



## Exploring Personality Traits in Elite Sport Players and Associate with a Good Project Managers

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### Abstract

The paper deals with the issue of personality in the context of the professions of an elite tennis player and a project manager. The objective of the conducted research is to find a set of personality characteristics typical for tennis and project management and to find out which personality characteristics of the analyzed professions are similar, or different. To confirm the hypothesis H: "The personality characteristics of an elite tennis player correspond to the demands of his profession, just as the personality characteristics of a project manager correspond to the demands of his profession, and there is demonstrably a correlation in the personality characteristics of elite tennis players and project managers, which corresponds to a correlation in the demands of these two professions," we will use the Cattell's 16 Personality Factor Test, the Spearman correlation analysis, the evaluation of the relevant test indicators difference in statistical significance using the Student t-test, and the comparative analysis. A comparison of the demands of the analyzed professions on a person and a comparison of the personality characteristics of the elite tennis players and the project managers results in the conclusion that the personalities of an elite tennis player and a project manager are somewhat similar, as well as a striking difference between them in the emotional area. The hypothesis was confirmed. An elite tennis player can be a good project manager.

### Keywords:

Personality;  
Personality Structure;  
Temperament;  
Typology; Tennis;  
Project Manager.

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## 1- Introduction

Sport is not only meant to play a game but a person who behaves in a systematic way and is always determined to their goals. Sports persons have the desire to practice a task rigorously, relentlessly, and even in the midst of failure until they succeed. Sports persons are tenacious—they seldom or never give up. They also have a strong work ethic and the ability to respect and deal with the inevitable issue of temporary pain. They achieve their goals, if one avenue is blocked, they find another path to success and if their physical strength has given out, they learn to work smarter, not harder. As they learn to become more effective, they become more efficient. They're always ready to develop new things. Athletes are not only on the ground but even in businesses; each athlete has a focused vision and mission for his/her company, even thinks strategically, and is tuned in to the big picture. A better manager needs to respect the laws of balance in energy, health, sleep, and nutrition so that they could succeed, and to do so not only in the present but for the long term as well. Sports person are meant to work well with partners and in teams, they even know how to leverage the unique and complementary strengths of each member of their team. The real sports person will always put the needs of the team or partner at an equal par or even ahead of their own needs.

To be a top athlete requires many of the personality characteristics that are desperately sought after at the management levels of all industries. With the support of Stiftung Deutsche Sporthilfe, the WHU Sports Business Academy (SPOAC) conducted personality tests with 299 current and former top athletes. The result: Top athletes are characterized, above

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all, by a high level of commitment and iron discipline—precisely the qualities most important for professional success. This match between the desired profile of managers and the qualities of top athletes should make recruiters sit up and take notice [1].

Our practical experience with the monitoring of the activities of top athletes, especially elite tennis players, and project managers indicates a certain similarity between these professions with regard to workload, regimes, social importance, personal responsibility, etc. By comparing the typical personality characteristics of an elite tennis player and a project manager, it is possible to identify the elements of similarity and difference in their characteristics with regard to the relevant demands of the profession they practice.

The issue of the top athletes or elite tennis players and project managers personality characteristics correlation has not been studied in any way in the Czech Republic or Slovakia, which is evidenced by the absolute non-existence of not only professional monographs on this topic but also the absence of professional articles and outputs of scientific projects addressing this issue. Abroad, the situation appears to be rather similar; it was not possible to find scientific studies and outputs dealing with this issue in the Google Scholar databases; the same situation can also be seen in the SCOPUS and WoS databases. In this respect, since the topic presented in this paper is essentially unique and unexplored, we assume that our results will partially fill the gap between theory and practice in the context of the problem being solved.

The objective of our research is to find a set of personality characteristics typical for an elite tennis player and for a project manager of development projects, and to find out which personality characteristics of these groups are similar and which are different. We want to confirm the hypothesis:

**H:** The personality characteristics of an elite tennis player correspond to the demands of his profession, just as the personality characteristics of a project manager correspond to the demands of his profession, and there is demonstrably a correlation in the personality characteristics of elite tennis players and project managers, which corresponds to a correlation in the demands of these two professions.

Based on our assumptions, there is essentially no difference between managers and top athletes. Most top managers operate at the limit of their capabilities all day long. The environment of large companies is similar in many ways to the world of professional sports. There is intense competition in both, and a lot of physical and mental strength is needed to succeed. At work, just like in sports, intensive training and coaching are essential for success. And besides, the manager's job is like a tennis match; you have to play until the last ball.

## 2- Literature Review

### 2-1- Personality and Its Typology

The personality theory forms an extensive chapter in the field of psychology, with a number of different approaches and definitions. At the same time, different conceptions of psychology themselves lead to the existence of different definitions corresponding to these approaches. All the authors listed below agree on this. At the same time, it is assumed that all subsequent mentions of the personality that appear in this paper refer only to an adult personality or personalities to whom later chosen research methods can be applied, i.e., personalities from the age of 15.

The behaviorism understands the personality as *"a system of factors that determine an individual's behavior, or as a system of habits that express behavior"* [2]. This is based on the overall behaviorist understanding of psychology as the science of behavior.

The phenomenological approach understands psychology as the science of internal psychic phenomena (experience) and therefore also explains personality as *"the internal structure of the psychic properties that determine its behavior"* [2]. The difference between the scientific and philosophical concepts of personality also plays a role in both approaches, which is also confirmed by Houston et al. (2013) [3]. The psychology of personality results from the personality definition, but these are also very inconsistent, even within the same category of the given approach. The term personality in psychology describes the integrity of mental events [2]. Personality is understood as a so-called hypothetical construct, i.e., a term expressing an existing phenomenon, which, although not fully observable, is derived from what is observed, thus having a heuristic value. The concept of personality expresses *"an organized, dynamic, and inter-individually different set of psychophysical dispositions, determining the course and manifestation of psychological processes"* [2].

The construct is mentioned in the definition of personality in the very next source found: *"A hypothetical summary, a system of psychological characteristics that are biologically determined but are formed during the course of an individual's life in interaction with the environment"* [4]. Roberts & Yoon (2022) [2] also mention biological determination within the framework of personality theory. By belonging to a certain animal species, through physiological needs and bodily functions, a person becomes both a natural and a social being, as he satisfies his needs in culturally determined ways.

Houston et al. (2013) [3] also point out that the conflicting influences collide when thinking about the personality. Personality most often refers to *"the unity of psychological processes, states, and properties, the totality of internal determinants of experience and behavior"* [3]. The attributionists and supporters of the meta-individual theory of personality deviate from this definition, saying that *"personality is what we attribute to a person, what we consider him to be"* [4]. On the other hand, the psychologists, based on a scientific point of view, consider personality as an abstraction of the causes of the contents of consciousness and actions, thus essentially claiming that personality does not exist.

Alzeer & Benmerabet (2023) [5] also confirm the multitude of definitions and approaches to personality, and they define personality as *"the dynamic source of behavior, identity, and uniqueness of each person."* Buss (2015), in [6], says that *"personality is the overall organization of mental life; it includes all individual mental functions. It is an integrated system of a person's internal features and peculiarities, through which all external influences are refracted."* Hogan et al. (1997) [7] state that *"personality means the individuality, the difference of an individual from other individuals, especially (although not exclusively) from individuals of the same age and culture. In this sense, personality psychology is the science of individual differences (...)."*

Eysenck (1947) [8] writes that *"personality is the sum total of the actual and potential behavior patterns of an organism defined by heredity and environment; it arises and develops through the functional interactions of the four main sectors into which these patterns of behavior are organized: the cognitive sector (intelligence), the conative sector (character), the emotional sector (temperament), and the somatic sector (constitution)."* Furthermore, Eysenck (1947) [8] points out that any view of personality must be based on the experimental results treated with a statistical method, i.e., the given subject must be subjected to a personality diagnosis. The personality expresses the inner unity and structuredness of the mental life of each individual and is therefore the sum and integrity of the individual psychological phenomena in a person. The personality is *"the dynamic arrangement of those psychological systems in the individual that determine his unique adaptations to the environment"* [9].

Platt et al. (2020) [10] understand the personality as *"a set of properties characterizing the entire individuality of a specific person focused on the realization of life goals and developing their potential".* *"The personality is what makes it possible to predict what a person will do in a certain situation; it includes all the behavior of an individual, both apparent and internal"* [11].

Cakirpaloglu [12] translates Cattell's concept of personality as *"that which communicates how a person will behave in a given situation."* And based on the definitions of personalities by leading psychologists, she herself summarizes that *"it is a relatively stable, complementary, and consistent system of unique features of human contents and manifestations"* [12]. *"Personality is an individual's dynamic arrangement of such psychophysical systems that determine his characteristic behavior and thinking"* [13].

*"Personality represents those personality characteristics that explain consistent patterns of feeling, thinking, and behaving"* [14]. McClelland [15] says of personality that it is *"the most adequate conceptualization of human behavior in all its details"*. Also presents Funder's definition, which states that *"personality refers to an individual's characteristic patterns of thought, emotion, and behavior, together with the psychological mechanisms, hidden or not, behind these patterns"* [14].

Maslow's [13] definition of personality can sound rather complicated, probably because the author moves on the border between clinical and transpersonal psychology: *"A personality set of symptoms is (...) a structured and organized complex of apparently diverse specificities (behavior, thoughts, impulses to action, perception, etc.), which (...) have a common unity expressed by variously similar dynamic meaning, expression, "flavor", function, and intention."*

Jung (2001) offers a much more philosophical view of personality. He writes that *"personality is the highest realization of the innate idiosyncrasies of a certain living being. Personality is an act of life's greatest courage, an absolute acceptance of the individual being, and an act of successful adaptation to the universally given for the greatest possible freedom of one's own decision"* [16].

Weinberg & Gould [17] provide a rather austere definition: *"personality is the sum of those characteristics that make a person unique."* But they also offer four main perspectives on the study of personality within sports [17]:

1. **Psychodynamic Approach:** characterized by two motives. First, it emphasizes the unconscious determinants of behavior (what Freud calls the id) and instinctual drives and how they clash with conscious aspects of personality such as the superego or ego. Second, this approach focuses on understanding the person as a whole rather than identifying isolated traits or dispositions.
2. **Approach of Personality Characteristics:** assumes that the basic units of personality - characteristics - are relatively stable, i.e., that personality characteristics are permanent and consistent in a wide range of situations.
3. **Situational Approach:** claims that behavior is largely determined by the situation or environment.

**4. Interactional Approach:** considers the situation and the person as co-determinants, i.e., as variables that together determine behavior.

All the considerations and studies of the definitions of personality that are described above lead to their synthesis in the form of a working definition used in our research: *A personality is a specific living person presented by a set of typical personality characteristics resulting from his origin, upbringing, education, and overall social adaptation and resulting in a social position of a certain level of activity efficiency and relevant performance trends.*

However, personality can be compared not only from the individuality viewpoint but also from the typology viewpoint. As follows from the text above, a person becomes an individual on the basis of their unique personality characteristics, i.e., on the presence or absence of those particular characteristics. This is confirmed, for example, by the philosophical view of Neff [18], who sees the individual as: "... a thing that is aware of its individuality, that is self-confident (...), true individuality fully matured and unified in itself is a personality." Or of Warren in [19], who writes that the individual is "undivided, the individual being that cannot be further divided without losing its integrity (...) The individual means what is opposite to the general..."

Of course, the typology is of great importance for understanding individuation [19]. It is a method enabling the classification of systems of objects or phenomena [4]. The typological approach classifies personality according to the specific characteristics that are common to a certain group. The type of personality is considered to be a system of characteristics that occur together [6].

Personality typology is therefore the classification of individual personalities according to similar characteristics, and just as there are many approaches to personality theory, there are also many approaches to personality typology. The oldest and best-known theory is Hippocrates' and therefore Galen's typology, as well as Kretschmer's and Sheldon's somatotypology, Jung's typology, or Myers-Briggs Type Indicator®, and, last but not least, Eysenck's latest theory of temperament.

As the research carried out in our paper focuses on individual personality characteristics, not on their typology, and as a part of the research it is not planned to include additional typological testing, the approaches mentioned above are only presented in a more condensed form. The description of the approaches, albeit brief, will complete the overall framework of the topic of personality and facilitate its understanding in a broader, overall framework. The typological aspects of solving this topic are linked to the influence of the respective psychotype on the individual's personality profile in the context of its compliance with the demands of the relevant activity. This moment is used in the Discussion chapter, where the results are interpreted, among other things, based on a typological approach to human activity.

Hippocrates' and Galen's typology is the oldest. Authorship is attributed to Hippocrates; later, this theory was also represented by Galen [7]. It classifies people according to which of the bodily juices predominate in their bodies. For sanguine people, it is blood; for phlegmatic people, it is phlegm; for choleric people, it is bile; and for melancholic people, it is black bile [7]. As further stated in Hogan et al. [7], psychology now uses the label temperament for these groups of characteristics.

**Kretschmer's and Sheldon's Somatotypology** connects the human psyche with the physical and is based on the connection between types of body structure and nature, respectively, and the temperament of the individual. For Kretschmer (1921), it is a generally constitutional variant of psychophysical types, which are pyknic, athletic, and asthenic [2]. He then assigned temperament types to these types, namely cyclothymic temperament to pyknics, viscous temperament to athletics, and schizothymic temperament to asthenics [7]. Hogan et al. [7] refer to the asthenic type only as leptosoma. He does not use the label asthenic at all. He mentions the final term leptosom, but uses the term asthenic. Platt et al. (2020) [10] use both terms.

Sheldon (1940) identified the body structure types in a different way than Kretschmer, but the types he proposed are essentially identical to Kretschmer's. He labeled them: endomorph (the body is formed internally—fat), mesomorph (the body is formed externally—muscles), and ectomorph (the body is formed frugilely—nerves) [2].

**Jung's Typology and MBTI (Myers-Briggs Type Indicator®)** Carl Gustav Jung (1875–1961) derived eight personality types from three opposites, or bipolarity: extraversion (E) – introversion (I), thinking (T) – feeling (F) and senses (S) – intuition (N) [7]. These are the following personality types: extraverted thinking, introverted thinking, extraverted feeling, introverted feeling, extraverted intuitive, and introverted intuitive. The MBTI typology is based on a modified Jung's typology and identifies 16 personality types [7]. Isabel Myers and her mother, Kathryn Cook Briggs, came to similar conclusions independently of Jung when they created a usable empirical tool in the form of this questionnaire in 1953 [20]. Hogan & Blake [20] further state that they added a fourth to Jung's three bipolarities, i.e., inference (J) – perception (P), thus giving rise to types, which are further specified in Hogan & Blake [20].

**Eysenck's theory of temperament** was developed by Hans Jürgen Eysenck (1916–1997) in 1964 [21] based on his factor model of personality [2]. In his multi-scale questionnaire, Eysenck relates the factors of introversion (introversion-

extraversion) and neuroticism (stability-lability) to four classic temperaments [21]. It follows that EOD is based on Hippocrates, Galen, and Jung.

Personality theory was contributed at the beginning of the 20th century by most psychoanalysts: Freud described personality as the result of the ego's effort to control instinctive drives; Adler was interested in the effects of social forces on society; and Jung depicted personality as being shaped by the interaction of opposing innate tendencies (assertiveness vs. passivity, introversion vs. extraversion, etc.) and the conflict between experience and the "collective unconscious" [22]. However, the typical characteristics of the personality emerged only after many clinical sessions. The question therefore arises as to how to recognize individual personality differences and on the basis of which criteria to compare and differentiate the individual personalities. Better said, how do you measure personality? Hunt [22] offers several main possibilities:

- **Personal Records and History:** based on analysis of these sources. It tends to be good literature, but not good scientific method.
- **Interview:** the most common method of personality assessment, but the least effective.
- **Assessment by Observers:** by assigning the weight of individual characteristics on a scale. In the framework of personality assessment, it is neither considered a reliable nor a valid method.
- **Questionnaire:** the most common personality assessment tool.
- **Projective Tests:** consider unconscious processes as the main determinants of the personality.
- **Behaviour Sampling and Performance Tests:** based on observation and subsequent measurement and evaluation of the subject's behavior by an expert.

For the purposes of our research, the questionnaire method was chosen as the most appropriate due to its assumed highest efficiency and validity when testing elite tennis players and project managers. Hunt [22] describes the questionnaire as a quasi-objective method of personality assessment that presents everyday life situations. By asking questions, he finds out how the respondents would most likely behave. According to Scott & Marshall [23], it is a "research technique based on self-description (...)." As they state, the psychological questionnaires are most often used to determine personality characteristics; therefore, conscious attitudes and personality structure are analyzed, in contrast to the projective tests that probe unconscious processes. However, an experienced interpreter can also read deeper or hidden personality tendencies from a psychological questionnaire.

## 2-2-Correlation of Tennis and Management in Scientific Studies

Managers can learn from sport and its laws, as it is proven that sport strengthens an individual's intellectual abilities [24]. In addition, when playing tennis, an individual needs to use his vigilance and tactical thinking, which can generate new connections between nerves in the brain and thus support its development [25]. Other benefits accrue to individuals of all ages, from building confidence and self-esteem in children to reducing stress and maintaining cognitive abilities in adults and seniors. The benefits also include the development of positive personality characteristics, which are illustrated in the following table (Table 1).

**Table 1. Tennis Outperforms Many Other Sports in Development of Personality Characteristics**

	Tennis	Golf	Running	Weight-lifting	Inline Skating	Downhill Skiing
<b>Sociability</b>	Very high	Very high	Moderate	Moderate	Moderate	High
<b>Spontaneity</b>	Very high	Moderate	Low	Very low	Moderate	Very high
<b>Competitiveness</b>	Very high	Very high	High	Moderate	Low	Moderate
<b>Risk-seeing</b>	High	Moderate	Low	Low	Moderate	Very high
<b>Focused</b>	Very high	Moderately high	Very low	Low	Moderate	High
<b>Aggressiveness</b>	Very high	Low	Moderate	Very high	Low	Moderate

Tennis and soccer players have a higher perception of control than non-athletes, and tennis can help improve habits related to self-discipline and decision-making skills [25]. This is especially true for tennis players playing singles, because they are really alone on the court and have to make their own decisions, plan a strategy, or develop their innate self-discipline skills. The physical, mental, and emotional stress involved in playing tennis exerts more pressure on the player, which is related to stress management [25]. It is necessary for the individual to learn the techniques to deal with stress and to be able to manage situations, because stress can act as a strong stimulus for personal growth. Tennis players have been found to achieve higher extraversion and the will to win and to show less neuroticism, anger, anxiety, worry, confusion, obsessions, and depression than non-athletes. At the same time, higher scores in assertiveness, optimism, and

self-confidence were recorded in tennis players [25]. Tennis also teaches teamwork, honesty, respect, and overall sportsmanship [25].

Groppe & DiNubile [25] mention the power of ritual during the game. These are specifically rituals performed, for example, before a serve or a return, used to control the rhythm and cope with pressure. These same preparation skills can be transferred to entrance exams, managing a meeting, or handling an important presentation. At the end of the work, tennis is pointed out as a social activity in which players gather before and after the match. The connections the players make through tennis can, and often do, last a lifetime.

Kerr et al. [26] conducted research whose main source was the reversal theory. The research was conducted on a group of 44 Japanese female recreational tennis players aged 28 to 58 years. The objective of the research was to determine the changes in emotions and stress caused by their participation in sports activities. The Japanese tennis players participated in the research voluntarily and had to fill out two questionnaires as a part of the research, one five minutes before the game and one within five minutes after the end of the game [26].

Based on their primary reason for playing tennis, female tennis players were divided into two categories. The first category was classified as "serious" (telic) and included those participants who cited health, exercise, weight control, stress relief, or performance as their primary reason for playing tennis. The second group was called "hedonistic" (paratelic), and here the respondents stated fun or a challenge as the primary reason for playing tennis. In the research, there was a preponderance of women, who were more likely to have reasons falling into the "serious" category.

The research found no significant differences in changes in emotion and stress responses between those women who joined the research for serious or hedonic reasons. However, when individual emotions were examined, it was found that one pleasant somatic emotion, arousal, increased for both groups, but a truly significant increase was only seen in the "serious" group. The "serious" and "hedonistic" groups had different experiences with unpleasant emotions. Both groups experienced a decrease in overall levels of unpleasant emotions, both before and after the game. However, higher changes were seen in the "serious" group.

In both groups, a significant reduction in stress resulting from external environmental demands was evaluated. There is no doubt that "serious" group leisure experiences were enjoyable, characterized by increased arousal and reduced activity-induced unpleasant emotions.

Participation in tennis as a leisure activity had a clear therapeutic effect for this group and may have been part of a planned strategy for self-regulation of mood or affect (the pattern is less clear for the hedonic groups). Although the "hedonistic" group's experience was probably not unpleasant, participating in the tennis activities may have been less beneficial for them in terms of improved hedonic tone and affect than the "serious" group's experience, which could be because on this occasion the tennis activity was simply not very hedonistic and failed to provide the immediate sense of excitement and spontaneous fun that the hedonistic group was looking for.

The reversal theory proved to be a useful means of investigating leisure participation in this study. It shows that people playing tennis may have a different motivation for doing so, which makes them present their emotions in a different way. These emotions then influence the consequences that can occur for them through playing tennis.

In addition to their health, tennis thus promotes vigilance and tactical thinking in people, can have a positive impact on firming the trust and self-confidence in children, and enables stress reduction and the maintenance of cognitive abilities in adults and seniors. Other advantages include the strengthening of positive personality characteristics such as competitiveness, spontaneity, concentration, and sociability. Tennis players show signs of higher control than others. In addition, individuals improve habits related to self-discipline and decision-making skills. The fact that tennis also teaches teamwork, honesty, respect, and overall sportsmanship can also be considered a benefit. In addition, tennis players achieve higher extraversion and volition and are noted to score higher in vigor, optimism, and self-confidence.

### 3- Material and Methods

The research material comes from the archives of the Department of Management and Economics at DTI University and the Department of School Pedagogy and Psychology at DTI University, in cooperation with the University Sports Center of the Ministry of Education of the Czech Republic. Using the method of random selection, two research files were compiled from the long-term database of these subjects:

- A research set consisting of 25 elite tennis players at the level of the national team, Olympians, or medalists from European or world competitions. 10 women aged 16–33 years (average age 22.9 years, median 21 years) and 15 men aged 18–30 years (average age 22.6 years, median 22 years) were included in the research.
- A research group consisting of 25 project managers of development projects (project duration exceeding 1 year, budget of at least 1 500 000 euros, at least 5 interested parties, including one foreign, minimum experience of 10 years in project management). The companies in which the project managers work are both national and

multinational corporations and have min. 50 employees. One woman aged 47 years and 24 men were included in the research (age average 44.8 years, median 47 years).

There are different approaches to classifying personality types into groups according to common characteristics. The most famous are Hippocrates and Galen's typology, Kretschmer's and Sheldon's somatotypology, Jung's typology, the MBTI or Myers-Briggs Type Indicator® and Eysenck's Theory of Temperament.

However, this paper focuses on the investigation of personality as an individual. Multi-scale questionnaires, the so-called "Big Five" and the Cattell's 16 PF Test, are used for this. These questionnaires were created on the basis of exploratory factor analysis, which makes it possible to extract typical factors with the help of which personality diagrams can be made. These prove to be particularly beneficial for practical diagnostic work [27, 28].

To identify the individual characteristics of respondents in a group of elite tennis players and project managers, we decided to use Cattell's 16 Personality Factor Test (16 PF Test). It is a 16-factor questionnaire by Raymond B. Cattell, available on <https://openpsychometrics.org/tests/16PF.php> (see Appendix I). With this method, it is possible to define the specific personality characteristics of each of the tested respondents in accordance with the research objective. According to the 16 PF Test, personality is formed by a system of factors that determine its behavior in relevant situations and is defined by the formula  $P_{is} = s_{is}T_{1i} + s_{s2}T_{2i} + \dots + s_{sn}T_{ni} + S_sT_{si} + S_{sei}$ , where  $P_{is}$  is the individual's behavior in situation  $s$ ,  $T$  is a trait,  $s$  are the characteristics of the situation, and  $S_{sei}$  is the measurement error  $P_{is}$ .

The reason for choosing the 16 PF Test is its adaptation to Czech conditions and, consequently, in connection with the high number of factors, also the possibility of a comprehensive description of the given personality. Another indisputable reason for the application of this test is its online form, not only in Czech but also in English. Due to the date of its creation, higher verification in practice is also expected. This psychodiagnostic tool has been validated by many research studies, for example [29–31].

There is no time limit for filling out the questionnaire; the optimal time is 60 minutes. The tested respondent writes his answers on a special recording sheet. The resulting scores for individual factors are obtained using a special computer program. These results are then interpreted by a specialist in the field. The comparative analysis of the factors of individual personality characteristics obtained using the 16 PF Test allows not only to find out the specific personality characteristics in the selected reference group, but also to single out those characteristics that are similar in both groups or different. The results obtained by testing with the help of the 16 PF Test are further processed statistically using the method of correlation analysis, whereby the mutual relationship of the individual factors between the compared subjects is established. Statistical significance then determines the difference between certain indicators.

The comparison of the results obtained with the help of the 16 PF Test testing of elite tennis players with a group of project managers was carried out on the basis of the use of correlation analysis to determine the level of similarity of personality characteristics and on the basis of the statistical significance of differences in individual factors of personality characteristics to identify the differences between the group of project managers and tennis players. Specifically, the calculation of the rank correlation coefficient according to Spearman and the calculation of the t-criterion according to Student were used. The correlation coefficient and differences between indicators were calculated from the raw score of the test factors of the 16 PF Test. The questionnaire survey among tennis players and project managers took place in the period January–February 2023, with the personal participation of the researcher. The questionnaires were evaluated in March 2023.

Below we present the methodology process workflow flowchart (Figure 1).

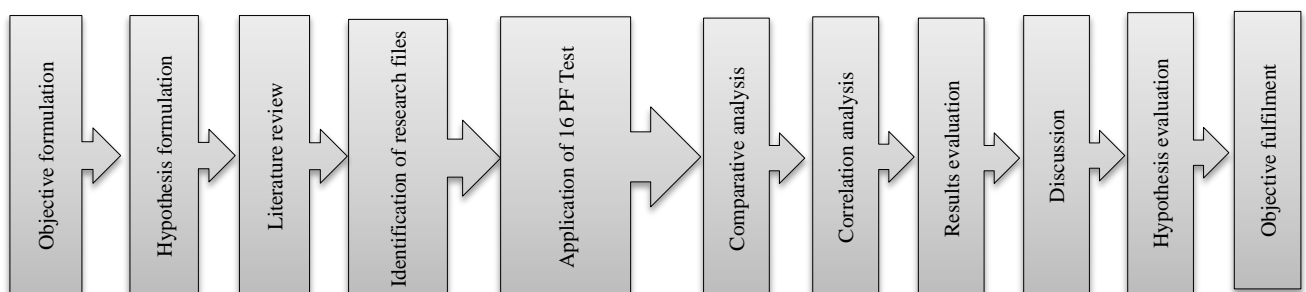


Figure 1. Methodology process workflow flowchart

## 4- Results

Table 2 below presents a comparison of the correlation between the personality characteristics of tennis players and project managers, where the  $x/K \cdot 100$  value is the percentage of all positive correlations out of all possible correlations.

**Table 2. Comparison of the correlation of personality characteristics of tennis players and project managers**

Description	Sum	x/K*100
Number of all tennis players and project managers - $n$	50	
Number of all possible correlations - $K(2,n)$	774	
Number of all positive correlations - $x$	384	49.6%
Number of all tennis players - $n_t$	25	
Number of all correlations in the group of tennis players - $K(2, n_t)$	213	
Number of all positive correlations in the group of tennis players - $x_t$	61	28.68%
Number of all possible correlations in the group of tennis players with the group of project managers - $K(n_t*n_{pm})$	398	
Number of all positive correlations in the group of tennis players with the group of project managers - $x_{tpm}$	175	43.92%
Number of all managers - $n_{pm}$	25	
Number of all possible correlations in the group of project managers - $K(2,n_{pm})$	174	
Number of all positive correlations in the group of project managers - $x_{pm}$	158	90.48%

Table 2 presents the sums of statistically significant (i.e., from the 5% significance level) correlation coefficients:

- Between the personality characteristics in the group of elite tennis players and project managers: 384 statistically significant correlation coefficients were found in the group, which constitutes 49.6% of the maximum possible sum of correlations,
- Between the personality characteristics in the group of elite tennis players: 61 statistically significant correlation coefficients were found in the group of elite tennis players, which makes up 28.68% of all possible correlations,
- Between the personality characteristics of the elite tennis players and project managers: 175 statistically significant correlation coefficients were found between the group of elite tennis players and the group of project managers, which makes up 43.92% of all possible correlations,
- Between the personality characteristics in the group of project managers: 158 statistically significant correlation coefficients were found in the group of project managers, which makes up 90.48% of all possible correlations.

The results of the correlation analysis show that the groups of elite tennis players and project managers differ significantly in terms of the sum of the statistically significant correlation coefficients. This sum can be considered an indicator of the internal consistency, togetherness, or solidarity of the group. There is a significant difference between the group of elite tennis players with their 28.68% statistically significant correlations and the group of project managers with 90.48% statistically significant correlations.

Table 3 presents a comparison of the differences in the personality characteristics of elite tennis players and project managers.

**Table 3. Comparison of differences in personality characteristics of elite tennis players and project managers**

Factor	$X_m$	$X_t$	$s_{pm}^2$	$s_t^2$	t	result
A	13,5687	10,5492	11,6489	7,1340	2,6325	divergent
B	10,2	9,2564	1,07	5,1523	1,2687	
C	17,9879	16,1231	8,1452	23,9856	2,2453	divergent
E	18,2	16,1845	18,2369	23,9651	1,6248	divergent
F	15,1639	14,6521	15,6974	19,0123	0,3695	
G	12,9654	11,2314	9,2654	14,1369	2,0023	divergent
H	19	12,9532	16,5	33,9523	3,1452	divergent
I	6	5	6,5	9	1,0563	
L	8,3659	11,4698	9,1356	11,6321	3,0002	divergent
M	14,6	13,6589	8,4263	4,5698	1,0639	
N	8,3	8,3456	6,1234	11,2356	0,0899	
O	5,6	8,5632	5,63	11,1345	3,8523	divergent
Q1	6,8796	8,6523	11,4563	2,9986	2,1102	
Q2	9	9,2456	6,1236	13,9687	0,0458	
Q3	14,6566	11,3654	7,5698	7,2341	3,1590	divergent
Q4	7,8	11,6302	6,1295	17,3644	3,6104	divergent



The result in the table is evaluated according to the t-criterion marked  $t$ , while at the level of 1% significance at  $t > 1.697$ , the resulting factor is different.

The item Factor in the table indicates the results of the individual primary factors of the 16 PF Test obtained by personality testing;  $X_{pm}$  – arithmetic mean of the values of the given factor in the group of project managers;  $X_t$  – arithmetic mean of the values of the given factor in the group of elite tennis players;  $s_{pm}^2$  – dispersion of the arithmetic means of all factors for the group of project managers;  $s_t^2$  – dispersion of the arithmetic means of all factors for a group of elite tennis players; and  $t$  is the Student's t-criterion.

Statistically significant differences (i.e., at the 1% significance level) between the individual factors of the personality test were found for nine indicators. Project managers show higher openness and ability to cooperate (factor A), more pronounced psychological resistance (factor C), and dominance (factor E). A higher level of reliability (factor G), adventurousness (factor H), and helpfulness (factor L), higher indicators of optimism (factor O) and self-control (factor Q3), and a lower level of the indicator of frustration (factor Q4) are also observed in project managers.

## 5- Discussion

The basis for the analysis of the results obtained in the research are the typological aspects of the personality characteristics of the persons under observation as well as the axiological aspects of their activity in the relevant area. This determines the conceptual framework for the interpretation of the results.

The typological characteristics of a person form a stable basis for his psychological (personality) characteristics. In this research, the basis of the analysis of the results is the typological theory of Eysenck with his four temperamental types (originally Hippocratic: choleric, sanguine, phlegmatic and melancholic), which are projected in the personality factors of the 16 PF Test, used in this research as a research tool. These are factors A, C, F, H, I, L, O, and Q4. In a certain way, the typology directs the formation of a person's personality characteristics, which are reflected in the personality profile.

The choleric type is characterized by high values of factors A, H, I, L, and Q4, while the sanguine type is characterized by high values of factors A, C, F, H, and O and low values of factors I and Q4. In the phlegmatic type of temperament, there are high values of factors C and F and low values of factors A, I, and Q4. Melancholic temperament is presented by high values of factors I, O, and Q4 and low values of factors A, C, F, H, and L. The demands of a specific profession on the effectiveness of an individual require a certain level of relevant personality characteristics corresponding to the content of this profession, its social orientation in the context of the culture of that company, and the regimes of this profession with respect to time and space conditions.

The demands of the profession on the personality characteristics of an individual oriented on the typological and personality characteristics of a person clash with his need for self-realization as a projection of the axiological aspect of human life and with the necessity of meaningful activity in which the nature of the individual is presented as an agent of his application in a certain area and as one of the conditions of achieving the relevant performance and maintaining an adequate level of efficiency.

Tennis is characterized by great demands on anticipation, speed of reaction, especially to changes in external conditions, and resistance to stressful influences. These claims, oriented to the typologically determined characteristics of the individual, correspond to the sanguine type of temperament, which is characterized by high values of factors A, C, F, H, and O and low values of factors I and Q4. In this discipline, it is also important to make quick decisions, to maintain perspective, and to have a holistic approach to the situation. These are personality factors far from having a typological basis, for which the high values of factors B, M, and Q2 are indicative (see Table 3).

In the group of project managers, a combination of personality profile factors is found, mainly corresponding to the sanguine type of temperament. They have high indicators of A, C, F, and H and low levels of factors I, O, and Q4. It is therefore a similar combination to that of elite tennis players; there is a high percentage of correlation links, 49.6%.

Higher internal consistency is evident in elite tennis players, and we see extremely high consistency in the group of project managers. This means that a group of project managers is characterized by a significantly higher compatibility of personality profiles than tennis players. In this way, the visible connections between the typological and personality characteristics of different groups and the demands on a person for the relevant profession with its specific content are established. In addition to the content of the profession, the level of performance achieved is also important in sport (especially elite) and the related effort, responsibility, social importance, etc. A comparison of a group of project managers with a group of elite tennis players confirmed a stronger connection between the similarity of their personality profiles and the regimes of their profession than with the content.

It is demonstrable that statistically significant differences between the individual indicators of the personality profiles of elite tennis players and project managers were found for all 5 factors of the 16 PF Test associated with the emotional sphere, i.e., less emotional stability (factor C), higher sensitivity (factor I), higher reliability (factor L), higher

uncertainty (factor O), and higher frustration (factor Q4). These differences apparently testify to the influence of emotional factors typical of sports and racing activities on the formation of personality in sports.

Differences in factors B, G, Q1, and Q3 are understandable with regard to higher demands on project managers' intellectual capacity (factor B) and reliability (factors G, Q1, and Q3), as well as a strong self-concept (factor Q3). The higher similarity of the personality profiles of elite tennis players to the personality profiles of project managers also confirms both higher internal consistency (39.1% positive correlations) and the second largest number of positive correlations with the group of project managers.

At the present moment, we are not able to make any comparison of the facts we found with existing outputs, studies, or research conclusions. As we mentioned above in our paper, the issue of the top athletes and project managers personality characteristics correlation has not been studied in any way in the Czech Republic or Slovakia, which is evidenced by the absolute non-existence of not only professional monographs on this topic but also the absence of professional articles and outputs of scientific projects addressing this issue. Abroad, the situation appears to be rather similar; it was not possible to find scientific studies and outputs dealing with this issue in the Google Scholar databases; the same situation can also be seen in the SCOPUS and WoS databases.

The only output dealing with a similar issue is the master's thesis of Rameš [32], the objective of which was to find a set of personality traits typical for particular groups of athletes and for a group of top managers and to determine which of the psychological characteristics of these groups are similar. This master's thesis found that there is some degree of correlation between the personality characteristics of sports shooters, aerial acrobats, skydivers, skiers, bodybuilders, and top managers.

A certain thematic correlation can be seen in Krause et al. [33] or Jaracz et al. [34]. However, these scientific studies deal with the identification of personality characteristics and their evaluation but not with their comparison across diverse industries, which is the case with our comparison between athletes and managers. The publication [35] can be included among the popular science articles bringing conclusions confirming our findings.

The author states that his company prefers the employment of athletes, the so-called "business athlete", precisely because of the assumption that athletes possess leadership qualities. This set of personality traits:

- They have the strength to carry out a task precisely, tirelessly, until they succeed in completing it. "Business athletes" are persistent - they hardly ever give up. They also have a good work ethic and the ability to cope with inevitable temporary inconveniences (in addition, they are able to intuitively sense to what extent it is still possible to ignore these inconveniences and their originators).
- Athletes achieve their goals. If one path to success is blocked, they will find another. When their physical strength is depleted, they learn how to work smarter, not harder. As they improve, they become more and more powerful.
- Athletes learn new skills. Even though athletes are narrowly focused on specific skills such as speed, blocking, or hand-eye coordination, they can adapt to situations that require abilities beyond their specialty.
- Athletes are good businessmen. When selecting new employees, you will probably find that "business athletes" are former or current entrepreneurs. While people in a large corporate environment may have only one specialization and may only take care of certain tasks, a "business athlete" is able to have a broader understanding of everything that is necessary for a company to flourish. He can think strategically and understands the broader perspective and long-term goals. At the same time, he knows how to turn the intended strategy into action.
- Athletes strive for balance. Too much fast food and too little sleep will not contribute to business health or winning performance. Their bodies need to be in peak condition, which is why athletes know they can't cheat and expect positive results. A true "business athlete" will respect the laws of balance between energy, health, sleep, and diet (including their implications for work), which will allow him to succeed not only in the moment but also in the long term.
- Athletes work excellently with partners and as a team. Athletes know how to utilize the unique and complementary strengths of each member of their team. They know that tripping a teammate or humiliating a partner will only lead to organizational collapse. In fact, athletes usually put the needs of other team members or their partner on an equal footing with their own, or even above them.

Not only on the basis of our personal experiences resulting from a long-term study of the problem being solved, but with the addition of the outputs of our research, we can claim that we identify with the above list of personality characteristics of an athlete that are fully applicable in the world of business, and our results confirm this.

We also agree with the statement presented in Schmidt [1]. The author of the post notes that "*the battle for the best talent has now spread to all industries. Companies are desperately looking for junior staff for increasingly demanding jobs. They compete not only with each other but also globally with technology giants like Google, Facebook, and*

*Amazon. That's why the recruiting managers at top universities step on each other's feet. And the need for high-performing employees will continue to grow in the future. Due to ever-increasing competition, companies are forced to rethink their recruitment strategies and find new ways to attract talent. One promising segment is often disregarded: former top athletes".*

Desmarais [36] mentions a generally known experience: how well a company performs directly correlates with the quality of its employees. But there's a particular trait hiring managers should be looking for when evaluating a job candidate's merits: Athleticism. That's according to Lisa Strasman, president of NCSA, an athletic recruiting network that uses big data, predictive analytics, and high-level data science to match high school student athletes with college coaches. Here are her words on why athletes make the best employees.

- They persevere. When the team is down at halftime, competitive athletes dig deep and find a way to win. When they struggle with performance, athletes will dedicate extra time to practice until they improve. Athletes are innately ingrained with the determination to achieve their goals. When they transition from the court to the boardroom, athletes take on corporate challenges with the same persistence. In the workplace, the best employees never give up and always find a way to overcome obstacles. Corporate athletes are relentless in their pursuit of success.
- They excel at time management: From a young age, athletes learn to handle a number of priorities, including school, sports, and social activities. From balancing rigorous practice schedules, classes, homework, tournaments, and travel, they are pros at time management and prioritization. This skill is essential for high productivity in the workplace and a great timesaver for managers who no longer have to check in or follow up on every task. Top employees are able to manage their days efficiently to meet deadlines and exceed expectations.
- They learn from failures: Nobody likes to lose, but in sports, someone always does. Athletes are familiar with the bitter taste of defeat. It's taught them to learn from failure, understand where to improve, and move on. Athletes often channel setbacks to fuel future performance. Similarly, in the workplace, employees regularly face setbacks. Great employees take the time to reflect on what went wrong, regroup, and apply their learnings moving forward. They display the mental toughness to remain poised and confident despite adversity.
- They are accountable: One of the first things you learn as an athlete is that every member of a team plays a distinct role, and each player must do their part for the team to win. When a play breaks down, an athlete will own it, look their teammates and coaches in the eye, and say, "my bad." They do not look around the locker room for others to blame. Athletes take responsibility for their mistakes and commit to better performance in the future. In corporate settings, this trait is key to building a healthy team culture. Inserting athletes into the company mix often helps diminish the politics and finger-pointing to create a more positive environment of accountability.
- They put the team first: Athletes understand that team goals always trump individual needs. Being part of a team means making a serious commitment to the group. Personal sacrifices come with the territory, whether it's giving up weekends for practice or maintaining a strict training diet. When athletes enter the workplace, they carry that same sense of commitment with them. They will stay late to help a co-worker meet a deadline or lend a resource to another department if doing so benefits the greater good of the organization. It's a behavior that's infectious, and when employees can all rally around company goals above personal objectives, organizations thrive.
- They are students of the game: There's an old saying many athletes know by heart, "Don't practice until you get it right; practice until you can't get it wrong." Athletes constantly strive to improve. They willingly spend nights watching game films and studying plays. They read books, attend camps and clinics, and pursue any knowledge that may help them improve their game. Top employees share this trait. They constantly seek ways to learn more about their role, company, and industry to raise their value to the organization.
- They can handle criticism: You won't get very far in sports or business without being coachable. Athletes are used to direct and often blunt feedback. They can handle private and public criticism and do not let it deflate them or impact their attitude. They don't overthink criticism or get defensive. Instead, they take constructive feedback and often apply it immediately. It's a very similar trait you'll find in top performers in the business world. Managers know they can provide direct and honest feedback to athletes without worrying about hurting feelings or losing productivity for the afternoon. Furthermore, athletes respond well to praise, often using it to motivate their continued growth. In short, everyone wins.

## 6- Conclusion

The personality traits typical of top athletes can be both helpful and obstructive at work: athletes are characterized by competition and are usually very focused on achieving their goals. The highly pronounced performance orientation (commitment) can also be a disadvantage on the job if it prevents you from weighing alternative paths on the way to your goal [1]. Because they are disciplined, former top athletes can be entrusted with challenging and demanding

activities without hesitation. Topics are reliably and conscientiously analyzed; planned and projects are worked through to the end. A high degree of discipline, however, also indicates a pronounced personal need for security. Many top athletes find it difficult to make decisions with uncertainty, which is a more than regular occurrence in the workplace.

In addition, top athletes are accustomed to constant feedback from training and competition results, they always feel the need to know where they stand in terms of performance. However, constant performance dialogues are not on the agenda in many companies. In the business world, individual performance is rarely objectively measurable and comparable, which can lead to uncertainty and frustration among athletes. Many former top athletes find it difficult to find out how managers see them and how they stand in comparison to their colleagues only once a quarter.

The ability to act in situations of high complexity and the competence to work on tasks intensively without always being able to penetrate them to the last detail are critical for success, especially in dynamic organizations. In the context of the solved problem and following the formulated hypothesis and the tasks related to it, it is possible to formulate the following conclusions in accordance with the obtained results.

- Personality testing of elite tennis players found a specific, typologically conditioned constellation of personality characteristics corresponding to the demands of their profession.
- The personality profiles of elite tennis players correspond to the requirements of maximizing performance to a greater extent than to the specifics of their profession.
- Testing the project manager's personality and comparing it with the personality of an elite tennis player revealed a certain correlation in the demands of their professions as well as a striking difference in the emotional sphere, which corresponds to the differences in the social and organizational demands of the professions of an elite tennis player and a project manager.

The above-cited conclusions allow us to say that the hypothesis was confirmed and that the research objective was achieved. The research dealt with personality issues in the context of the professions of an elite tennis player and a project manager. A comparison of the demands of these professions on a person and a comparison of personality characteristics results in the conclusion that the personalities of an elite tennis player and a project manager correlate, as well as a striking difference between them in the emotional area.

Due to the absolute lack of exact data comparing the personalities of managers and top athletes in the Czech Republic and Slovakia and in the context of the results of our research, we decided to subject this topic to a detailed investigation not only using the listing of topics for master's theses but primarily within the framework of scientific projects, specifically the EEIG project financed by the European Economic Chamber of Trade, Commerce, and Industry Brussel, the IGA project financed by the internal grant agency of DTI University, and the VEGA project financed by the Slovak scientific and educational grant agency of the Ministry of Education of the Slovak Republic.

## **7- Declarations**

### ***7-1-Author Contributions***

Conceptualization, S.C. and K.B.; methodology, S.C. and K.B.; investigation, S.C.; resources, K.B.; writing—original draft preparation, S.C. and K.B.; writing—review and editing, S.C. and K.B. All authors have read and agreed to the published version of the manuscript.

### ***7-2-Data Availability Statement***

The data presented in this study are available on request from the corresponding author.

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### ***7-5-Institutional Review Board Statement***

Not applicable.

### ***7-6-Informed Consent Statement***

Informed consent was obtained from all subjects involved in the study.

### 7-7-Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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## Appendix I

Table A1: Cattell's 16 PF Test

	Strongly disagree	Disagree	Neither agree not disagree	Agree	Strongly agree
I take time out for others.	Δ	Δ	Δ	Δ	Δ
I know that I am not a special person.	Δ	Δ	Δ	Δ	Δ
I take control of things.	Δ	Δ	Δ	Δ	Δ
I try to forgive and forget.	Δ	Δ	Δ	Δ	Δ
I keep in the background.	Δ	Δ	Δ	Δ	Δ
I can't do without the company of others.	Δ	Δ	Δ	Δ	Δ
I trust others.	Δ	Δ	Δ	Δ	Δ
I am not easily frustrated.	Δ	Δ	Δ	Δ	Δ
I cheer people up.	Δ	Δ	Δ	Δ	Δ
I often feel uncomfortable around others.	Δ	Δ	Δ	Δ	Δ
I seldom feel blue.	Δ	Δ	Δ	Δ	Δ
I dislike myself.	Δ	Δ	Δ	Δ	Δ
I take charge.	Δ	Δ	Δ	Δ	Δ
I let others make the decisions.	Δ	Δ	Δ	Δ	Δ
I believe in the importance of art.	Δ	Δ	Δ	Δ	Δ
I like to get lost in thought.	Δ	Δ	Δ	Δ	Δ
I wait for others to lead the way.	Δ	Δ	Δ	Δ	Δ
I am willing to talk about myself.	Δ	Δ	Δ	Δ	Δ
I find it difficult to approach others.	Δ	Δ	Δ	Δ	Δ
I enjoy my privacy.	Δ	Δ	Δ	Δ	Δ
I swim against the current.	Δ	Δ	Δ	Δ	Δ
I feel guilty when I say "no."	Δ	Δ	Δ	Δ	Δ
I am hard to get to know.	Δ	Δ	Δ	Δ	Δ
I don't talk a lot.	Δ	Δ	Δ	Δ	Δ
I believe in one true religion.	Δ	Δ	Δ	Δ	Δ
I am not easily annoyed.	Δ	Δ	Δ	Δ	Δ
I feel crushed by setbacks.	Δ	Δ	Δ	Δ	Δ
I am afraid that I will do the wrong thing.	Δ	Δ	Δ	Δ	Δ
I enjoy being part of a loud crowd.	Δ	Δ	Δ	Δ	Δ
I weigh the pros against the cons.	Δ	Δ	Δ	Δ	Δ
I do unexpected things.	Δ	Δ	Δ	Δ	Δ
I get angry easily.	Δ	Δ	Δ	Δ	Δ
I am quiet around strangers.	Δ	Δ	Δ	Δ	Δ
I don't mind eating alone.	Δ	Δ	Δ	Δ	Δ
I make people feel at ease.	Δ	Δ	Δ	Δ	Δ
I use my brain.	Δ	Δ	Δ	Δ	Δ
I have a good word for everyone.	Δ	Δ	Δ	Δ	Δ
I feel desperate.	Δ	Δ	Δ	Δ	Δ
I want to be in charge.	Δ	Δ	Δ	Δ	Δ
I feel comfortable around people.	Δ	Δ	Δ	Δ	Δ
I am the life of the party.	Δ	Δ	Δ	Δ	Δ
I don't let others discourage me.	Δ	Δ	Δ	Δ	Δ
I enjoy being part of a group.	Δ	Δ	Δ	Δ	Δ
I love to daydream.	Δ	Δ	Δ	Δ	Δ
I distrust people.	Δ	Δ	Δ	Δ	Δ
I worry about things.	Δ	Δ	Δ	Δ	Δ
I am not easily bothered by things.	Δ	Δ	Δ	Δ	Δ
I respect authority.	Δ	Δ	Δ	Δ	Δ
I do things that others find strange.	Δ	Δ	Δ	Δ	Δ
I skip difficult words while reading.	Δ	Δ	Δ	Δ	Δ
I feel comfortable with myself.	Δ	Δ	Δ	Δ	Δ

I am exacting in my work.	Δ	Δ	Δ	Δ	Δ
I tend to analyze things.	Δ	Δ	Δ	Δ	Δ
I continue until everything is perfect.	Δ	Δ	Δ	Δ	Δ
I believe that people are basically moral.	Δ	Δ	Δ	Δ	Δ
I am quick to judge others.	Δ	Δ	Δ	Δ	Δ
I am relaxed most of the time.	Δ	Δ	Δ	Δ	Δ
I enjoy silence.	Δ	Δ	Δ	Δ	Δ
I show my feelings.	Δ	Δ	Δ	Δ	Δ
I judge people by their appearance.	Δ	Δ	Δ	Δ	Δ
I prefer variety to routine.	Δ	Δ	Δ	Δ	Δ
I never challenge things.	Δ	Δ	Δ	Δ	Δ
I can't stand being contradicted.	Δ	Δ	Δ	Δ	Δ
I try not to think about the needy.	Δ	Δ	Δ	Δ	Δ
I am easily put out.	Δ	Δ	Δ	Δ	Δ
I prefer to do things by myself.	Δ	Δ	Δ	Δ	Δ
I get irritated easily.	Δ	Δ	Δ	Δ	Δ
I know the answers to many questions.	Δ	Δ	Δ	Δ	Δ
I trust what people say.	Δ	Δ	Δ	Δ	Δ
I like to stand during the national anthem.	Δ	Δ	Δ	Δ	Δ
I love flowers.	Δ	Δ	Δ	Δ	Δ
I find it hard to forgive others.	Δ	Δ	Δ	Δ	Δ
I leave my belongings around.	Δ	Δ	Δ	Δ	Δ
I feel others' emotions.	Δ	Δ	Δ	Δ	Δ
I let myself be pushed around.	Δ	Δ	Δ	Δ	Δ
I don't like crowded events.	Δ	Δ	Δ	Δ	Δ
I enjoy hearing new ideas.	Δ	Δ	Δ	Δ	Δ
I act wild and crazy.	Δ	Δ	Δ	Δ	Δ
I read a lot.	Δ	Δ	Δ	Δ	Δ
I try to follow the rules.	Δ	Δ	Δ	Δ	Δ
I enjoy wild flights of fantasy.	Δ	Δ	Δ	Δ	Δ
I use swear words.	Δ	Δ	Δ	Δ	Δ
I don't worry about things that have already happened.	Δ	Δ	Δ	Δ	Δ
I say what I think.	Δ	Δ	Δ	Δ	Δ
I am easily hurt.	Δ	Δ	Δ	Δ	Δ
I enjoy spending time by myself.	Δ	Δ	Δ	Δ	Δ
I don't mind being the center of attention.	Δ	Δ	Δ	Δ	Δ
I seldom get lost in thought.	Δ	Δ	Δ	Δ	Δ
I seldom daydream.	Δ	Δ	Δ	Δ	Δ
I suspect hidden motives in others.	Δ	Δ	Δ	Δ	Δ
I am not interested in abstract ideas.	Δ	Δ	Δ	Δ	Δ
I am easily discouraged.	Δ	Δ	Δ	Δ	Δ
I am not afraid of providing criticism.	Δ	Δ	Δ	Δ	Δ
I disclose my intimate thoughts.	Δ	Δ	Δ	Δ	Δ
I don't like action movies.	Δ	Δ	Δ	Δ	Δ
I want everything to be "just right."	Δ	Δ	Δ	Δ	Δ
I feel threatened easily.	Δ	Δ	Δ	Δ	Δ
I am the last to laugh at a joke.	Δ	Δ	Δ	Δ	Δ
I enjoy discussing movies and books with others.	Δ	Δ	Δ	Δ	Δ
I joke around a lot.	Δ	Δ	Δ	Δ	Δ
I have a poor vocabulary.	Δ	Δ	Δ	Δ	Δ
I dislike loud music.	Δ	Δ	Δ	Δ	Δ
I make insightful remarks.	Δ	Δ	Δ	Δ	Δ
I enjoy bringing people together.	Δ	Δ	Δ	Δ	Δ
I get chores done right away.	Δ	Δ	Δ	Δ	Δ
I reflect on things before acting.	Δ	Δ	Δ	Δ	Δ
I am not bothered by disorder.	Δ	Δ	Δ	Δ	Δ



I don't like to get involved in other people's problems.	Δ	Δ	Δ	Δ	Δ
I break rules.	Δ	Δ	Δ	Δ	Δ
I can take strong measures.	Δ	Δ	Δ	Δ	Δ
I love large parties.	Δ	Δ	Δ	Δ	Δ
I do not like poetry.	Δ	Δ	Δ	Δ	Δ
I believe that others have good intentions.	Δ	Δ	Δ	Δ	Δ
I leave a mess in my room.	Δ	Δ	Δ	Δ	Δ
I put off unpleasant tasks.	Δ	Δ	Δ	Δ	Δ
I oppose authority.	Δ	Δ	Δ	Δ	Δ
I resist authority.	Δ	Δ	Δ	Δ	Δ
I readily overcome setbacks.	Δ	Δ	Δ	Δ	Δ
I get confused easily.	Δ	Δ	Δ	Δ	Δ
I know how to comfort others.	Δ	Δ	Δ	Δ	Δ
I am open about myself to others.	Δ	Δ	Δ	Δ	Δ
I rarely notice my emotional reactions.	Δ	Δ	Δ	Δ	Δ
I amuse my friends.	Δ	Δ	Δ	Δ	Δ
I love to think up new ways of doing things.	Δ	Δ	Δ	Δ	Δ
I dislike works of fiction.	Δ	Δ	Δ	Δ	Δ
I do not enjoy watching dance performances.	Δ	Δ	Δ	Δ	Δ
I start conversations.	Δ	Δ	Δ	Δ	Δ
I make friends easily.	Δ	Δ	Δ	Δ	Δ
I often feel blue.	Δ	Δ	Δ	Δ	Δ
I counter others' arguments.	Δ	Δ	Δ	Δ	Δ
I am not interested in theoretical discussions.	Δ	Δ	Δ	Δ	Δ
I seek quiet.	Δ	Δ	Δ	Δ	Δ
I have frequent mood swings.	Δ	Δ	Δ	Δ	Δ
I learn quickly.	Δ	Δ	Δ	Δ	Δ
I rarely look for a deeper meaning in things.	Δ	Δ	Δ	Δ	Δ
I like to read.	Δ	Δ	Δ	Δ	Δ
I keep my thoughts to myself.	Δ	Δ	Δ	Δ	Δ
I try to avoid complex people.	Δ	Δ	Δ	Δ	Δ
I reveal little about myself.	Δ	Δ	Δ	Δ	Δ
I am not bothered by messy people.	Δ	Δ	Δ	Δ	Δ
I consider myself an average person.	Δ	Δ	Δ	Δ	Δ
I like order.	Δ	Δ	Δ	Δ	Δ
I avoid philosophical discussions.	Δ	Δ	Δ	Δ	Δ
I am annoyed by others' mistakes.	Δ	Δ	Δ	Δ	Δ
I cry during movies.	Δ	Δ	Δ	Δ	Δ
I am not really interested in others.	Δ	Δ	Δ	Δ	Δ
I believe that people are essentially evil.	Δ	Δ	Δ	Δ	Δ
I know how to get around the rules.	Δ	Δ	Δ	Δ	Δ
I seldom joke around.	Δ	Δ	Δ	Δ	Δ
I carry the conversation to a higher level.	Δ	Δ	Δ	Δ	Δ
I spend time thinking about past mistakes.	Δ	Δ	Δ	Δ	Δ
I talk to a lot of different people at parties.	Δ	Δ	Δ	Δ	Δ
I bottle up my feelings.	Δ	Δ	Δ	Δ	Δ
I want to be left alone.	Δ	Δ	Δ	Δ	Δ
I take an interest in other people's lives.	Δ	Δ	Δ	Δ	Δ
I am wary of others.	Δ	Δ	Δ	Δ	Δ
I enjoy teamwork.	Δ	Δ	Δ	Δ	Δ
I have little to say.	Δ	Δ	Δ	Δ	Δ
I believe laws should be strictly enforced.	Δ	Δ	Δ	Δ	Δ
I do things by the book.	Δ	Δ	Δ	Δ	Δ
I am open about my feelings.	Δ	Δ	Δ	Δ	Δ
I believe that people seldom tell you the whole truth.	Δ	Δ	Δ	Δ	Δ
I take deviant positions.	Δ	Δ	Δ	Δ	Δ