative humor such as talkativeness or high activity levels.

**Humor Style and Empathy**
Empathic concern positively correlated with general and “coping” humor (Hampes, 2001). This finding was understood as a function of emotional intelligence in which adaptive humor is an intrapersonal and interpersonal skill that builds positive emotions toward the self and others (Hampes, 2001). Empathy, both perspective-taking and empathic concern, positively correlated with the adaptive humor styles and negatively correlated with the maladaptive humor styles (Wu et al., 2016). More specifically, empathic concern is positively related to affiliative humor while perspective-taking positively related to both self-enhancing and affiliative humor (Hampes, 2010). Conversely, aggressive humor is negatively related with both perspective-taking (Hampes, 2010) and empathic concern (Ford et al., 2014; Hampes, 2006; Martin et al., 2003; Özyeşil et al., 2013), which supports the view that those who primarily use aggressive humor lack the ability to receive and the motivation to care about the feelings of others. The negative relationship between empathy and aggressive humor helps explain the overall harmful nature of aggressive humor in interpersonal relations. For instance, aggressive humor is rated funnier when the target is an out-group member as opposed to an in-group member (McGraw, Williams, & Warren, 2014; Warren & McGraw, 2014). Interestingly, perspective-taking positively correlated with self-defeating humor in a Taiwanese population (Wu et al., 2016), while Hampes (2010) found no relation between self-defeating humor and empathy within a U.S. population. These conflicting findings could be due to cultural differences in which humility is more emphasized in collectivist cultures and self-defeating humor could function to better ingratiate oneself by admitting to common shortcomings within Eastern cultures more so than in Western cultures.
Self-enhancing humor is especially tied to perspective-taking, as the humor style inherently entails detachment in which one views oneself as another (Kurdek, 1979; Lefcourt et al., 1997) and reframes stressors as more humorous or less serious, so as to be able to laugh at oneself and unfavorable circumstances (Ruch & Carrell, 1998). Morreall stated that “comic versions of life [are] associated with mental flexibility – as characterized by complex, conceptual schemes, tolerance for disorder and ambiguity, acceptance of the unfamiliar, uncritical thinking, emotional seriousness (as cited in Lefcourt, 2001, page 73).”

The Present Research

The present research examines the relationship between extraversion, empathy, and humor styles. Following previous research (e.g. Mendiburo-Seguel et al., 2015), it was expected that extraversion would positively correlate with adaptive humor, while empathy would positively correlate with adaptive humor and negatively correlate with aggressive humor (Hampes, 2010). While extraverts are more likely to exhibit a sense of humor, it does not follow that introverts are completely devoid of a sense of humor. Logically, it makes sense that extraverts are prone to engage outwardly in interpersonal (affiliative or aggressive) humor, and this tendency is partly supported by the research (Hampes, 2006). By the same logic of one’s sense of humor aligning with a respective social orientation, introverts should have a tendency to engage in intrapersonal humor (self-enhancing or self-defeating). Moreover, because self-enhancing humor is positively correlated with empathy, specifically perspective-taking, whether an introvert engages more in self-enhancing or self-defeating humor should partially depend on the individual’s level of empathy such that introverts high in empathy should favor self-
enhancing humor while introverts low in empathy should favor self-defeating humor. This line of reasoning motivated investigation into the effects of extraversion and empathy on humor style which sought to synthesize the literature regarding humor, personality, and empathy while specifically focusing on the humor style of introverts, which has seldom been investigated.

**Hypothesis one.** More formally, it was postulated that extraverts would have a greater sense of humor than introverts, in which they primarily engaged in affiliative and then, in order of descending use, self-enhancing, aggressive, and self-defeating humor.

**Hypothesis two.** Empathetic extraverts were predicted to primarily engage in affiliative and self-enhancing humor then, in order or descending use, self-defeating and aggressive humor.

**Hypothesis three.** Unempathetic extraverts were predicted to primarily engage in aggressive humor then affiliative, self-enhancing, and self-defeating humor.

**Hypothesis four.** Introverts, overall, were predicted to primarily engage in self-defeating humor then self-enhancing, affiliative, and aggressive humor.

**Hypothesis five.** Empathetic introverts were predicted to primarily engage in self-enhancing humor then self-defeating, affiliative, and aggressive humor.

**Hypothesis six.** Unempathetic introverts were predicted to primarily engage in self-defeating humor, then aggressive, self-enhancing, and affiliative.

**Methods**

**Participants**

To test the current hypotheses, nine hundred twenty-eight participants completed an online survey administered through Qualtrics via Amazon Mechanical Turk (MTurk).
MTurk has demonstrated equal reliability to that of other common data collection methods such as on-campus recruiting, oftentimes offering increased diversity than the typical college sample perhaps allowing greater potential for generalizability of any findings (Buhrmester, Kwang, & Gosling, 2011). Only participants with a valid U.S. IP address qualified to take the survey.

Measures

The Ten Item Short Version of the Big Five Inventory (BFI-10). The BFI-10 (Rammstedt & Oliver, 2007) is a personality inventory that assesses five factors of personality: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. The current study only examined the extraversion subscale (see Appendix B). The subscale contains 8 items which presented participants with statements describing behaviors and attitudes such as “I see myself as someone who is talkative” and then asked them to rate on a five-point Likert scale ranging from one (Disagree strongly) to five (Agree strongly) how well (or poorly) the statement described themselves. The subscale alone has proven to be reliable with a mean retest stability coefficient of 0.72 in a U.S sample.

The Humor Styles Questionnaire (HSQ). The HSQ (Martin et al., 2003) assesses the style of humor one primarily uses (see Appendix C). The scale consists of 32 items, eight for each of the four styles of humor: affiliative, self-enhancing, aggressive, and self-defeating. Participants recorded how much they agreed with statements regarding behavior and attitudes, e.g. “I enjoy making people laugh” (for affiliative) and “If I am feeling depressed, I can usually cheer myself up with humor” (for self-enhancing), on a seven-point Likert scale ranging from one (Totally disagree) to seven
(Totally agree). Higher scores signify that an individual more frequently uses a certain style of humor. All four subscales together have proven reliable with acceptable internal consistencies ranging from 0.77 to 0.81 and test-retest reliabilities ranging from .80 to .85. Additionally, the HSQ has gained cross-cultural validation with Cronbach alpha values all greater than or equal to .70 when tested in a French-speaking Belgian student population (Saroglou & Scariot, 2002).

The Interpersonal Reactivity Index (IRI). The IRI (Davis, 1983) assesses empathy through four subscales (perspective-taking, fantasy, empathic concern, and personal distress) with each subscale containing seven items. The IRI assesses both the emotional and cognitive aspects of empathy. The current study only examined the empathic concern and perspective-taking subscales (see Appendix D), as they are more strongly related to other measures of empathy (e.g. Hogan’s Empathy Scale, 1969; or the Empathy Quotient) and thus can be better integrated into research regarding empathy. The subscales presented participants with statements such as “I sometimes find it difficult to see things from the ‘other guy's’ point of view” and asked them to rate how well (or poorly) it described them on a scale ranging from one (Does not describe me very well) to five (Describes me very well). Higher scores indicate than an individual is more empathetic and prone to take the perspectives of others. The subscales have proven reliable, with reliability alpha's ranging from 0.68 to 0.79.

Procedure

Participants were recruited through MTurk and asked to complete an online survey (administered through Qualtrics) which aimed to assess the relationship between personality and sense of humor. Participants were compensated $0.50 for satisfactorily
completing the survey (i.e. passing all attention checks), which included the extraversion subscale of the BFI-10, the HSQ, the empathic concern and perspective-taking subscales of the IRI, and a demographic section which had participants indicate their age, gender, race, and educational level.

**Results**

**Participant Criteria**

Sixteen of the original 928 participants failed the attention checks and their responses were omitted from data analysis, leaving 912 participants for consideration. Of that 912, 129 qualified as either introverts or extraverts (i.e. landed on the extreme ends of the extraversion subscale of the BFI-10, which ranges from one to five, wherein average scores less than three were classified as introverts and average scores greater than or equal to four were classified as extraverts) with 50 introverts and 79 extraverts. Data analyses were only conducted on this subset of 129 individuals (64 females and 64 males, $M_{age} = 35.6$, $SD_{age} = 10.7$).

**Design**

The current study used a 2x2x4 factorial design with three independent variables. Two of the independent variables were between-subjects: extraversion and empathy, each with two categorical levels. The third independent variable was the nominal within-subjects variable of humor style. Again, extraversion was operationalized as a dichotomous variable in which extreme scores on the extraversion subscale of the BFI-10 determined the levels, such that average subscale scores less than three were classified as introverted while average scores of four to five were classified as extraverted. Empathy was also dichotomously classified as either low or high (i.e. unempathetic or empathetic) based on
EXTRAVERSION, EMPATHY, AND HUMOR STYLE

a median split of the average sum of the empathic concern and perspective-taking subscales of the IRI ($Mdn = 4.0$). The nominal independent variable of humor style had four levels, i.e. the humor styles identified by the HSQ. The dependent variable was the continuous scale score for humor, representing endorsement of a humor style as assessed by the HSQ.

**Background Analyses**

All included measures proved reliable in the present study. Cronbach’s alpha for the extraversion subscale of the BFI-10 was .98. Cronbach’s alphas for the subscales of the HSQ ranged from .81 - .87 while Cronbach’s alphas for the empathic concern and perspective-taking subscales were .90 and .83, respectively. While some researchers have found men to be higher in humor usage than women (e.g. Kazarian & Martin, 2006; Yip & Martin, 2006), gender did not have a significant effect on humor score in the present study $F(1,124) = 1.44, p > .05$, meaning men and women did not differ in overall humor usage ($M_{Male} = 4.48, SD_{Male} = .76; M_{Female} = 4.33, SD_{Female} = .81$). However, men ($M_{Male} = 3.74, SD_{Male} = 1.17$) scored higher on the usage of aggressive humor than did women ($M_{Female} = 3.28, SD_{Female} = 1.01$), $t(126) = 2.22, p < .05$, as has also been previously demonstrated in the research. Accordingly, gender was included as a covariate within the focal analysis.

**Focal Analysis**

A 2 (extraversion: introvert or extravert) x 2 (empathy: unempathetic or empathetic) x 4 (humor style: affiliative, self-enhancing, aggressive, and self-defeating) mixed factorial ANOVA was conducted to compare the main effects of extraversion, empathy, and humor style on humor score as well as determine any interaction effects.
between the independent variables. All effects were tested at the .05 significance level. Levene’s test for equality of variances indicated the assumption of homogenous variance was violated for affiliative humor \((p < .05)\); however, analysis proceeded due to the assumption being violated in only one level of an independent variable and the relatively large sample size \((N = 129)\) of the current study. Mauchly’s Test of Sphericity revealed the assumption of sphericity was violated \((p < .05)\); accordingly, a Greenhouse-Geisser correction was used.

There was a significant main effect of extraversion, \(F(1, 124) = 25.40, p < .001\), indicating a significant difference between extraverts and introverts on humor score, in which extraverts \((M_{Overall} = 4.66, SD_{Overall} = .65)\) were higher in overall humor usage than were introverts \((M_{Overall} = 4.00, SD_{Overall} = .75)\). Moreover, there was a significant interaction effect between extraversion and humor style \(F(2.34, 289.97) = 14.773, p < .001\), in which extraverts used adaptive humor \((M_{Affiliative} = 6.09, SD_{Affiliative} = .75; M_{Self-Enhancing} = 5.50, SD_{Self-Enhancing} = .93)\) more than introverts \((M_{Affiliative} = 4.74, SD_{Affiliative} = 1.12; M_{Self-Enhancing} = 4.32, SD_{Self-Enhancing} = 1.09)\) – a finding consistent with the positive correlation between extraversion and adaptive humor found within the research.

Additionally, extraverts \((n = 79)\) primarily used affiliative, then self-enhancing, aggressive, and self-defeating humor (see table 1), as was hypothesized, thus supporting hypothesis 1. Meanwhile, introverts \((n = 50)\) primarily used affiliative, then self-enhancing, self-defeating, aggressive humor (see table 1 for means), thus failing to support hypothesis 4.
Table 1. Means and standard deviations of humor score as a function of extraversion and humor style.

<table>
<thead>
<tr>
<th>Humor Style</th>
<th>Introvert (n = 79)</th>
<th>Extravert (n = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Affiliative</td>
<td>4.74</td>
<td>1.13</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td>4.32</td>
<td>1.09</td>
</tr>
<tr>
<td>Aggressive</td>
<td>3.43</td>
<td>1.16</td>
</tr>
<tr>
<td>Self-Defeating</td>
<td>3.52</td>
<td>1.01</td>
</tr>
<tr>
<td>Overall</td>
<td>4.00</td>
<td>.75</td>
</tr>
</tbody>
</table>

Figure 1. Bar graph showing the usage of humor styles shown by introverts and extraverts.

The main effect of empathy was not significant, $F(1, 124) = 1.07, p > .05$, meaning empathetic individuals ($n = 66$) did not significantly differ from unempathetic individuals ($n = 63$) in their overall humor scores. However, there was a significant interaction effect between empathy and humor style $F(2.34, 289.97) = 9.31, p < .001$. Replicating a finding in the research, the effect of humor style on humor score depended
on empathy such that unempathetic individuals used aggressive humor more than empathetic individuals, while empathetic individuals using self-enhancing humor more than unempathetic individuals (see table 2 for means).

Table 2. Means and standard deviations of humor score as a function of empathy and humor style.

<table>
<thead>
<tr>
<th>Humor Style</th>
<th>Unempathetic (n = 63)</th>
<th>Empathetic (n = 66)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Affiliative</td>
<td>5.36</td>
<td>1.23</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td>4.78</td>
<td>1.15</td>
</tr>
<tr>
<td>Aggressive</td>
<td>3.93</td>
<td>1.14</td>
</tr>
<tr>
<td>Self-Defeating</td>
<td>3.72</td>
<td>1.20</td>
</tr>
<tr>
<td>Overall</td>
<td>4.45</td>
<td>.93</td>
</tr>
</tbody>
</table>

There was a significant interaction effect between extraversion and empathy on humor score, $F(1, 124) = 5.49, p < .05$. Extraversion and empathy affected humor score differently across humor styles for extraverts and introverts. Empathetic extraverts ($n = 47$) were highest in affiliative humor, then self-enhancing, self-defeating, and aggressive humor, thus supporting hypothesis 2, which predicted empathetic extraverts would primarily use affiliative and self-enhancing humor. Unempathetic extraverts ($n = 32$) were highest in affiliative humor, then self-enhancing, aggressive, and self-defeating humor (see figure 2). Though hypothesis 3, which predicted unempathetic extraverts would primarily engage in aggressive humor, was not supported, it should be noted that unempathetic extraverts used aggressive and self-defeating humor more than empathetic extraverts (see table 3 for means). The means indicate that while no group primarily used adaptive humor, i.e. used aggressive and self-defeating humor more than they used
affiliative and self-enhancing humor, the means of the use of maladaptive humor were statistically higher for unmepathetic extraverts than they were for empathetic extraverts ($t(77) = 4.47, p < .001$; see table 3 for means and standard deviations).

Table 3. Means and standard deviations of humor score as a function of empathy, extraversion, and humor style.

<table>
<thead>
<tr>
<th>Humor Style</th>
<th>Unempathetic</th>
<th>Empathetic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extravert ($n = 32$)</td>
<td>Introvert ($n = 31$)</td>
</tr>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Affiliative</td>
<td>6.03</td>
<td>.90</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td>5.45</td>
<td>.82</td>
</tr>
<tr>
<td>Aggressive</td>
<td>4.26</td>
<td>1.03</td>
</tr>
<tr>
<td>Self-Defeating</td>
<td>4.04</td>
<td>1.20</td>
</tr>
<tr>
<td>Overall</td>
<td>4.95</td>
<td>.62</td>
</tr>
</tbody>
</table>

Similar to their extraverted counterparts, empathetic introverts ($n = 19$) were also highest in affiliative humor, then self-enhancing, self-defeating, and aggressive humor (see figure 2), thus failing to support hypothesis 5, which predicted empathetic introverts would primarily engage in self-enhancing humor. However, it should be noted that empathetic introverts used self-enhancing humor more than unempathetic introverts ($t(48) = 1.74, p < .05$; see table 3 for means and standard deviations). Meanwhile, unempathetic introverts ($n = 31$) were highest in affiliative, then self-enhancing, aggressive, and self-defeating humor (see figure 2), thus failing to support hypothesis six, which predicted unempathetic introverts would primarily engage in self-defeating humor.
Additionally, there was a significant main effect of humor style $F(2.338, 289.974) = 16.739, p < .001$, in which the adaptive humor styles were used more frequently across the board ($M_{Affiliative} = 5.57, SD_{Affiliative} = 1.12; M_{Self-Enhancing} = 5.04, SD_{Self-Enhancing} = 1.16$) than the maladaptive humor styles were ($M_{Aggressive} = 3.50, SD_{Aggressive} = 1.17; M_{Self-Defeating} = 3.51, SD_{Self-Defeating} = 1.26$). Lastly, there was no significant 3-way interaction effect between extraversion, empathy, and humor style $F(2.34, 289.97) = 2.35, p = .088$.

Discussion

Interpretations of Results

The first hypothesis correctly predicted the sense of humor of extraverts in which they primarily used affiliative and self-enhancing humor, then aggressive and self-defeating humor. The interaction between empathy and humor style accounted for
Empathetic extraverts primarily favoring affiliative and self-enhancing humor, then self-defeating and aggressive humor—thus supporting the second hypothesis (see Figure 2). Meanwhile, unempathetic extraverts primarily used affiliative, then self-enhancing, aggressive, and self-defeating humor, rather than primarily using aggressive humor—thus failing to support hypothesis three.

The fourth hypothesis was also unsupported, as the sense of humor of introverts was not primarily intrapersonal. Instead of primarily using self-defeating and self-enhancing humor, then affiliative and aggressive humor (as predicted in hypothesis four), introverts mainly used affiliative and self-enhancing humor, then self-defeating and aggressive humor (see Figure 1 from page 28). The introverted sense of humor unexpectedly resembled that of the extraverts. For instance, empathetic introverts also favored affiliative and then self-enhancing humor more than maladaptive humor, thus failing to support hypothesis five (which predicted empathetic introverts would primarily use self-enhancing humor).

Though empathetic individuals favored adaptive humor more than unempathetic individuals, who favored maladaptive humor, unempathetic individuals did not use maladaptive humor more than they used adaptive humor. In fact, unempathetic introverts also favored affiliative and then self-enhancing humor more than they did self-defeating and aggressive, thus failing to support hypothesis six (which predicted unempathetic introverts would primarily use self-defeating humor).

Though the hypotheses were not supported, it warrants mentioning that the general direction of the predictions was substantiated—just not to the extent hypothesized. For instance, though empathetic introverts did not primarily use self-
enhancing humor (as predicted in hypothesis five), they used self-enhancing humor more than unempathetic introverts who in turn used maladaptive humor more than their empathetic counterparts. Similarly, though unempathetic extraverts did not primarily use aggressive humor (as predicted in hypothesis three), they used aggressive humor more than their empathetic counterparts.

While the current study was not able to corroborate introverts as having their own unique humor profile, the study was able to replicate findings present in the literature. Specifically, extraversion positively related to overall humor, meaning extraverts were higher in overall usage than introverts. Moreover, extraversion positively related to adaptive humor, meaning extraverts were higher in both affiliative and self-enhancing humor than introverts. Additionally, the interaction between empathy and humor style replicated the finding within the research that unempathetic individuals use aggressive humor more than empathetic individuals. Though not tied to any hypotheses, the current study also replicated the finding that men used aggressive humor more than women.

Introverts did not demonstrate a categorically distinct sense of humor compared to extraverts; instead, the introverted sense of humor resembled a quantitatively weaker form of the extraverted sense of humor. The research suggested introverts would primarily favor self-defeating humor insofar as self-defeating humor positively correlated with shyness (Fitts et al., 2009). Additionally, extraversion positively related to the adaptive humor styles (Mendiburo-Seguel et al., 2015), suggesting that introverts would engage in these humor styles the least. However, the exact opposite was found. Just like extraverts, introverts mostly used affiliative and self-defeating humor—just to a lesser extent than did extraverts (see Figure 1 from page 28).
**Implications**

The current findings are not necessarily negative for introverts. The introverted sense of humor is more adaptive than the research might suggest. Additionally, despite introversion relating depression, loneliness, and lesser displays of humor; it must be noted and commonly intuited that introverts are not destined for depressed, lonely, humorless lives. One study (Fleeson, Malanos, & Achille, 2002) found that introverts engaging in extraverted behavior including performing humor, i.e. “acting extraverted,” showed increased happiness. Additionally, practice using humor has been found to lead to increased positive affect including increased optimism and lessened distress (Crawford & Caltabiano, 2011).

Moreover, because introverts demonstrated a primarily adaptive humor style, acting extraverted and practicing the use of humor would presumably lead to introverts improving their overall psychological well-being, including affect, as well as interpersonal relations and, naturally, their sense of humor.

**Limitations and Future Directions**

The apparent gender differences in empathy in the research were replicated in the present study with women reporting higher empathy ($M_{Female} = 4.07$, $SD_{Female} = .62$) than men did ($M_{Male} = 3.82$, $SD_{Male} = .76$); $t(126) = 2.00, p < .05$. However, it is entirely possible that the apparent differences in empathy are more effects of the methodology used to assess empathy rather than a legitimate difference in empathetic capacity across the genders. For example, Riggio, Tucker, and Coffaro (1989) found that females scored higher on emotional empathy, i.e. empathic concern, but there were no significant gender differences in cognitive empathy, i.e. perspective-taking. In fact, recent research suggests
that gender differences in empathy reflect gender roles more than biological sex, as masculine and feminine gender roles have a significant effect on empathy, even when sex is controlled for (Vonk, Mayhew, & Zeigler-Hill, 2016). Specifically, higher femininity (not necessarily being female) or higher androgyny (simultaneous femininity and masculinity) was associated with increased empathy as measured by the perspective-taking and empathic concern subscales of the IRI (the same measure used in the current study), while higher levels of masculinity (not necessarily being male) were associated with lower levels of empathic concern yet higher levels of perspective-taking (Vonk et al., 2016).

Furthermore, the apparent gender role difference in empathy could also be partially due to the self-report nature of the IRI, as opposed to a legitimate difference in empathy due to sex. Traditionally, women are more encouraged to express empathy while men are encouraged to not be overly-emotional; consequently, women may be more ready, willing, and expected to admit feelings of empathic concern while men do not want to be seen as feminine (i.e. empathetic). Furthermore, men and women have different styles of emotional expression, and the current methods may be inadequately assessing masculine emotional expression thereby artificially demonstrating greater empathic concern among women (Riggio & Friedman, 1986).

Additionally, the assumption of equal variances was violated in the current study. Though variances were unequal only within affiliative humor scores, and the sample size was fairly large ($N = 129$); it is possible use of a Bonferroni corrected alpha value could reduce the family-wise error rate. Future studies could investigate the possible effects on
EXTRAVERSION, EMPATHY, AND HUMOR STYLE

psychological well-being, or interpersonal relations of introverts using adaptive humor styles compared to a control group of introverts that does not practice using humor.

Conclusion

The present study aimed to contribute to the research on personality, empathy and humor style, exploring more specifically the introverted sense of humor which has thus far been overlooked. The study reaffirmed the finding that extraversion positively relates to humor such that extraverts reported a greater usage of humor than introverts. More specifically, both extraverts and introverts used adaptive humor styles more than they used maladaptive humor styles. Additionally, empathy and humor style interacted such that empathetic individuals favored adaptive humor styles while unempathetic individuals had relatively heightened usage of the maladaptive humor styles while still primarily using the adaptive humor styles.
References


Hampes, W. P. (2001). Relation between humor and empathic concern. *Psychological Reports, 88*(1), 241-244. doi:10.2466/PR0.88.1.241-244


### Tables

**Table 1.** Means and standard deviations of humor score as a function of extraversion and humor style.

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<thead>
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<th>Extravert (n = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Affiliative</td>
<td>4.74</td>
<td>1.13</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td>4.32</td>
<td>1.09</td>
</tr>
<tr>
<td>Aggressive</td>
<td>3.43</td>
<td>1.16</td>
</tr>
<tr>
<td>Self-Defeating</td>
<td>3.52</td>
<td>1.01</td>
</tr>
<tr>
<td>Overall</td>
<td>4.00</td>
<td>.75</td>
</tr>
</tbody>
</table>

**Table 2.** Means and standard deviations of humor score as a function of empathy and humor style.

<table>
<thead>
<tr>
<th>Humor Style</th>
<th>Unempathetic (n = 63)</th>
<th>Empathetic (n = 66)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Affiliative</td>
<td>5.36</td>
<td>1.23</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td>4.78</td>
<td>1.15</td>
</tr>
<tr>
<td>Aggressive</td>
<td>3.93</td>
<td>1.14</td>
</tr>
<tr>
<td>Self-Defeating</td>
<td>3.72</td>
<td>1.20</td>
</tr>
<tr>
<td>Overall</td>
<td>4.45</td>
<td>.93</td>
</tr>
</tbody>
</table>
Table 3. Means and standard deviations of humor score as a function of empathy, extraversion, and humor style.

<table>
<thead>
<tr>
<th>Humor Style</th>
<th>Unempathetic</th>
<th>Empathetic</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extravert</td>
<td>Introvert</td>
<td>Extravert</td>
<td>Introvert</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n = 32)</td>
<td>(n = 31)</td>
<td>(n = 47)</td>
<td>(n = 19)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Affiliative</td>
<td>6.03</td>
<td>.90</td>
<td>4.67</td>
<td>1.14</td>
<td>6.13</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td>5.45</td>
<td>.82</td>
<td>4.10</td>
<td>1.03</td>
<td>5.53</td>
</tr>
<tr>
<td>Aggressive</td>
<td>4.26</td>
<td>1.03</td>
<td>3.59</td>
<td>1.15</td>
<td>3.07</td>
</tr>
<tr>
<td>Self-Defeating</td>
<td>4.04</td>
<td>1.20</td>
<td>3.39</td>
<td>1.11</td>
<td>3.14</td>
</tr>
<tr>
<td>Overall</td>
<td>4.95</td>
<td>.62</td>
<td>3.94</td>
<td>.92</td>
<td>4.47</td>
</tr>
</tbody>
</table>
Figures

Figure 1. Bar graph showing the usage of humor styles shown by introverts and extraverts.

Figure 2. Bar graph showing the usage of humor styles shown by introverts and extraverts of low and high empathy.
Appendices

Appendix A

Informed Consent Form

You are being invited to participate in a research study on personality and humor styles. This form is designed to provide you with information about this study. If you have any questions or complaints about the informed consent process of this research study or your rights as a subject, please contact the principal investigator through Amazon Mechanical Turk.

If you agree to participate in the study, you will take a survey asking you to rate how well (or poorly) certain statements describe you and your sense of humor. You may work at your own pace, though the survey will expire after a week from first opening. Participation in this study should take no longer than 20 minutes of your time. If you complete the entire survey and pass the attention checks, then you will receive $0.50 for your participation. We do not anticipate you experiencing any discomfort or other negative feelings when responding to items in this study.

Your participation in this study is completely voluntary. Should you decide to discontinue participation or decline to answer any specific part of the study, you may do so, though you will not receive compensation. Your participation in this study may help you understand the nature of humor styles as it relates to personality and empathy. We are not asking you to reveal your name anywhere on the survey, so your participation is completely anonymous. None of your answers can be directly traced back to you.

By clicking the box below, you indicate that you are at least 18 years of age, you give your consent to participate in the research study, and have read and understood the above information.

- I am at least 18 years of age and consent to participate in the study
Appendix B

BFI-10 – Extraversion Subscale

Here are a number of characteristics that may or may not apply to you. Please check the scale number for each statement to indicate the extent to which you agree or disagree with that statement. All statements begin with "I See Myself as Someone Who..."

**ANSWER SCALE:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree Strongly</td>
<td>Neutral</td>
<td>Agree Strongly</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Is talkative
2. Is reserved (RS)
3. Is full of energy
4. Generates a lot of enthusiasm
5. Tends to be quiet (RS)
6. Please mark the “Neutral” answer choice
7. Has an assertive personality
8. Is sometimes shy, inhibited (RS)
9. Is outgoing, sociable

(RS) = Reverse scored
Appendix C

Humor Styles Questionnaire

The following statements inquire about your tendencies and feelings regarding humor in a variety of situations. For each item, indicate how well (or poorly) it describes you by checking the value for the appropriate scale number at the top of the page.

READ EACH ITEM CAREFULLY BEFORE RESPONDING.
Answer as honestly as you can.
Thank you!

ANSWER SCALE:

1  2  3  4  5  6
7 Totally Disagree Neutral Totally Agree

1. I usually don’t laugh or joke around much with other people. (AF, RS)
2. If I am feeling depressed, I can usually cheer myself up with humor. (SE)
3. If someone makes a mistake, I will often tease them about it. (AG)
4. I let people laugh at me or make fun at my expense more than I should. (SD)
5. I don’t have to work very hard at making other people laugh – I seem to be a naturally humorous person. (AF)
6. Even when I’m by myself, I’m often amused by the absurdities of life. (SE)
7. People are never offended or hurt by my sense of humor. (AG, RS)
8. I will often get carried away in putting myself down if it makes my family or friends laugh. (SD)
9. I rarely make other people laugh by telling funny stories about myself. (AF, RS)
10. If I am feeling upset or unhappy I usually try to think of something funny about the situation to make myself feel better. (SE)
11. When telling jokes or saying funny things, I am usually not very concerned about how other people are taking it. (AG)
12. I often try to make people like or accept me more by saying something funny about my own weaknesses, blunders, or faults (SD)
13. I laugh and joke a lot with my closest friends. (AF)
14. My humorous outlook on life keeps me from getting overly upset or depressed about things. (SE)
15. I do not like it when people use humor as a way of criticizing or putting someone down. (AG, RS)
16. I don’t often say funny things to put myself down. (SD, RS)
17. I usually don’t like to tell jokes or amuse people. (AF, RS)
18. If I’m by myself and I’m feeling unhappy, I make an effort to think of something funny to cheer myself up. (SE)
19. Sometimes I think of something that is so funny that I can’t stop myself from saying it, even if it is not appropriate for the situation. (AG)
20. I often go overboard in putting myself down when I am making jokes or trying to be funny. (SD)
21. I enjoy making people laugh. (AF)
22. If I am feeling sad or upset, I usually lose my sense of humor. (SE, RS)
23. I never participate in laughing at others even if all my friends are doing it. (AG, RS)
24. When I am with friends or family, I often seem to be the one that other people make fun of or joke about. (SD)
25. I don’t often joke around with my friends. (AF, RS)
26. Please mark the “Neutral” answer choice
27. It is my experience that thinking about some amusing aspect of a situation is often a very effective way of coping with problems. (SE)
28. If I don’t like someone, I often use humor or teasing to put them down. (AG)
29. If I am having problems or feeling unhappy, I often cover it up by joking around, so that even my closest friends don’t know how I really feel. (SD)
30. I usually can’t think of witty things to say when I’m with other people. (AF, RS)
31. I don’t need to be with other people to feel amused – I can usually find things to laugh about even when I’m by myself. (SE)
32. Even if something is really funny to me, I will not laugh or joke about it if someone will be offended. (AG, RS)
33. Letting others laugh at me is my way of keeping my friends and family in good spirits. (SD)
(AF = affiliative, SE = self-enhancing, AG = aggressive, SD = self-defeating, RS = reverse scored)
Appendix D

Interpersonal Reactivity Index – Empathic Concern and Perspective-Taking

Subscales

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well (or poorly) it describes you by checking the box for the appropriate point on the scale at the top of the page.

When you have decided on your answer, fill in the scale point next to the item number.

READ EACH ITEM CAREFULLY BEFORE RESPONDING.
Answer as honestly as you can.
Thank you!

ANSWER SCALE:

1 2 3 4 5

DOES NOT DESCRIBE ME VERY WELL DESCRIBES ME WELL

1. I often have tender, concerned feelings for people less fortunate than me. (EC)
2. I sometimes find it difficult to see things from the "other guy's" point of view. (PT) (-)
3. Sometimes I don't feel very sorry for other people when they are having problems. (EC) (-)
4. I try to look at everybody's side of a disagreement before I make a decision. (PT)
5. When I see someone being taken advantage of, I feel kind of protective towards them. (EC)
6. I sometimes try to understand my friends better by imagining how things look from their perspective. (EC)
7. Other people's misfortunes do not usually disturb me a great deal. (EC) (-)
8. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (PT) (-)
9. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (EC) (-)
10. I am often quite touched by things that I see happen. (EC)
11. I believe that there are two sides to every question and try to look at them both. (PT)
12. I would describe myself as a pretty soft-hearted person. (EC)
13. Please mark the "Neutral" answer choice for this item
14. When I'm upset at someone, I usually try to "put myself in his shoes" for a while. (PT)
15. Before criticizing somebody, I try to imagine how I would feel if I were in their place. (PT)

(EC = Empathic Concern, PT = Perspective-Taking, - = Reverse Scored)
Appendix E

Demographic Information

Please indicate your age, gender, race, and educational level:

Age:

Gender: (Male, Female, Other)

Race: (Asian/Pacific Islander, Black/African-American, White, Hispanic/Latinx, Other)

Educational Level: (Up to 8th grade; High school graduate, diploma, or the equivalent, for example GED; Current college undergraduate; College graduate; Current graduate student; Post graduate degree)

Parting Message

Thank you so much for your participation in the study!
Your validation code is:

To receive payment for participating, click “Accept HIT” in the Mechanical Turk window, enter this validation code, then click “Submit”.