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Big five personality as a part of talent detection: A review

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Abstract
The harnessing of Talent is one of the significant challenges in sports. Talent detection is a preliminary step within the Talent Identification and Development Model, where the discovery of potential children who are not currently involved in sports is made. The sieving of children towards the talent selection process is determined by batteries consisting of anthropometry, physical performance, and motor abilities. Many researchers have pointed out the importance and lack of checking psychological parameters at the talent detection stage. The assessment of a child's psychological parameters at this stage must be scientific, grounded, and suitable for the child-teacher-parent environment. Big Five Traits provides such an opportunity. This paper discusses the viability of testing Big Five Personality Traits as a part of Talent Detection. The components of the Big Five Personality are Openness to experience, Conscientiousness, Extroversion, Agreeableness, and Neuroticism (OCEAN). These traits have shown agreeable correlations with sports participation and performance. The paper discusses the feasibility of using this model at the Talent Detection stage and assesses the recent assessment tools of the Big Five traits, such as pictorial personality tests, which the child himself/herself can undergo with ease. This multidisciplinary approach to the talent detection stage allows sports educationists/coaches and physical education teachers to devise a better model to discover a better talent pool of children for sports who may be both physically and psychologically apt.

Keywords: Talent, talent detection, big five personality traits

1. Introduction

Talent is derived from the Latin word talentum means scale or measuring balance. Distinguished from Giftedness, Talent signifies specialized aptitudes and remarkable ability, but the former represents a generalized factor. One of the essential attributes of Talent is that it is measurable in real-world terms or performances. Gagne (2005) [21] gives two catalytic factors, i.e., internal (intrapersonal catalysts) and external (environmental catalysts), which turn any Gift into Talent. Hence external factors like parents, mentors, and coaches can also play a vital role in Talent enhancement (Kerr, 2009) [11].

In sports, Talent detection is a stage where identification of potential sports performers from a mixture of non-specific sport-playing children (Pion, 2015, Vaeyens, 2007) [17, 22]. This stage does not look for sports specialization but finds children suitable for sports (Pion, 2015) [17]. Anthropometric, physical performance, and motor abilities parameters are widely used for talent detection generic batteries. Pion *et al*. (2015) [14] opine that psychological assessment is not crucial at this stage but is essential in the next phase. However, the stage of talent detection happens in the middle-childhood segment of development (6-11 years). Studies have shown that children by 6 or 7 already have self-esteem in specific areas such as academic competence, social competence, physical/athletic competence, and physical appearance. Thus, ignoring psychological parameters at talent detection can be detrimental.

Nevertheless, there is a need to look for appropriate psychological parameters adopted at this stage of talent development. This paper discusses the relevance and feasibility of determining Big Five traits as a part of Talent Detection.

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2. Big Five Personality Model

Personality, a consistent pattern of projection of oneself in situations, has been essential and intriguing for scientists to study. The studies in personality have different approaches, i.e., psychodynamic, type, trait, behavioral, cultural, and humanistic approaches.

Big Five is a trait approach model that measures five traits, i.e., Openness to Experience, Conscientiousness, Extroversion, Agreeableness, and Neuroticism (OCEAN). It is developed based on the adjectives used by people to describe an individual, with tremendous factor analysis. McCrae and Costa developed this model through factor analysis (Costa & McCrae, 1992) [6].

2.1 Big Five Traits' relevance

Since the inception of big traits concepts, they have been widely used to assess different variables. John *et al*. (2020) [10] assessed the impact of Big Five Personality traits on academic performance among university students (n=406); they found that Openness, Agreeableness, and Conscientiousness were positively related to academic performance.

Power & Pluess (2015) [23] found significant heritability of neuroticism (15%) and openness (21%) traits through a genomic-relatedness-matrix residual maximum likelihood analysis (GREML) in an exploratory study among European adults (n=5011). In a twin study conducted in Vancouver, the heritability of the Big five test was determined. It found that Neuroticism, Extroversion, Agreeableness, Conscientiousness, and Openness to Experience yielded broad heritability of 41%, 53%, 41%, 44%, and 61%, respectively (Jang *et al*., 1996) [9].

Tracing the link between Big Five traits and Perfectionism, Bojanić *et al*. (2018) [3] (n=306) found that almost all Big Five personality traits are significant predictors of Perfectionism, except Conscientiousness, which may not help predict Self-Evaluative Perfectionism. An economic study of the stability of the big five traits over four years showed that the big five traits remained stable for working-age adults (Cobb-Clark & Schurer, 2012) [5]. This study is one of the many confirming the stability of the big five traits in the working population (though not fixed).

If we consider the cross-cultural applicability of Big Five traits, a study on 12 and 13-year-old boys of African American and Caucasian communities found the replicability of Big Five across ethnicity. (Lerner 2009, John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994) [13, 24]. Also, McCrae *et al*. (2005) [15] tested hypotheses of the applicability of personality traits in 50 different cultures; with few exceptions, it was found that five-factor are common to all human beings. Thus, this consistency gives leverage to apply them to any population.

2.2 Big Five Personality Traits and Sports

A study conducted in Poland among athletes (n=1260) aged between 20 to 29 years showed that champions (n=118) scored very low in neuroticism trait, high on extraversion and Conscientiousness, and average in Agreeableness and Openness to experience (Piepiora & Piepiora, 2021) [16]. Piepiora *et al*. (2022) [25] identify a relationship between the big five traits and sports experience in another study. They found a negative correlation between sports experience and neuroticism and a positive correlation between sports experience and the other four traits.

Khan *et al*. (2016) [12] assessed 91 selected contact-sport-playing Pakistan athletes and found a significant association

between performance and the Big Five traits. They found that the high performers scored low on Agreeableness and neuroticism (opposite of emotional stability). They found that the agreeableness trait that makes a person forgiving, altruistic, tender-minded, and compliant may not yield better performance.

When personality traits and self-esteem were studied together among 19-27 years (n= 149) competitors of combat sports compared with team sports competitors, neuroticism, Conscientiousness, and self-esteem variables differed among the groups. The conscientiousness factor was more among combat sports than the team sports competitors, whereas the neuroticism factor was higher among team sports than combat sports competitors (Bojanić *et al*., 2019) [2].

Zekioglu *et al*. (2018) [20] tried the HEXACO personality model, which includes four of the Big Five Factors, on 1013 participants in Turkey to find out the differences in personality profiles between sports and non-sports groups. They found statistically significant mean score differences in the Extraversion domain, Conscientiousness domain, and Openness to Experience domain between participants doing regular sports and participants who do not involve in sports at all.

Zar *et al*. (2022) [19] conducted an interesting study on the relationship between Big Five Personality Traits and sports performance among disabled athletes. They found that disabled athletes have a significant relationship between openness and athletic performance. The work done by Brinkman *et al*. (2016) [4] revealed that Agreeableness, extraversion, and neuroticism could predict different levels of self-determined motivation.

3. Big Five Personality Traits in Middle-childhood

An Investigation study assessed the relationship between the big five and behavior problems assessed by respective classroom teachers of 86 children (9-13 years). It found that various Big-Five traits were associated with behavioral problems in children. For example, traits like Agreeableness, Conscientiousness, and Open to Experience have associations with social behavior, attentional deficit, conduct problems, and hyperactivity. Also, the Neuroticism trait is associated with Anxiety and Depression. The author proposed how these factors can help to determine the predispositions and motives for behavior (Ehrler, D.J., Evans, J.G. and McGhee, 1999) [8].

Asendorpf & van Aken (2003) [1] conducted a nine-year longitudinal study to validate the Big Five Traits in childhood. They employed teacher, parent, and friend rating scales for different age groups. They found that social inhibition correlated with neuroticism and low extraversion, and aggressiveness correlated with low Agreeableness and Conscientiousness. These correlations were consistent throughout childhood. Thus, the above study gives a hint that the Big Five Traits can be a helpful tool to determine child behavior.

4. Potential Avenue

The above studies indicate that the employability of the Big Five personality assessment at talent detection or middle childhood stage can help us understand the potential of a child's talent in sports. Many researchers have confirmed that the Big Five personality exists despite differences in sampling and methodology (Lerner *et al*., 2009) [13].

The studies between sports and personality at the stages of talent detection may lead us to answer some of the questions of the nature and nurture debate. Current studies have

determined the differences in adults among sports and non-sports playing groups but have not found the source of these differences (Zekioglu *et al.*, 2018) [20].

The big-five trait assessment of a child can be done for different stakeholders of a child's development. It can be done by parents, teachers, or peers (Mackiewicz & Cieciuch, 2016; Digman & Inouye, 1986; Shiner & Caspi, 2003) [14, 7, 18]. Some questionnaires, such as Hierarchical Personality Inventory for Children (HIPiC) developed by Mervielde and Fruyt (1999) [26] and the questionnaire by Barbaranelli *et al.* (2003) [27], provide the child himself/herself to assess Big Five traits (Mackiewicz & Cieciuch, 2016) [14]. Due to most of them being lexical and, on the contrary, the children in this age group lack reading and writing skills, the self-assessment may be challenging. Hence to rectify this shortcoming, pictorial scales of Big-Five Personality are developed ((Mackiewicz & Cieciuch, 2016) [14]. This situation-specific visualization of a child boosts response. This scale needs to be developed for the Indian context.

Physical education teachers, coaches, class teachers, and parents play a vital role in identifying and boosting the morale of the child's talent, especially in sports. Physical Education (PE) teachers relinquish children's spirit and habituate enthusiasm toward sports. Children generally look up to their PE teachers as an example of strength and motivation. PE teachers should utilize this opportunity to understand the child better, not only physically or anthropometrically but also psychologically. Big Five traits can be a very distinguished tool for them. Middle-childhood development age should not be missed to be explored by PE teachers, thus identifying talents that can help India in its efforts towards a better world.

5. Acknowledgments

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