The objective assessment of personality: Cattells's T-data revisited and more[1]

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Abstract

The traditional assessment of personality based on individual's self-report suffers from a series of limitations which encumbers the capacity to predict people's future behavior. On the one hand, it makes equal the information that people offer about themselves and how they really behave. On the other hand, it does not take into account the fact that the behavior of any one person in a structured situation is determined, fundamentally, by the contingencies of that very situation.

The aim of this study is to offer an alternative to personality assessment by means of questionnaires, picking up on the Cattell's tradition to assess personality by means of objective tests. Three examples of objective tests are presented here for the assessment of risk tendency. The three tests developed for this purpose have shown satisfactory levels of reliability and validity that support the use of this kind of instruments, particularly in contexts such as personnel selection.

Key words: Personality assessment, objective tests, T-data

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Introduction

A car circulates around deserted streets in the early hours of the morning. It arrives at an intersection controlled by traffic lights that, at that moment, are red but no other vehicles are seen to be approaching. We observe how the driver, after having proportionally reduced his/her speed as he/she nears the intersection, then accelerates to top speed without stopping at the red light. Does this tell us something about the driver's personality, how daring he/she is or does it tell something about his/her lack of respect for the norms? In a more general sense, are behavior and personality related in some way? Common sense tends to confirm this: the behavior described would show how risky this person is. Moreover, personality is understood to be an internal variable of the individual which predisposes him to behave in a stable and consistent manner throughout time and according to any given situation (Pervin, 1996). Therefore, this behavior would be a manifestation of the driver's personality in so far as how such a personality is capable of giving a specific impression of the individual's behavior and makes him/her behave *as he/she really is.* However, the way of assessing prevailing personality, if we abide by the immense majority of manuals and journals in this field, is limited, almost exclusively, to asking people questions. In accordance with this measurement method, personality seems to be consigned to a state of consciousness that can only be accessed by the individual himself/herself.

Having arrived at this point, two alternatives must be contemplated when talking about Personality: a) Personality as that which confers an identity upon oneself (which allows one to recognize himself/herself, regardless of how one dresses or of one's physical appearance in relation to how one may have looked some years earlier) and b) Personality which differentiates us from others (which allows us to be recognized as agents with specific attributes within any one context, which provides differentiation among human beings). Identity and difference represent the two large areas of current approaches in studies about the personality: the cognitive approach (socio-cognitive, cognitive-social) and the dimensional approach or focus on traits (Caprara, 1996). Without entering into more theoretical comments, it must be said that the fact is that Psychology has historically opted (although without the necessary epistemic coherence) for the **differentialist vision**: personality being something of one's own which distinguishes us from others in as far as others exist (Pervin, 1996), as opposed to the cognitive perspective which focuses on the subject's constitution as such, by which he can be identified.

Personality, as stated, is a variable of the intra-psychic nature that cannot be directly accessed. However, personality does not have a monopoly of intra-psychic variables which are measured in Psychology. We could say the same about intelligence. However, the way to access an estimation of both variables could not be more different. ¿Would it occur to a psychologist to evaluate an individual's intelligence by asking with what frequency or accuracy he solves incomplete matrixes? Or would it be acceptable to assess spatial aptitude by interrogating the individual about his/her level of orientation when he/she has to consult a map or visit a new city?

Seen from this point of view, the fact that such a generalized form of assessing personality has been imposed so extensively, exclusively based on self-reporting, is notable. We know that verbal responses in human beings have a conventional value related to the use of language in the community and in as far as language is shared, it allows communication to be efficient to a certain extent, although it is subject to noise and lack of precision. Impreci-

sion, for its part, increases in as far as how the transmitted content makes reference to notions, whose limits are, naturally, diffuse. That is to say, the question, "Have you ever jumped a red light?" clearly alludes to a more specific content than, "Do you drive dangerously?" and this is much clearer than the question, "Are you risky?" It is true that there is room for the use of language to assess aptitudinal dimensions such as those mentioned above. For example, one could ask someone if he/she knows how to drive a truck or if he/she is capable of resolving second grade equations. However, the science of Psychology in general and Psychological Assessment in particular have employed remarkable doses of effort and imagination in order to design a series of tests in which people perform tasks and, by observing their behavior and/or their results, estimate their skill, being the study's objective.

Historical perspective of the objective assessment of personality

Self-reports have not always been used in a way that has overwhelmingly dominated the panorama of Personality assessment. If we return to the first half of the last century, we can find important precedents of objective assessment of Personality that were embodied in solid and coherent research programs carried out by important authors in this field. Amongst these, works by Hartshorne and May (1928, Hartshorne, May & Maller, 1929, Hartshorne, May & Shuttleworth 1930) must be mentioned. These authors developed a set of tests included in their Character Education Inquiry (CEI) oriented, amongst other things, to measure honesty or altruism. These tests already reported some of the basic characteristics that must be present in an objective test for personality assessment, such as how to keep the subjects unaware of the aims of the evaluation or offer a measurement system and establish scores that would be alien to the evaluator's interpretation. The tests included in the CEI showed, along general lines, to be highly discriminative and presented adequate reliability levels. However, they also presented a very high situational specificity. This is one of the results used by Mischel (1968) as an empirical base for his criticism of the concept of consistency just as conceived by the perspective of the psychology of characteristics.

Another precedent worthy of mention was that undertaken by the Office of Strategic Services (OSS) in the United States during the Second World War. This project, led by Murray, is considered to be the first psychological assessment center in the United States and its aim was to select special intelligence agents (OSS, 1948). Within this project, amongst others a group of tests directed towards assessing resistance to stress was developed, which was considered essential in order to adequately carry out the functions of spying.

However, the foregoing precedents were not successful in terms of the generated expectation. On the one hand, the results obtained with these types of instruments presented a very high situational specificity, to the extent that predictive validity was considerably limited unless identical situations to those which would later serve as criteria, were used. On the other hand, establishing an appropriate validation criterion with which to compare objective test scores presented serious difficulties. Cattell was the author who studied the problems presented by assessment based on situational tests, with the most perseverance (Catell y Warburton, 1967). This author proposed a personality assessment which required three types of data: a) **L-data**, being individuals' behavior in natural settings, recorded or noted; b) **Q-data**, information obtained from questionnaires, self-assessments and introspection, and c) **T-data**, based on objective tests defined as standard stimulation situations in which the indi-

viduals' behavior is measured in such a way that the subjects are unaware of what is really being measured (Cattell & Kline, 1977).

For Cattell, the first two types of data have a less range or scope than the T-data obtained by objective tests (Cattell & Warburton, 1967). In the case of the L-data, the author indicated the obvious difficulties that arise from systematic observation in natural settings, the very choice of such settings and the difficulties in making the observations of each subject comparable to one another for the purpose of personality measurement. In the case of the Q-data, this is because of possible biases due to intentional deception by people answering questionnaires (faking) as well as the natural tendency to answer in accordance with values within their social context (social desirability) Moreover, both types of data are susceptible to involuntary biases which arise from a situation in which a subject is being assessed. "*Consequently, it is extremely important that progress be made with objective, behavioral tests −T-data.*" (Cattell & Warburton, 1967, p. 7). In accordance with these hypotheses the authors of this manual presented more than 400 objective tests to assess personality and motivation.

The limitations of self-reporting in personality assessment

The research program launched by Cattell and his colleagues was not going to be continued by other authors in spite of his efforts to avail the scientific community of his instruments so that they could be used and studied in depth within his research (Cattell y Schrueger, 1978; Cattell y Warburton, 1967). There are several reasons why this research program was practically abandoned throughout subsequent decades, as described in other works (Hernández, Santacreu & Rubio, 1999; Rubio, Santacreu & Hernández, 2004).

On the one hand, because of the lack of correlation among the T-data, L- data and Q-data (Cattel, 1990; Cattell & Kline, 1977; Skinner y Howarth, 1975) and, on the other hand, due to the difficulties in constructing objective task tests, in relation to personality questionnaires, although such problems have been greatly reduced due to the development of computer technology. In addition to all of this, the personality questionnaires have shown to be very efficient in classifying individuals and it has also been possible to construct numerous alternative tests with the necessary concurrent validity.

Personality assessment based on self-reporting is clearly better than any other alternative which is available at the current time, in terms of its easy use and ample scope. Cattell himself, although recognising the limitations imposed by self-reports, developed the 16PF and considered it to be an essential instrument when time and circumstances only permit the use of questionnaires (Cattell & Warburton, 1967). There are, however, three aspects in which personality questionnaires, and in general, assessment based on self-report by individuals is clearly inadequate, which have, to an extent, already been indicated: a) involuntary biases due to factors such as the tendency to acquiescence or the inaccuracy of language; b) voluntary distortions of the answers as a result of faking or social desirability; and c) limitations in predicting behavior in different contexts. The first two aspects have been widely discussed in the relevant literature for psychological assessment and psychology of personality (see Amelang, Schäfer & Yousfi, 2002; Edwards, 1957; Furnham, 1990; Kubinger, 2002b; Ones, Visweswaran & Reiss, 1996; Rees & Metcalf, 2003; Visweswaran & Ones, 1999; Zickar & Robie, 1999, amongst other studies). Our intention is to concentrate on the last of these aspects: prediction limitations.

Establishing behavior prediction from verbal statements entails reflecting upon the relationships between what people say they usually do, and what they actually do. The phenomenon of a lack of concordance between the subject's verbal reporting and manifestation of behavior (or between these and the psycho-physiological register) is well known in the field of Clinical Psychology, particularly in the case of phobias (Hodgson & Rachman, 1974; Rachman & Hodgson, 1974; Rachman, 1978) and amounts to establishing that this triple system of responses may co-vary, vary inversely or vary independently (Lang, 1971).

These discoveries in the field of emotional responses gave rise to an important debate with regard to the validity of verbal reporting (Borkovec, Weerts & Bernstein, 1977) which, however, has not been appropriately echoed in personality assessment. Moreover, when dealing with personality analysis, it must be taken into account that people, in general, tend to be *coherent:* a) with regard to the verbal statements they make about themselves, being a synthesis of how a person relates to him/herself in a constant dialectic with the descriptions that others make about him; b) with regard to the statements they make about themselves in relation to their own behavior.

Consequently, if someone observes that somebody has not been coherent that person will try to justify or reformulate his/her statement in order to achieve a coherent discourse and thereby not endanger the cognitive balance. Therefore, confirming the existence of temporal stability in the verbal declarations made by individuals about themselves, which is what the instruments based on self-reporting actually do, is nothing more than a form of corroborating the coherence tendency shown by people.

Similarly, returning to the example of the driver who would not stop at a red traffic light; supposing that we had asked him/her about how he/she drove and he/she answered that he/she was a responsible driver who rarely takes risks, it is possible that if he/she had been confronted with the fact that he/she had run through a red light, he/she would try to find reasons which would allow him to maintain his/her coherence. For example, saying something such as, "*I made sure that no other vehicle was approaching before crossing and at that time of night there was no traffic and therefore no risk of having an accident.*" The fact is that the possibilities of predicting how someone will behave (transgressing traffic norms) based on their own verbal descriptions, is really very difficult.

Cattell (1957) approaches this question making a distinction between Q data and Q' data. For this author, if the responses to some basic elements are correlated with behavior or may be adequately verified either through observation, or through reports made by others, then these would be Q data, whilst, if they turned out to be introspections, without any possibility of verification other than from the individual himself, these would be Q' data. Nonetheless, please observe one of the illustrations of these differences that Cattell and Kline (1977) employ. These authors state, with reference to Eysenck's EPI, that *although even in Q data we have to make some assumptions about the mental interiors of the subject, the distinction from Q' data is both real and useful. Thus, although it has been shown that neurotics do not in fact sleep worse than normals it is a discriminating response to answer "no" to the item "Do you sleep well?"* (p. 127). This is, definitively, recognition of the classifying functions that questionnaires provide, but is a clear renunciation of the predictive function that should be required of an instrument used for personality assessment.

The field of personnel selection is an example of the limited predictive value of personality questionnaires (Ghiselli, 1973; Guion & Gottier, 1965; Hunter & Hunter, 1984; Schmitt, Gooding, Noe & Kirsch, 1984; Schmidt & Hunter, 2004), although it must be recognised

that this process is not solely influenced by personality assessment through the use of questionnaires.

Reflections concerning the objective assessment of personality

The starting point that inspired the authors' work is that the behavior of any given individual is the result of an interaction between the person and the context. As previously established by Kantor (1959), both the person and the context provide dispositional factors which, although not forming part of the interaction, make this possible or, at least, more probable. Personality or **interactive styles** would be one of the dispositional factors pertaining to any one person, consisting of an individual's tendency to behave in a specific manner within a specific situation (Ribes, 1990; Ribes y Sánchez, 1992). This dispositional factor would have been configured in proportion to the accumulation of interactive experiences, together with the other two important dispositional factors: **competence** and **motivation**.

However, when the interaction occurs in a context in which previous interaction experiences exist, a person's behavior will be a function of the interactions established within the context at a previous time to the moment that is currently being analyzed. In other words, an individual's behavior within a known context is a function of the contingency relations established in such a context, in terms of antecedents and consequences, and such contingencies are the first and main source of the explanation. In this way, behavior prediction of an individual in any one situation will be a function of previous behavior in this same situation. As a corollary, if one tries to measure the dispositional factors, the situation or task must be new and free from contingencies that discriminate towards any particular form of behavior.

The characteristics of the context, therefore, compel people within a given context to perform similar kinds of behavior, being those that obtain maximum achievement or benefits. The variability in such a situation will only occur if two different forms of behavior produce the same consequences, the same function, although being morphologically different. This is the case in a task using a word processor such as MS Word which allows a document which is being worked on, to be saved either by using the sequence <CRTL + G> or by maneuvering the mouse, opening the window *<File>* and pressing the option *<Save>*. Although both forms of behavior are morphologically different, they are functionally equal since both achieve the same objective. Therefore, in order that behavior expresses a possible dispositional factor of personality, the specific contexts must allow for completely different kinds of behavior that have the same consequences. If, in order to save a document, the program allows only one, sole action, all the individuals with adequate knowledge (competence) will carry out this behavior to save documents.

Personality assessment is not possible within contexts which do not have several response options to achieve similar objectives, which leads us to the problem of situational specificity both in situational tests (T-data) and in observations within a natural context (L-data). Valid situations for personality assessment are those in which the individuals confront a varied range of possible behavior without any of these carrying with them specific incentives: open contingency situations in terms used by Harzem, (1987) and Ribes (1990).

In order to do this, it was suggested that to assess personality it is necessary to design instruments in which the individuals have to confront situations which must be: a) morphologically new but not functionally so; b) facilitators of a specific range of possible behavior

which, *a priori,* have the same probability of obtaining positive consequences or of avoiding negative consequences (open contingency situations); and, c) which require a level of competence within the subject's scope.

Objective personality assessment, leading on from the foregoing considerations, establish a series of characteristics that the tests designed must possess (Hernández, Santacreu & Rubio, 1999):

1. Scores must not be based on individual self-reports (the contrary to questionnaires); the assessor will not have to make any interpretation or transformation of the data to obtain the score (this differs from that which occurs with projective tests) but they must draw up some "a priori" criteria that indicate the directionality of the data obtained.
2. The tasks which individuals have to undertake do not require a high level of ability or skill; on the contrary, such tasks must be within reach of the greater part of the population so that the differences found are due to interactive style and not to the competence implied in the task.
3. Assessment procedures must not provide any feedback about performance, so that the subjects cannot learn "correct behavior" since this would determine their behavior in subsequent trials.
4. The aim of the assessment must be masked. This means that the individuals must not know the aims of the test. This strategy reduces involuntary biases such as intentional distortion of the responses (Robie, Born & Schmit, 2001) that may be present in traditional personality assessment (Hough, Eaton, Dunnette, Kamp & McCloy, 1990; Kubinger, 2002b; Seiwald, 2002).
5. Objective assessment demands the possibility of manipulation or control of the motivation variable in order to guarantee that the subjects perform. It is precisely because of this that the contexts for personnel selection are especially appropriate to assess the personality through objective tests in so far as the candidates for a job placement supposedly possess high motivation.

One example of an objective assessment of personality: the case of risk tendency

The authors of this study have developed a set of computerized assessment instruments for diverse interactive styles amongst which can be found risk tendency. This variable is defined as the propensity to choose, when there are various possible alternatives, the option with the highest recompense although the probability of its occurrence is much lower. To be specific, three different tests have been developed to assess this interactive style: *The Roulette Test*, *the Betting Dice Test* and the *Crossing the Street Test*.

The **Roulette Test** (Figure 1) consists of a task in which people have to bet on one alternative out of four different possibilities: Thirty Numbers (numbers from 1 to 30, $p = 30/36 = .83$), Fifty Numbers (even numbers from 2 to 30, $p = 15/36 = .42$), Six Numbers (numbers from 31 to 36, $p = 6/36 = .17$) and Straight Bet (number 17, $p = 1/36 = .03$). Each one of these options is associated with a different amount as a prize: 1 point, 2 points, 5 points and 30 points, respectively. Subjects are encouraged to obtain the highest possible number of points. The subjects have ten trials of 20 seconds each and they are expected to obtain points from trial to trial. In each one, the individuals must place their bets but are not told how
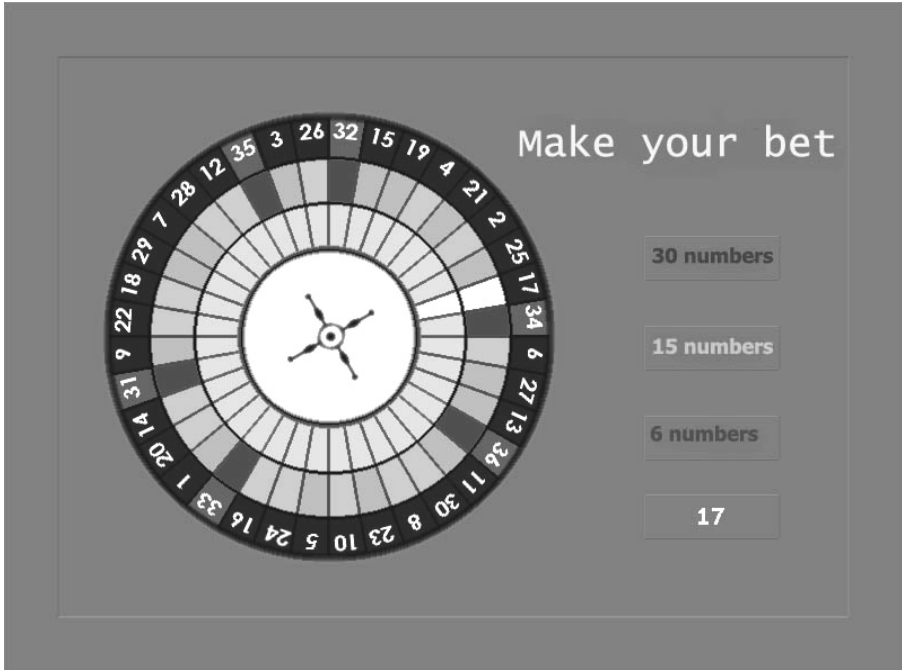
Figure 1:
An example screen of the Roulette Test

many trials the test consists of during the instructions, nor of the results obtained for each one of their bets. Each trial terminates with a standard message such as "*Very good. And now, what's your bet?"* If anyone does not make a bet in the 20- second interval pertaining to the trial, a message appears saying "*You haven't placed a bet. You have obtained 0 points"*. At the end of the test the message, "*The task has ended"* appears on the screen.

As can be shown, the expected value (EV) of each one of the four options is the same (EV = probability * prize). It is assumed that whoever makes a bet on "*Thirty"* is choosing a more conservative option than someone who elects the option "*Straight Bet"*, since the probability of being correct in "*Thirty"* (p=0.83) is higher than that for "*Straight Bet"* (p = 0.03). As is usual in risk studies, the risk value for each alternative is defined as the inverse of the probability of each one of the response options. In this task, an individual's risk tendency score is calculated as the mean of a natural logarithm of the inverse probability of his choices (1.2; 2.4; 6; 36, respectively), in the following form (see Arend, Botella, Contreras, Hernández & Santacreu, 2003):

$$\text{Roulette Test risk score} = \frac{\sum_{10}^{i=1}\ln\left(1/p_i\right)}{10} \tag{1}$$

The **Betting Dice Test** (Figure 2) is similar to the Roulette Test. In this case, the examinees have to estimate the result of two dice that were thrown simultaneously. As in the previous case, there is a choice of four options. These alternatives represent the same probabilities with the same prizes as given in the Roulette Test. The risk index is calculated in the same way as the Roulette Test.

The **Crossing the Street Test** (Figure 3) consists in deciding where a pedestrian should cross the street from one side to the other with the objective of arriving at a drug store that is found on the other side of the street where vehicles are circulating. The instructions state that the pedestrian must arrive at the drug store as soon as possible but without causing an accident or being run down. The pedestrian is at first placed on the extreme left hand side of the screen, opposite the drug store which is on the other side of the road, and is moved by pressing arrowed buttons which are shown on the screen. The objective is to arrive at the drug store as quickly as possible. At the beginning of the trial, the cars circulate from left to right by the road. After 10 seconds, the road "is hidden" so that the cars cannot be seen. Therefore, the examinees must decide where the pedestrian should cross from, in terms of which position on the sidewalk he is standing on.

Figure 2:
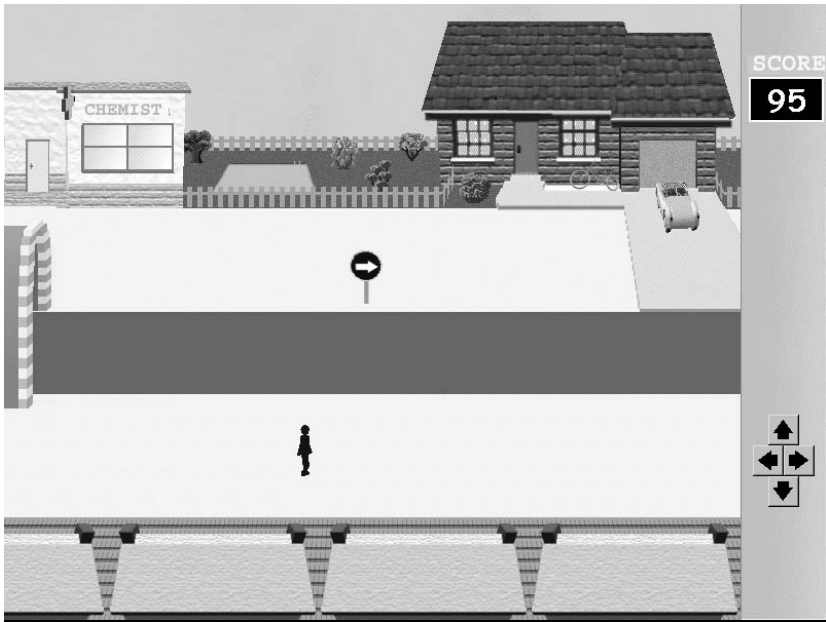An example screen of the Betting Dice Test

Figure 3:
An example screen of the Crossing the Street Test

As can be seen, it should be taking heed of the fact that the closer to the left hand corner the subjects decide the pedestrian will cross, the less visibility for approaching cars they will have. On the other hand, the further away they are from the left hand corner of the screen, the more time will be taken in crossing. The individuals being assessed are told about the time which it has taken them to cross the street, but no feedback about possible accidents or people being run over is given. The risk score is the same as the mean of the inverse of distance (d) that has been crossed.

$$\text{Crossing the Street Test risk score} = \frac{\sum_{-10}^{i=1} d_i}{10} \times (-1) \qquad (2)$$

Psychometric properties of the tests

The authors have carried out a series of studies to establish psychometric guarantees for these instruments. On the one hand, their reliability has been calculated. So that, in relation to the Roulette Test, a previous study (Sante & Santacreu, 2001) found a satisfactory level of internal consistency (Cronbach's α = .827) and of temporal stability (test-retest to a year r = .430). With reference to the Betting Dice Test, the internal consistency via Cronbach's α was 0.80 and the temporal stability (test-retest to one day) was r = .60. Finally, the Crossing the

Street Test also shows a high internal consistency (Cronbach's α = .957) (Sante & Santacreu, 2001). There is no information about its temporal stability.

With regard to its validity, two validation studies have been carried out. On the one hand, 4,966 candidates on an *ab initio* training course for air traffic controllers (ATCo) were assessed by means of a test battery which included, amongst others, the Roulette Test and the Crossing the Street Test, as well as multiple (four) option test of 20 questions about basic knowledge of Air Traffic Control (ATC), such as aerodynamics, meteorology, telecommunication, cartography, ATC regulations, etc. The applicants were told that the scoring for this exam would be the total sum of correct responses less 1/3 of the errors and subsequently the tendency to guess what was shown in the exam by reason of the number of errors and omissions, would be estimated.

The individuals were classified as risky, average or conservative in accordance with the scores of the Roulette Test and the Crossing the Street Test, respectively. Two different ANOVAs were carried out to find out the tendency to guess the correct answer estimated from the multiple option test in accordance with the risk group in which the subjects had been classified. The results showed that the two tests were capable of differentiating the tendency to guess in the performance of the knowledge test ATCo ($F_{Roulette}$= 9.519; p=0.00; $F_{Crossing-the-Street}$ = 4.189; p=0.01) In the direction expected: the greater the risk tendency shown by the individuals, the greater the tendency to guess the answers in the knowledge test (Rubio, Hernández & Santacreu, submitted).

On the other hand, a predictive validation study was carried out. 6,123 candidates on an *ab initio* training course such as ATCo were assessed with a test battery which included, amongst others, the Betting Dice Test and the Crossing the Street Test. Moreover, the applicants were assessed in dimensions such as Spatial Ability, Attention, Reasoning, Verbal Comprehension, Emotional Adjustment, Meticulousness, Co-operation, Extraversion, Normlessness, Persistence, Tolerance to Frustration and Perception of Control. 95 applicants were selected for the ATC training program which consisted of five modules: Basic Knowledge, Area Control unit, Approach Control unit, Aerodrome Control unit, and No-ATS unit. It must be pointed out, that for obvious reasons, the profession of an ATCo in general and especially the training modules for Area Control, Approach Control and Aerodrome Control require the profile of a non-risky person. Thus, the scores in the five modules of the training program were used as criteria to test the predictive validity of the measurements.

Firstly, it must be said that the range restriction corrected R of the complete test battery was reasonably high for the five modules (adjusted R^2 was .287, .397, .372, .278, and .389, respectively). The regression ANOVA for the five modules was significant in all cases. With specific regard to the risk tests, the standardized weights (standardized β) were significant for the Betting Dice Test in the case of Air Control Unit and Approach Control Unit. Crossing the Street Test showed significant coefficients for Area Control unit, Approach Control unit, Aerodrome Control unit and No-ATS unit. The corrected correlations between the risk test scores and those obtained in the training program were satisfactory (see Table 1).

Table 1:
Corrected correlations between Risk-taking tests and the training course scores

Training course units	Betting Dice Test	Crossing the Street Test
BASIC KNOWLEDGE	-.229	-.200
AREA CONTROL UNIT	-.295	-.082
APPROACH CONTROL UNIT	-.165	-.403
AERODROME CONTROL UNIT	-.089	-.193
NO-ATS UNIT	-.078	-.153

Finally, the correlations between the three tests were analyzed as an indicator that all of these were assessing the same aspect. In order to do this a sample of 233 graduates was used. The results obtained were as follows. The correlation Roulette Test-Crossing the Street Test was $r = .508$; the correlation Roulette Test-Betting Dice Test was $r = .787$; the correlation Betting Dice Test-Crossing the Street Test was $r = .569$. All of these were significant ($p<0.01$) and in considerable magnitude, so it can be said that the three tests are assessing the same interactive style.

Conclusions

In the foregoing pages, the idea of personality has been upheld as a dispositional variable consisting of an individual's tendency to behave in a specific manner in a given situation. This tendency to behave would be the result of the synthesis of the individual's experience from the moment of birth in interaction with his or her own contexts. Such a tendency may be manifested in situations of choice when other dispositional factors, competence and motivation, are controlled and the context is designed in such a way that it does not induce a specific kind of response.

In this study, it has been indicated that the assessment of this tendency to behave in a specific manner may be carried our by task tests in which the subjects to be examined are presented with situations having open contingencies and in which the real objectives of the assessment are masked.

However, the almost exclusive way in which personality assessment has been done until now has been through self-reporting by individuals using questionnaires. Certainly, when it was mentioned that individuals' personality is a synthesis of their experiences one must allow for a history of propositions that one makes about oneself and, without doubt, the questionnaires provide important advantages for its assessment in terms of efficiency. However, the synthesis found in statements that people make about themselves may not be considered identical to that which the individual has carried out through behavioral tendencies. In this study, conceptual and methodological aspects have been debated which redound to the lack of correspondence between what people say about themselves and how they actually behave. In short, we fully coincide with Kubinger (2002a) who wrote, in reference to ques-

tionnaires, that: *monomethodological measurements do not necessarily mean any valid representation of an individual's personality* (p. 4).

The aim of this study was to show that is possible to make an objective assessment of personality based on tasks which complement an assessment based on self-reports. In accordance with the ideas proposed by Cattell (Cattell & Kine, 1977; Cattell & Schrueger, 1978; Cattell & Warburton, 1967) and heeding the suggestions made by Ribes (1990), three tests have been presented here designed along the principles of what an objective personality assessment should be, based on a task test. These tests have proved to be useful, and their psychometric properties make then particularly appropriate for fields such as personnel selection.

From this point, a series of challenges are established. Firstly, to identify the group of interactive styles which would be useful to evaluate individuals' personality. That requires a functional taxonomy of situations which allows types of contexts according to the requirements of natural settings: efficiency at work, academic performance, or life and health expectations (Santacreu, Hernández, Adarraga & Márquez, 2002).

Secondly, to study the relation between what we have called here an interactive style such as risk tendency, which we have just reviewed, or other styles that the authors have approached to, such as co-operation (Rubio, Santacreu & Hernández, 2004), meticulousness (Hernández, Sánchez-Balmisa, Madrid & Santacreu, 2003) or persistence (Hernández, García-Leal, Rubio & Santacreu, 2004; Santacreu & García-Leal, 2000), and the great personality dimensions contemplated in structural theories. Undoubtedly, in order to resolve the questions posed, one has to begin by finding a structure for personality from the variables obtained through objective tests, which was begun by Cattell, and should be reviewed in the light of the discussions made in this study with regard to the characteristics of the objective tests.

Thirdly, to analyze the multi-method relation in the same personality variable. For example, the relation between "risk tendency" measured by means of the objective tests already mentioned and the questionnaires that supposedly measure the same personality variable such as "Openness", (Costa & McCrae,1992) or "Sensation Seeking", (Zuckerman, 1979). The perspective that has been tested until now, has consisted of trying to correlate the results obtained in task tests with the scores achieved in consolidated inventories and the results, as already indicated by Cattell and Kline (1977) have not been encouraging. We understand, as previously stated, that this is a useless approach since what individuals "say" and actually "do" are different entities, and cannot be considered to be equivalent although they may be complementary. In any case, we have the same opinion as Kubinger (2002a) who believes that only from a multi-methodological corroboration in which the entire wealth of what is understood by the notion of personality is studied, it will be possible to constitute the general dimensions of personality.

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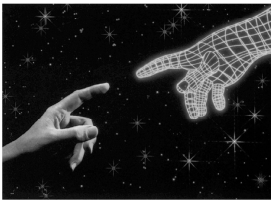
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