

CHOOSING AN ADAPTED TEST OF PERSONALITY FOR GOVERNMENT EMPLOYEE

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Abstract- The objective of this study is to carry out a survey of personality tests and then analyze and categorize them in order to choose which tests to be applied to government employees in Morocco. A survey was conducted on the different adult personality tests, which brought to light the tests that are the subject of published studies with a significant influence factor and which are most used in the field of personality assessment. The selected tests were classified according to the method, type, duration, number of items and the dimensions assessed. Then, a multicriteria analysis was performed to find out the most appropriate test for our study. This tests survey showed that the appropriate tests for assessing the personality of public employees are the Big-Five, Myers-Briggs, DISC, ENNEAGRAMME and IPIP.

Keywords Psychometry; Personality Tests; Government Employee; Multi-Criteria Analysis.

1. INTRODUCTION

Personality tests, which are a field of psychometrics, are useful tools to measure the way an individual views his or her environment and relationships. These tests aim to spot the anomalies regarding personality and behavior so that it could be possible to fix them. However, a large number of tests have been used whose results varied from satisfactory to unsatisfactory. The purpose of our study is to analyze and categorize these tests of personality in order to choose which test to apply to government employees in Morocco. A survey concerning the different personality tests for adults has been done, and it brought to light the tests that are the subject of published studies with a significant impact factor. The selected tests were classified by method, nature, duration, number of items and the evaluated dimensions. Afterwards, a multi-criteria analysis has been done in order to bring to light the most appropriate test to our study. The elaboration of personality tests has often focused on selecting the right employees for the company in order to maximize performance. However, little attention has been given to testing the personality of the already employed.

That an employee is good for the organization for which he or she works is not a sufficient condition that the work environment has no negative impact on the

employee's wellbeing. The private sector is often given a priority in most of personality testing. This study instead focuses on the employees of the public sector. First, the study aims to review the most used tests in employment processes and afterwards proceeds to select the appropriate test for the analysis of the personality of public employees. The main rationale for doing so is to determine the psychological traits that, on the one hand, make public employees more productive, and, on the other, have a certain level of wellbeing in their work environment. It is, then, worthy of highlighting what I want to test so we select the appropriate test to answer and understand the personality of public employees.

Employees of the public sector seem to suffer from a lack of incentives to perform their duties as their mandates dictate. Why public employees are, to a greater or lesser degree, unmotivated, don't perform their tasks as duly as possible, is a concern to the performance of the public sector, and hence to society as a whole and to the wellbeing of public employees themselves. Thus, this study will seek to identify the proper test that will enable finding the personality traits that are likely to be enhancers of workplace satisfaction. Against this backdrop, selecting the appropriate personality assessment and hence, gaining a better understanding of the underlying causes of the dissatisfaction in the workplace, can shed light on the potential measures that can be put in place to remedy these problems and hence improve the performance of the public sector. Section two details the rationale behind post-employment personality assessment of public employees. Section three highlights some stylized facts of psychological testing. Section four gives a comparative analysis of Personality assessment tests. Finally, section five gives the results and concludes.

1.1. Why Post-Employment Personality Assessment of Public Employees?

Jarden point out that the rapid change in the workplace [1], spurred by technological progress, social media and the will to a certain level of wellbeing in the workplace has revived interest in post-employment personality assessment. Traditionally, work has been merely a means to secure one's needs. Now that the increase in per capita income in most of the world economies has increased

dramatically, workers are more and more seeking more enjoyable work environments. In other words, work must not merely be a source of income, but also a source of wellbeing - if not a source of discomfort and psychological suffering. For instance, Laloux emphasized the need to restructure organizations in order to enhance the wellbeing of employees in the workplace [2].

The argument that there is an urgent need to improve the happiness of workers/employees [3,4]. In these regards, the will to create a positive work environment is not only of interest to the employees, but also to employers. Research has shown that wellbeing at the workplace is beneficial to the employees, the organization and broad society [5]. Investing in wellbeing at the workplace has significant returns to the organization, for instance, Goetzel and Ozminowski (2008); Rath and Harter (2010) find that for each monetary unit invested in enhancing wellbeing in the organization, it yields a return ranging from 3 to 5 dollars [6,7]. To this end, the selection process of the psychological assessment of the current study will seek to focus on the traits that are likely to make employees of the public sector more likely to enjoy the workplace.

2. PSYCHOLOGICAL TESTING

Psychometrics refers to the scientific measurement of cognitive processes and behavioral tendencies. A psychometric assessment serves the purpose of quantitatively evaluating an individual's mental performance and conduct [8]. Initially, psychometric tests were primarily employed in academic and psychological contexts. However, their application has now expanded to the realm of employment, enabling employers to effectively assess and select the most competent candidates from a pool of applicants. In this context, the psychometric properties of a test play a crucial role in providing valuable information regarding its suitability, significance, and validity. These properties serve as indicators of the test's ability to perform its intended function optimally. For instance, in the case of diagnosing schizophrenia, the psychometric characteristics of the test should offer substantial evidence supporting its efficacy in accurately identifying and evaluating the complexities associated with the mental disorder.

3. CHARACTERISTICS OF A PSYCHOMETRIC TEST

The psychometric properties of a test play a pivotal role in determining its appropriateness, validity, and relevance. In the context of identifying a mental disorder, the psychometric properties of the test should furnish substantial evidence to support its claimed purpose [8]. A robust psychometric test is characterized by two fundamental attributes: reliability and validity. Reliability denotes the test's ability to yield consistent and stable measurements. If the test demonstrates reliability, repeated administrations of the test should yield similar outcomes even after a considerable time lapse, such as six months [9]. However, a potential issue with test reliability arises when the same individual recalls the questions from a

previous administration, which may result in measurement errors. The second essential psychometric property is validity, which determines the extent to which a test accurately measures what it purports to measure. Consequently, the test results should align consistently with the intended objectives of the test, ensuring that it accurately captures the construct it claims to assess [9].

Psychometric properties are instrumental in evaluating the suitability, validity, and significance of a test. For instance, in the context of identifying mental disorders, the psychometric properties of the test should offer substantial evidence to support its claims and assertions [9]. A robust psychometric test necessitates two fundamental attributes: reliability and validity. Reliability ensures consistent and stable measurement, indicating that repeating the test even after a considerable interval, like six months, would yield comparable results. However, test reliability may be compromised if individuals recall the questions from previous administrations, potentially introducing measurement errors. The second critical psychometric property is validity, which ascertains the extent to which a test accurately measures its intended construct. Thus, the test outcomes should consistently align with the test's objectives, ensuring that it effectively captures the specific traits it claims to evaluate [10].

- Impartiality: The test should not require subjective evaluation.
- Consistency: The outcomes of the tests should be reliable and steady.
- Authenticity: The test should effectively accomplish its intended purpose.
- Standards: Norms represent the average performance on a specific psychometric test.
- Viability: The test should be practical, avoiding excessive length or complexity in answering.

3.1. Psychometric Characteristics of a Good Personality Assessment Test

An effective personality assessment test should possess specific psychometric characteristics. These characteristics are utilized in questionnaires, scales, and specialized tests to gauge personality traits and tendencies. The psychometric characteristics of a good test comprise:

- Internal coherence: The interconnectedness among the test items.
- Reliability: The accurate measurement of personality traits, accounting for individual differences.
- Measurement error: Systematic errors in the results that are unrelated to the specific variable or concept being measured.
- Face validity: The test accurately measures the intended construct.
- Structural validity: The test scores effectively capture the multifaceted aspects of the construct under assessment
- Cross-cultural validity: The test's performance reflects that of the original version across different cultures.
- Criterion validity: The test results correspond to the established gold standard.
- Responsiveness: The test is sensitive enough to detect changes over time.

3.2. Projective vs Objective Personality Tests

3.2.1. Projective Tests

Projective tests or projective procedures is a term for a group of tests in which the mechanism or the dynamic process of projection takes place for the formation of the reaction of the test taker to the test stimulus. The projective procedures or projective tests thus presuppose that the subject projects his attitudes, motives, personal characteristics, etc. into the interpretations and designs he has to make in the test. The clinician then infers from the content and reactions projected into the test templates the characteristics, problems, needs, etc. Such inferences are sometimes direct and analogical; in carefully constructed and reviewed procedures, they are empirically valid [11]. The development of projective methods can be seen as a countercurrent to the psychometrically oriented diagnostics at the beginning of the 20th century with its emphasis on cognitive abilities and the reduction of personality measurement by means of personality questionnaires on the basis of analytically obtained characteristics. In projective procedures, instead of measuring the achievement in a test and measuring the modal -or usual- behavior in the questionnaire, the open response option is offered. Before the appearance of the Rorschach test in 1921, projective techniques were used in psychoanalysis (e.g., in memory research) as well as in perception experiments and for a long time there was no comprehensive theoretical justification for the projective procedures. Such a methodological justification was given by Frank [12, 13] through emphasizing the complex structure of the individual with their dynamic activities in their social environment. Individuals are organisms of nature; they are members in their social world and have an inner world of their own. According to Frank, there are parallels to the methods used in biology and physics to those used for the study of personality

According to a common classification, a distinction is made between (1) shape interpretation procedures (e.g., Rorschach test, shape interpretation test, Holtzman inkblot technique (HIT)), (2) verbal supplementary procedures (e.g., thematic apperception test (TAT)), (3) color tests (e.g., color pyramid test, color selection procedure), and (4) drawing procedures (e.g., tree test according to Koch (BT-K)). A comprehensive and general statement about the psychometric quality of projective methods is not possible for several reasons (quality criteria). On the one hand, projective procedures are extremely heterogeneous as a test form. This in turn means that the available statistical procedures for test quality evaluation cannot always be applied. On the other hand, even projective procedures, which are available in standardized versions, have been modified in the course of their long tradition and are often additionally modified during their application. It further follows that the test scores which are included in the test quality evaluation are not readily comparable. A further problem, which does not only concern the projective procedures, is seen in the fact that many

investigations to the test quality evaluation were not put on with this goal, but originate from different application causes. Using the Rorschach test as an example, some quality criteria can be demonstrated. The objectivity is present with the logging and with the signing of contents. The so-called determinants show a high assessor variance. Retest coefficients (retest method) turn out very differently. On the level of the single characteristics of the test protocols the validity is estimated as unsatisfactory.

3.2.2. Objective tests

According to Schmidt [14], objective personality tests can be classified as follows. "Objective tests for personality and motivation assessment are procedures that directly record the behavior of an individual in a standardized situation. The procedures are not intended to provide the subject with any visual stimuli. [16] to be considered an objective test, the objective procedures must also meet the procedures that satisfy the usual quality criteria of psychological tests".

Objective personality tests should therefore be designed in such a way that the test template, as well as the answer design, do not permit any falsification on the part of the test subjects and the transparency of the measurement principle is guaranteed. Kubinger addresses the fact that the term "objective personality test" has changed from the original concept, which is predominantly associated with the name R.B. Cattell [15-17]. According to Kubinger, "objective personality tests" aim at registering work and process behavior in the processing of theory-based tasks [17]. The underlying concept thus corresponds to a "systematic observation of behavior under experimentally varied conditions". He uses the term "experimental psychological behavioral diagnostics" in connection with this concept [17] and defines it as a "technique", which refers to procedures "that infer personal style characteristics from observable behavior under experimentally varied performance requirements, with the registration of the way the problem is handled being done by the computer" [17].

4. METHOD OF THE SELECTION PROCESS

The sample contains 20 personality tests whose characterizing elements are identified (Table 1). A multi-criteria analysis has been done to the sample: according to our case study, we applied an exclusion criterion for the tests that don't meet with the criterion « Auto-Evaluation » and therefore the tests that are taken into account are only those that don't require a specialist for evaluation. Then, the tests that meet these criteria are compared in terms of age, duration, number of questions and evaluated dimensions. The data collection is based on the comparison of the variables mentioned above and led to the results hereafter. All the tests hereinafter are derived from standard textbook on personality assessment and thus reflect the most used personality tests in psychology.

Table 1. descriptive analysis of the selected tests

| Personality assessment Test | Duration | Items |
|---|----------------------------|---|
| Le Rorschach | From 30 minutes to 2 hours | 10 plates each representing a symmetrical ink stain varying in complexity (5 black and white, 2 two-color and 3 polychrome) |
| Thematic Apperception Test TAT | From 1 to 2 hours | 20 plates (drawings, photos, engravings presenting ambiguous situations: ex: naked man hanging from a rope). The subject must imagine a story from each plate) |
| Children Apperception Test (Bellak, 1973) | | 10 plates, animal figures only |
| Rosenzweig picture Frustration test | 20 minutes | The test is presented as a series of twenty-four drawings, each representing two characters placed in a situation of current frustration. In each drawing, the character on the left is represented as saying a few words that describe either the frustration of the other individual or his own frustration. The character on the right always has an empty space above him, intended to receive his words. The response can be extra-punitive, intra-punitive or a punitive. |
| The village test of Arthus (1939) revisited by Mucchielli. | variable | Build a village from 132 elements (houses, fences, trees, etc.) |
| Holland's test RIASEC | 20 minutes | 300 |
| Myers-Briggs test | 12 minutes | 93 |
| Minnesota Multiphasic Personality Inventory-2- Restructured Form (MMPI-2RF) | 90 minutes | 567 |
| The 16 PF | 35-50 min | 185 |
| The Guilford-Zimmerman test | One hour maximum | 300 |
| The big Five | 15 minutes | 45/186 |
| California Personality Inventory (CPI) | From 45 to 60 minutes | 434 |
| Eysenck Personality Inventory | Few minutes | 57 |
| Jackson personality inventory | 45 minutes | 300 |
| Millon Clinical Multiaxial Inventory 3 | From 25 to 30 minutes | 195 |
| The PER personality test | 30 minutes | 166 |
| The NEO-PI-R | 30-40 | 300 |
| International Personality Item Pool (IPIP) | 10-20 | 120 |
| The DISC personality test | 15 minutes | 50 |
| PROCESS COM (Inventory) | 45 minutes | 45 |
| ENNEAGRAMME | 7 minutes | 90 |

5. RESULTS

5.1. Exclusion Criterion

Two methods applied to the personality tests have been distinguished in our sample: the projective and the objective methods. Thus, the reference of the selected tests consists of 4 projective tests and 16 objective tests. According to the multi-criteria analysis, the sample was reduced to the objective method tests after applying the exclusion criterion. This is partly due to the ease of administering objective method tests and the fact that there is no need for a clinician to evaluate each individual. Excluding the projective method tests, there are 16 tests remaining out of the 20 listed above: Holland RIASEC, Myers-Briggs, MMPI and MMPI-2, 16 PF, Guilford-Zimmerman, Big Five, CPI, Eysenck Personality Inventory, Jackson Personality Inventory, Millon Clinical Multiaxial Inventory 3, PER, NEO-PI-R, IPIP, DISC, PROCESS COM, and ENNEAGRAMME.

5.2. Comparison in Term of Duration

It is well known in the literature that the length of a test increases its reliability and validity. However, administering lengthy tests can be challenging, and subjects are often discouraged from volunteering to take them. Additionally, it is important to note that individuals' concentration may decrease beyond a duration of 20 minutes. In terms of duration (refer to Figure 1), the comparison resulted in an average of 32 minutes, a median of 28.7 minutes, and a significant standard deviation of 18 minutes. Regarding the comparison in terms of the number of questions, it revealed an average of 203 questions, a median of 175 questions, and a standard deviation of 123 questions.

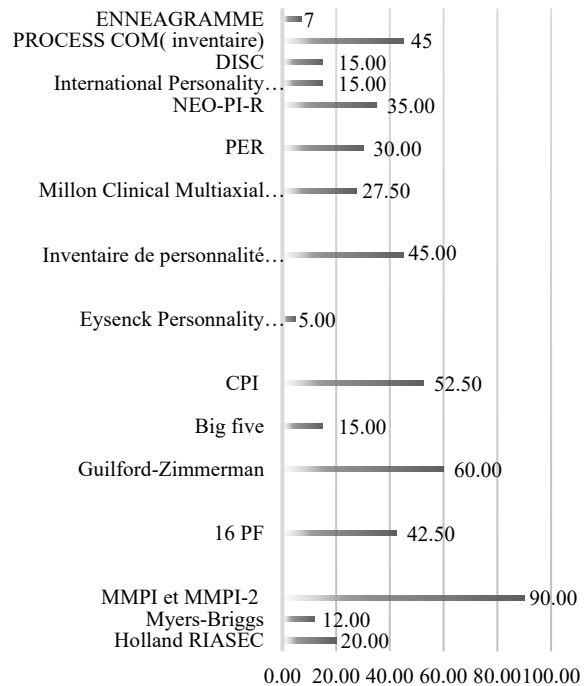


Figure 1. Selected tests duration (in minutes)

Our survey has shown that the majority of the selected tests exceed the 20-minute limit we have set. We chose to limit the selected tests to 20 minutes to avoid discouraging public employees from voluntarily participating and also to take into account the potential decrease in concentration beyond this duration. Among the tests that meet this criterion (less than 20 minutes), we have included: ENNEAGRAMME, DISC, IPIP, Eysenck Personality Inventory, the Big Five, Myers-Briggs, and Holland.

5.3. Comparison in Term of Number of Items

Tests that encompass an excessively high number of items not only consume a considerable amount of time for completion but also pose a significant deterrent for public employees to voluntarily undertake them. Consequently, as part of our test selection criteria, we have specifically limited the number of items to a maximum of 150. This criterion ensures that the chosen tests strike a balance between comprehensive assessment and practical feasibility. Among the tests meeting this criterion are: Myers-Briggs, Big Five, Eysenck Personality Inventory, IPIP, DISC, Process Com, and ENNEAGRAMME (Figure 2).

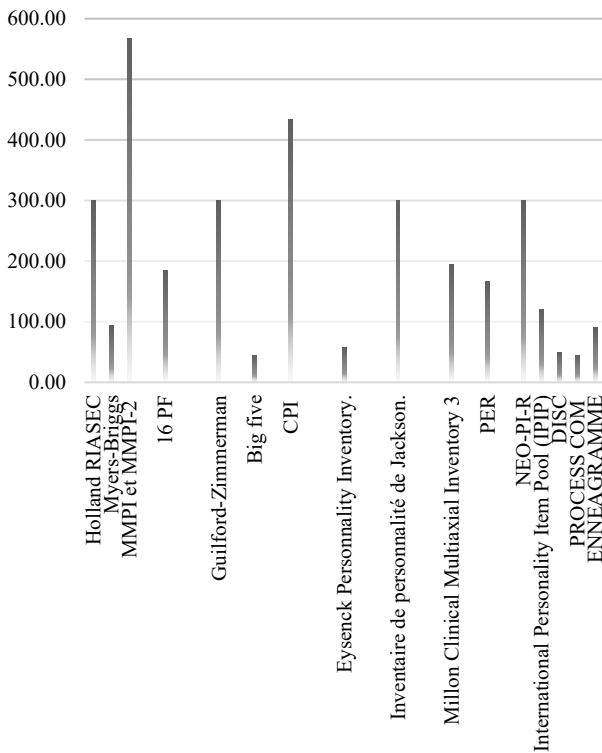


Figure 2. Number of items of the selected tests (Source: Authors)

5.4. Comparison in Term of Number of Items

The comparison in terms of evaluated dimensions reveals the presence of two distinct groups of tests. The first group focuses on evaluating the types of personalities and determining their profiles, such as realistic, dreamer, influential, conscientious, hard-working, loyal, and so on. The second group, on the other hand, assesses specific dimensions or traits of personality, such as introversion, anxiety, sense of responsibility, and conscience.

Our selected tests must also capture certain dimensions that are crucial in assessing the suitability of public employees for their duties. These dimensions include administrator, consciousness, conscientiousness, responsibility, and loyalty. To ensure comprehensive evaluation, we have included the following tests that measure these dimensions: Myers-Briggs, Big Five, Jackson Personality Inventory, NEO-PI-R, IPIP, DISC, and Enneagramme (refer to Table 2).

After applying the exclusion criteria, which include limiting the test duration to 20 minutes and the number of items to less than or equal to 150, it was also necessary for our selected tests to capture specific dimensions such as administrator, consciousness, conscientiousness, responsibility, and loyalty. This means that our tests must assess these key aspects to meet our selection criteria. In this regard, we have chosen tests that fulfill these requirements. Among them, we consider the Big Five, Myers-Briggs, DISC, and IPIP, along with the traits they measure, to be the most suitable for our purpose. These tests have been selected taking into account their compatibility with the duration and item criteria, as well as their ability to evaluate the specific dimensions we are interested in.

Additionally, the Enneagram is also important as it allows for measuring loyalty, which is a crucial trait we seek to assess. It is worth noting that the IPIP measures traits that are already included in the Big Five, further enhancing their relevance to our study. Therefore, by combining these tests, we aim to obtain a comprehensive and accurate evaluation of the skills and traits that are pertinent to our research on public employees. This tests survey showed that the appropriate tests for assessing the personality of public employees are: Big-Five, Myers-Briggs, DISC, ENNEAGRAMME and IPIP.

6. CONCLUSION

Assessing the personality of public employees is of vital importance to remedy some of the problems that prevail in performing the duties of public employees. To this end, our study aimed to compare the personality tests in order to choose the appropriate test to apply to the government employee. A survey that we carried out on the basis of the different adult personality assessments, took into account only the tests that are of significant reputation in personality assessment in the workplace and that are the subject of published studies with a significant influence factor. The selected tests were classified according to the method, type, duration, number of items and the dimensions assessed. This survey resulted in 20 categorized personality assessment- tests including 4 projective tests and 16 objective tests. Only five tests meeting the selection criteria of the study have been chosen in conducting the studies of personality among government employees.

Table 2. Evaluated Dimensions (Source: Authors)

| Test of Personality | Evaluated Dimensions |
|-------------------------------|--|
| Holland RIASEC | The Holland test evaluates six primary personality types, namely: Conventional, Investigative, Social, Artistic, Realistic and Enterprising. |
| Myers-Briggs | The MBTI questionnaire evaluates your psychological profile with regard to 4 pillars: * The unconscious decision-making process: sensation intuition * The conscious decision-making process: thinking feeling * The energy: extroverted/introverted * The process of analyzing the outside world: judgment/perception The combination of these 4 components makes it possible to distinguish 16 types: of personality: The manager; The promoter; The good; The actor; The entrepreneur; The inventor; The animator; The psychologist; The administrator; The maker; The protector; The artist; The organizer; The researcher; The idealist; The adviser. |
| MMPI et MMPI-2 | The MMPI evaluates ten clinical dimensions, which include: Paranoia, Depression, Psychasthenia, Hypochondriasis, Psychopathic Personality, Masculinity-Femininity, Hysteria, Hypomania, Social Introversion and Schizophrenia |
| 6 PF | The test evaluates your personality according to the following five factors: Extraversion; Anxiety; Toughness-Intransigence; Independence; Self-control. |
| Guilford-Zimmerman | 10 bi-polar traits: General activity (fast or slow); Constraint (serious vs reckless); Ancestry (leader vs submissive); Sociability (extraversion vs introversion); Objectivity (sensitivity, altruism vs egocentric); Benevolence (conciliatory vs hostile, confrontation); Reflection (reasoning vs action); Masculinity (masculinity-femininity) |
| Big five | * Extraversion: seeking stimulation, sociable and impulsive behavior, self-assurance, need for contact, dynamic, active. * Friendliness: quality of relationships with others, altruism, benevolence, conflict avoidance. * Conscience: respect for social norms, responsible, conscientious. * Emotional stability: resistance to stressors, little embarrassment, no anxiety, little insecurity, little mood swings. * Opening mood |
| CPI | 5 personality traits are particularly targeted: Dominance; Empathy; Sense of responsibility; Tolerance; Flexibility. |
| Eysenck Personality Inventory | The Eysenck personality test measures two major structuring and independent dimensions of personality: Extraversion-Introversion; Neuroticism-Stability. |
| Jackson personality inventory | The JPI-R includes a total of 15 scales, which are grouped into five main clusters: Analytical Cluster: This cluster encompasses four scales, namely, Breadth of Interest, Complexity, Innovation, and Tolerance. Extroverted Cluster: Within this cluster, three scales are included: Social Confidence, Sociability and Energy Level. Emotional Cluster: The Emotional cluster comprises three scales: Anxiety, Empathy and Cooperativeness. Opportunistic Cluster: This cluster focuses on two scales: Risk Taking and Social Astuteness. Dependable Cluster: The Dependable cluster consists of three scales: Responsibility, Organization and Traditional Values |

| | |
|--|---|
| Millon Clinical Multiaxial Inventory 3 | The assessment tool evaluates various clinical syndromes across ten categories, which include dysthymia, anxiety, bipolar, somatoform, alcohol use, schizophrenia, depression ... Additionally, the tool also screens for fifteen personality disorders, which narcissistic, histrionic, compulsive, avoidant, schizotypal, encompass schizoid, melancholic, dependent, turbulent, antisocial, aggressive/sadistic, negativistic, borderline, paranoid and masochistic. |
| PER | The PER personality test is a computerized questionnaire that aims to assess 6 major dimensions of an individual's personality: Self-acceptance; Anxiety; Autonomy; Dynamism; Relations with others; Emotional stability. |
| NEO-PI-R | Neuroticism // Openness to experience / Agreeableness / Conscientiousness |
| International Personality Item Pool (IPIP) | Neuroticism / Extraversion/ Openness to experience / Agreeableness / Conscientiousness |
| DISC | Dominant, Influential, Stable and Conscientious. |
| Process- Com | Rebellious; Persevering; Empathetic; Workaholic, Dreamer; Promoter. |
| Enneagramme | Nine personality types: The perfectionist; The altruist; The beater; The romantic; The observer; The loyal; The epicurean; The protector; The mediator |

These selection criteria for tests can be summarized by four essential elements. Firstly, tests that require professional assistance are excluded due to the difficulty of implementing such methods in administrative settings and their high cost. Secondly, tests that take more than 20 minutes are also excluded, taking into account the workload of the officials and their average concentration span. Thirdly, long tests exceeding 150 items are excluded, considering the limit to which officials may become bored or fail to complete the responses. Finally, among the tests that meet these criteria, the fourth condition is to include tests that directly or indirectly assess professional consciousness, responsibility, and loyalty. After applying all these filters to the sample of tests we have compiled, it has resulted in the following list of tests to evaluate the personality of public employees: Myers-Briggs, Big Five, International Personality Item Pool, DISC, and ENNEAGRAM.

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