What is the Big-5 or the Five Factor Model of Personality?

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Trait Theory, the Big-Five and the Five Factor Model

The labels Big-Five and Five Factor Model (FFM) are often used interchangeably when considering the trait approach to personality theory. De Fruyt, McCrae, Szirmák and János (2004) clarify that the Big-Five is derived from the lexical approach associated with Allport and Odbert (1936), Fiske (1949), Norman (1963), Tupes and Christal (1961) and Goldberg (1981), whereas the FFM is essentially associated with the emergence of personality factors through the questionnaire approach as in the work of McCrae and Costa (1985).

The Big-Five Personality Traits

Big-Five research dates back to Galton (1884) and Baumgarten (1933), although is most often associated with Allport and Odbert (1936). Goldberg (1990) credited Galton (1884) with possibly being “…among the first scientists to explicitly recognize the fundamental lexical hypothesis – namely that the most important individual differences in human transactions will come to be encoded as single terms in some or all of the world’s languages” (Goldberg, 1990, p.1216). Allport and Odbert (1936) reviewed the Webster's New International Dictionary (2nd Edition) of the time and arrived at a lexicon of 17,953 terms that were “descriptive of personality or personal behaviour”. They grouped these words into four columns: “neutral terms, designating possible personal traits”, “terms primarily descriptive of temporary moods or activities”, “weighted terms conveying social or characterful judegments of personal conduct” and “miscellaneous terms”. Pervin (1993) concluded that Allport is more likely to be remembered for the issues that he raised, rather than for a particular theory, given that, for example, although he believed that many traits were hereditary, he did not substantiate this with research evidence.

Empirical evidence for the the Big-Five

The empirical evidence for trait theory began with psychologists such as Thurstone, Cattell and Eysenck. Thurstone (1934) provided the first recorded attempt made at factoring personality adjectives to arrive at a five-factor solution. Spearman (1937b) used the then developing tool of factor analysis in the establishment of the ‘g’ or “General Intelligence” factor. Cattell (1943), who was a student of Spearman, also applied factor analysis to trait psychology (see below). Eysenck (1947) announced the successful isolation of two distinct personality factors following research with 10,000 “normal” and “neurotic” participants and factor analysis of the intercorrelations among 39 trait ratings made by psychiatrists on 700 “neurotic” individuals. Eysenck developed his model from Cattell’s Sixteen-Factor Model.

Criticisms of the trait approach to personality

In the early days of trait theory, the results of factor analyses of personality were inconsistent. Cattell (1943) noted that this was largely due to the use of different measures, biases of researchers, limited sampling of participants and aspects of personality, and differences in how traits were named. Cattell suggested that results could be improved by factor analysing the complete “sphere” of trait names. He grouped synonyms and opposites within Allport and Odbert’s list of trait names and reduced this to 150 categories. Cattell then added the names of ten special abilities and eleven special interests resulting in a total of 171 descriptions of behaviour. Cluster analysis of these descriptions reduced them to 60 observable patterns of behaviour which Cattell named “surface traits”. Factor analysis of the surface traits reduced them to 16 “source traits” (something within the person, but not directly observable, considered to be the causal influence of observable behaviour). Cattell used orthogonal rotation in his original factor analysis, thus allowing him to carry out a further factor analysis of the 16 source traits, producing a final four (Cattell, 1956) or five (Cattell, Eber & Tatsuoka, 1970) or even eight (Cattell, 1973) second-order factors. The issue of how many factors to extract followed a familiar theme within trait psychology for some years and even recently, there has been disagreement as to the actual number of personality traits, be they first or second order (Mershon & Gorsuch, 1988).

With reference to Cattell’s body of work cited above, Digman and Takemoto-Chock (1981) noted a number of clerical errors in Cattell’s data, including incorrect signage (use of positive instead of

negative). Further, they noted that options available within the factor analytical technique have the effect of producing inconsistent results among researchers. Cattell was subject to a number of other criticisms given the inability of researchers to replicate his findings (Eysenck & Eysenck, 1969; Howarth & Brown, 1971; Levonian, 1961). Initially, Cattell claimed this was due to researchers not following the exact Cattell methodology (although this methodology has of itself been subject to criticism -- see, for example, Howarth, 1976). To address Cattell's concern, Barrett and Kline (1982) strictly followed the Cattell methodology and, even so, were not able to confirm the sixteen factors on a group of 491 undergraduates, instead finding between seven and nine factors with sufficient reliabilities and factor validities. More inconsistencies emerged from a Swiss study that confirmed a four-factor solution on a sample of 386 general population participants (Rossier, Meyer de Stadelhofen, & Berthoud, 2004).

Tools using the Big-Five framework

Despite the criticisms and non–replication of factors within Cattell's approach, he and his colleagues were responsible for the Sixteen Personality Factor Questionnaire (16PF: Cattell et al., 1973) and Cattell did pave the way for the development of the FFM. The next major player in the development of trait theory was Fiske (1949). Fiske's factor analysis of peer, self and psychologist ratings of 128 clinical trainees rated on 22 scales of surface behaviour was found to reveal four major factors: Social Adaptability, Emotional Control, Conformity, and Inquiring Intellect. Following this, Norman (1963), working with male university students, found through peer nomination rating methods using twenty paired behavioural descriptions, that there was evidence for the existence of five relatively orthogonal personality dimensions. These dimensions were labelled: Extraversion, Good-naturedness, Conscientiousness, Emotional Stability and Culture. However, it was Tupes and Christal (1961) and Goldberg (1981) who actively sought to confirm the existence of the five factors and later work by McCrae and Costa (1985, 1987) resulted in interpreting the Culture factor as "Openness to Experience". Hogan (1982) put forward his socioanalytic theory, based on the five-factor model. This theory places importance upon both the "actor" and the "observer" in the assessment of personality and its implications in the workplace. Furthermore, it considers that social situations exist only within an individual's subjective understanding and not within the physical environment. Hogan's theory is often positively cited as being the only "theory" within the five-factor model. From this he developed the Hogan Personality Inventory (HPI) and the Hogan Development Survey (HDS). The former measures what Hogan terms the "bright-side" of personality (i.e., normal range personality) and the

latter assesses the “dark-side” (negative changes to an individual’s normal personality when under stress of one type or another). Continuing the long-standing debate of how many factors adequately account for the entire domain of personality, it should be noted that the HPI contains seven main measurement scales: the Big-5 and a further two (Hogan & Holland, 2003). Subsequently, Costa and McCrae (1985) developed the NEO Personality Inventory and the Revised NEO Personality Inventory (NEO-PI-R) (1992). The NEO-PI-R assesses 30 specific traits, six for each of the five factors. It is the most widely used of a variety of available measures of the FFM (McCrae, 2002). This may be due to the prominence of its developers, its ease of acquisition - despite remaining relatively secure and not being posted throughout the Internet, the fact that it has been translated into many languages and the fact that it is a relatively short yet psychometrically robust measure of personality.

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