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Guessing of answers in objective tests, general mental ability and personality traits according to 16-PF Questionnaire

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Some previous studies have shown distinctly that the results in multiple-choice objective cognitive tests are not based on cognitive factors exclusively. So, are there any differences in the structure of personality (measured by Cattell's 16-PF test) between subjects with different level of guessing proneness, regarding their general intellectual ability? In the present study it was shown that subjects, who were more prone to guess and reached higher final score on general ability test („Hazardous - higher score"), tended to be more radical,critical, dominant, aggressive and determined (factors E and Q1). Subjects, who didn't prefer to guess answers, but reached high final test score („Cautious - higher score"), showed to have higher level of general mental ability, were more spontaneous, uninhibited and unconventional (factors B, Q2, H and M). „Hazardous" respondents with lower final test score were described as careless, cooperative and enthusiastic persons but also sophisticated, shrewd and inpatient (factors A, N and Q4). It was also characteristic for them to have the highest score on the „motivational distortion scale" in 16-PF test. The personality traits such as emotional and behavioural self-control, sensitivity, dependency, uncertainty,submissiveness and conservatism were most close to group, called „Cautious respondents with lower score".

Psychological tests, as the objective instruments for the measurement of knowledge, achievement or different types of intellectual abilities, where subjects have two or more choices or answering alternatives on a specific item, question or task, have been the subject of professional criticism from the beginning of their application. Critical and polemical discussion became deeper and much more founded along with the increase of objective tests' application in a wide range of fields of human activities.

The main reproach - also mentioned by Choppin (1975) - refers to the fact that multiple choice test item requires the recognition, rather than reproduction or construction of the correct response. Certainly, this is not the most adequate representation of real-life situations, which are, in fact, expected to be measured by such an instrument. This kind of measurement serves mostly to partial and factographic checking of the convergent attainment and/or abilities. Another serious disadvantage of objective tests is that there is approximately 1/m possibilities to choose the correct response, even if the subject does not know the right answer at all (m is meant to be the number of possible answering alternatives to a certain item).

„Why and in what manner subjects respond to test items or tasks, which of those items are too difficult for them, and to which of them they don't really know the right response" Searching for a reasonable answer to this question occupied many psychometricians in the past, and it still does today. Some of the studies have clearly shown (as pointed out by Zarevski & Rijavec, 199, p. 33), that, the results in cognition tests (with multiple choice answers) are not based on cognitive factors exclusively". The final test score is relatively biased by a variety of disturbing factors, which are called „response styles" or „response sets". They could be defined as unintended sources of test-score variance associated with the particular response options, available to the subject in a test item (Wilde, 1977); or, as a tendency consistently affecting a person to give different responses to test items than he or she would give when the same content was presented in a different form. Among various sorts of response styles concerning test items which are too difficult to respond, the set to respond quickly rather than accurately, a tendency to give careless and haphazard, random responses, and a tendency to guess should be mentioned. The latter is sometimes called „guessing-proneness" and is likely to be the characteristic of so-called „risk-takers" (Zaleski, 1980; Zarevski & Rijavec, 1990; Dahlback, 1990, 1991).

The appearance of guessing tendency in the objective tests is a serious methodological problem concerning final test score evaluation, since researcher never knows exactly to which extent a test score represents the presence of the phenomenon, which is believed to be measured by test, because he doesn't know the amount of disturbance caused by an error of measurement as a consequence of guessing. The research, which dealt with the guessing proneness problem should be classified at least in two groups. The first group of studies examined primarily the influence of this factor upon the final test score and searched for alternatives and procedures re-

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moving it's effect (Cronbach, 1946, 1950; Anastasi, 1966; Hopkins, 1972; Choppin, 1975; Petz, 1978, 1985). In other studies, researchers were mainly interested in the question of why different subjects use different responding strategies on items, where they do not know the correct solution. Most authors think that the responding strategy in those cases is in (relatively small, but still) correlation with certain personality characteristics. More precisely, in subjects which are prone to guess and in ones which rather do not give answers to too difficult items, the structures of the personalities are different. Dahlbach (1990, 1991) even explains the guessing proneness as a personality dimension, connected to risk-taking propensity. There are some consensus and some controversy in the results of various studies and some of them will be mentioned in the following paragraphs.

Wotaw (1936 - cited in Petz & Žužul, 1987); Zarevski & Rijavec, 1990) seems to be the first, who pointed out these differences. He stated that dominant subjects try to guess answers on too difficult items in achievement test more often than do submissive ones, in spite of the explicit instruction not to guess. Emotionally unstable, introverted, anxious subjects and those with low self-esteem leave more test items unanswered than do other respondents.

In the study by Zaleski (1980), two groups („high-risk takers" and „low-risk takers"), determined by the Kogan-Wallach's CDQ questionnaire, were compared for results obtained on Cattell's 16-PF questionnaire. In women, high-risk takers, in comparison with low-risk takers, obtained significantly higher results on factors E (Dominance), H (Parmia - Venture-some), I (Premsia - Sensitivity) and M (Autia - Eccentricity), and almost significantly lower results on the factor L (Alaxia - Trusting). In men, high-risk takers, in comparison with low-risk takers, obtained significantly higher results on factors E and H, and almost significantly higher results on factor A (Affectothymia - Cyclothymia) and B (Higher mental capacity).

Nazor (1983), using the extreme groups method, tried to examine the relationships between results on the Domino intelligence test (D-48 - proportions of correct, incorrect and blank answers taken as independent variables) and personality dimensions as defined by Eysenck's personality theory and measured by his Personality Questionnaire (EPQ). The results showed that extroverts obtained significantly higher correct answer result in comparison to introverts, neurotics obtained more incorrect answers than stable subjects and introverts leaved more items unanswered then extroverts.

Petz and Žužul (1987) compared seven different measures of „risk-taking" (defined as the proneness to solve greater amount of items in an achievement tests) with some characteristics of personality, appraised by EPQ, College Self Expression Scale of aggressiveness (CSES) and the Questionnaire of Manifest and Latent Aggressiveness (LMA). They found low positive correlations between almost all seven measures of risk-taking and personality characteristics, but the only consistent relation existed between criteria and the psychoticism scale in EPQ. An interesting relation (r = .30) has also been found between the number of the items unanswered on the first part of test administration i.e. the lower the number, the higher the risk - taking level, and impulsiveness, assertivity and manifest aggressiveness.

In some studies, the most direct estimate of guessing - proneness has been applied: the number of answers to the questions in an objective test with no possible correct solution. Zarevski and Rijavec (1990) used the number of answers to 24 four-alternative choice items, to which no correct solution is possible as the criterion and a set of predictors as follows: four tests of intelligence, which are good reflections of g-factor, Cattell's High School Personality Questionnaire (HSPQ) and the number of correct answers on General Information Test (GIT). They concluded that subjects are highly guessing-prone and that the instruction „not to guess" only decreases, but not eliminate this tendency. There were no significant differences in the personality structure between the groups of high and low guessing-prone subjects, but subjects being more venturesome, spontaneous and less restrained (factor H; Threctia - Parmia) tend to show higher proneness to guessing answers. Đurić and Kovačević (1990) found that female subjects, in comparison with group of male subjects, were more prone to give the answers to nonsensical questions about fictitious, non-existent products in market research surveys.

It was also clearly shown that there is a relationship between general mental ability and guessing proneness: more intelligent respondents tend to guess more often than less intelligent (Swineford & Miller, 1953; Choppin, 1975; Zarevski & Rijavec, 1990). On the other hand, it is also known that intellectual abilities and some personality characteristics are correlated to a certain extent (Momirović, Ignjatović, Šipka & Horga, 1986). As Momirović and Horga said: *„There are researchers, who think that obtained correlations are the consequence of the concomitant variables and that there is no real link between personality traits and intelligence, but there are also authors who believe that the relations between cognitive and conative characteristics are much more important and that we could attribute them to mutual conditioned functions of cognitive processors and conative (personality) regulators"*. (Momirović & Horga, 1990, pp. 31-32). Therefore it is impossible to judge the efficacy of the one without information about the efficacy of another. From this point of view the unidimensional searching for the relations between the tendency to guess and intelligence or-between the tendency to guess and dimensions of personality seems insufficient, for neither model considers the influence of systematic intervening variables (intelligence in the first and other personality characteristics in the second case).

But we must not pass over the warning about the confidence in the results or scores, obtained by different questionnaires expected to measure different personality traits. Some recent studies (Momirović, 1989; Furnham, 1990a; 1990b) conclude that actual validity, reliability and objectivity of such instruments are weaker than,we thought in the past. The main trouble is that the researcher can not efficiently control

the honesty or sincerity of respondents answering, because the subjects present only the reflection of their personality while answering, and this reflection is not (and could not be) objective.

The purpose of the present study was to determine whether there are diversities in the personality structure among subjects reflecting different levels of guessing proneness in the multiple choice objective test, when controlling for their general mental ability.

METHOD

Variables and Instruments

a) The Foreign Words Knowledge Test (FWKT) was applied as a guessing proneness criterion. The three types of results were obtained: the number of correct responses, the number of incorrect responses and the number of unanswered items. In further text these three types of results will be referred as (+) responses, (-) responses and (0) responses, respectively. FWKT is one of the General Information Tests and has been developed at the Department of Psychology, University of Zagreb. The test is consisted of 100 items; each item represents a foreign word - most often one with a Greek or Latin root - and respondent may choose between five alternative domestic words out of which only one represents a synonym to the foreign word. This instrument was administered on a basis of at least two causes: all the items are of the same type, so the evaluation of results ((+), (-) and (0) responses) can be in unison over the entire test. Besides, different studies clearly showed that there are relatively high correlations between FWKT and some intelligence tests, first of all Bujas' Problem test (r = .56 - Krković & Kolesarić, 1970; r = .49 - Bucik,1987; r = .50 - Bucik & Brenk, 1991). Problem test, designed to detect the so-called „sensitivity to problems", is supposed to be a good measure of g-factor of intelligence. Its correlation with the Bujas-Petz's M-series is very high - r = .81, the g-saturations of the seven subtests of M-series range from 0.63 to 0.86, and the multiple correlation between all the subtests and the g-factor, measured by other tests, reaches R = .946 (Krković & Kolesarić, 1973).

b) Personality variables were measured by the C-form of the Cattell's Sixteen Personality Factor Questionnaire (the 16-PF Test - Cattell, 1962). Form C was constructed for subjects with average educational level and contains 105 items, measuring 16 primary or first-order personality dimensions (six items per factor, except factor B which is measured by 8 items and yet 7 items, measuring special dimension, named „motivational distortion (MD) scale" -some call it „lie-scale", too). Over the standardized values of the 16 primary factors, 4 superfactors (or second-order factors) can also be evaluated. Personality are, therefore, represented by the First- and Second-order factors of the 16-PF Test.

Some advantages of this test in comparison with some other personality questionnaires led us to use it (Cattell, 1966; Lamovec, 1975; Pogačnik, 1983): the test was developed along with a complex psychological theory of personality; its reliability and validity appeared to be fairly good; it covers the personality sphere by the meaningful psychological dimensions, which represent original functional entities; predictions made up on the basis of 16-PF test exceed the predictability of basic multidimensional psychometric scales; the stability of the structure of personality dimensions is good; the test is practical; and finally, there is a great amount of experimental evidence about its application in different areas of psychological research.

Subjects

276 subjects participated in the study, 38% of them were male. On an average, they were 26.4 years old (SD = 6.43), 73% of them reached high, 22% average and 5% low educational level in different fields of work.

Procedure

The FWKT, followed by the 16-PF test were administered in a selection process. From this point of view it is possible to conclude that the subjects' motivational level during the testing procedure was relatively high. Before the application of the FWKT subjects didn't get any specific information regarding the strategy of responding to those items which are too difficult for them. Everyone could therefore choose his (or her) own subjective responding strategy when he/she faced the item at which he/she couldn't give correct response. The responding time was 40 minutes for FWKT and unlimited for 16-PF test.

RESULTS

1.

Raw scores for 16 primary factors of the 16-PF test were obtained from item responses under the principles and mechanics of scoring, suggested by author (Cattell, 1962; Lamovec, 1980) and then converted to STEN-scores. STEN scores (standard ten) are distributed over ten equal-interval standard score points with the population average fixed at 5.5 and standard deviation of 2 units. The scores for second-order factors were calculated from STEN-scores of primary factors and were therefore also fixed in the STEN interval from 1 through 10.

Proportions of correct responses (+), incorrect responses (-) and unanswered items (0) on the FWKT were evaluated for each subject. According to each of these three criteria, taken separately, the respondents were then classified into one of three approximately equal groups, the low-score group (1/3 of respondents or the first tercile), the middle-score group (2nd tercile) and the high-score group (3rd tercile). The classification is shown in Table 1.

Table 1.

Correct responses, incorrect responses and unanswered items on FWKT (minimum, maximum, M, SD and N) and the classification of subjects into three equal groups on the basis of each score.

	No. of correct answers (+) responses	No. of incorrect answers (-) responses	No. of unanswered items (0) responses
min.	14	1	0
max.	99	74	77
M	73.1	16.5	10.4
SD	16.85	10.69	13.21
N	276 (100%)	276 (100%)	276 (100%)
1. tercile (low-score group)			
min.	14	1	0
max.	69	11	1
N	94 (34%)	99 (36%)	90 (32%)
2. tercile (middle-score group)			
min.	70	12	2
max.	81	17	9
N	85 (31%)	76 (27%)	92 (34%)
3. tercile (high-score group)			
min.	82	18	10
max.	99	74	77
N	97 (35%)	101 (37%)	94 (34%)

II.

First of all, eventual differences in the personality structure between the extreme groups (1st and 3rd tercile) regarding the number of correct responses were examined. The differences on primary and second-order personality factors are presented in Figures 1 and 2, respectively. The statistical significance of differences between groups on each factor were checked by oneway analysis of variance.

The basic idea of this study was examined by the comparison of the high-score group regarding incorrest answers ((-) responses - 3rd tercile) and the high-score group regarding unanswered items ((0) responses - 3rd tercile) on FWKT. Figure 3 shows these differenceson Cattell's 16-PF primary factors and Figure 4 represents differences in 16-PF secondorder factors.

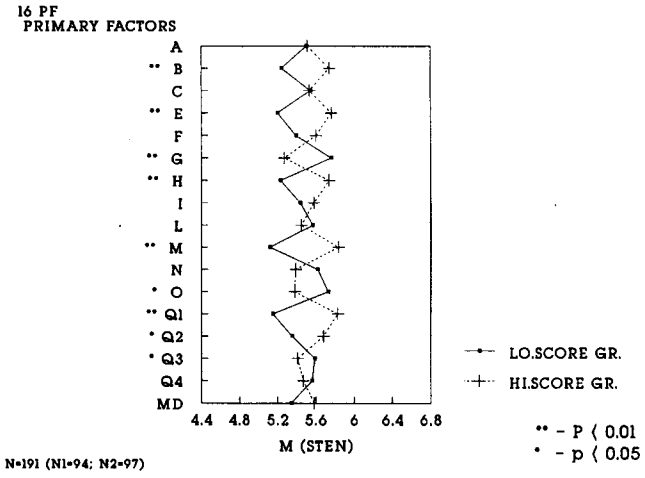

Figure 1. Correct answers - (+) responses - on FWKT (differences between the low-score group -1st tercile, and high-score group - 3rd tercile) and primary factors on 16-PF test.

The statistical significance of differences, which can be seen from Figures 3 and 4, is due to main effect in the analysis of covariance - that is, differences between both high-score groups with regard to the number of correct answers - (+) responses - as covariate.

The groups are exclusive in the sense that each subject can be a member of just one of them - in which he or she reached higher score. This is the reason for smaller number of subjects, classified in each group.

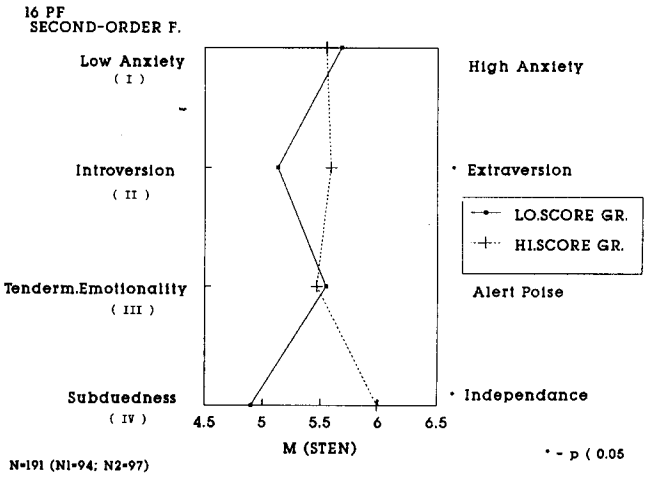

Figure 2. Correct answers - (+) responses - on FWKT (differences between the low-score group -1st tercile, and high-score group - 3rd tercile) and second-order factors on 16-PF test.

III.

Next step was to introduce a new combined variable, which should consider all three criteria: (+) responses,(-) responses and (0) responses regarding the extreme (high- and low-score) groups - 1st. and 3rd. tercile. Theoretically, this variable contains eight values (2 x 2 x 2) as follows:

1. High score of (+) responses, High score of (-) responses, High score of (0) responses
2. High score of (+) responses, High score of (-) responses, Low score of (0) responses
3. High score of (+) responses, Low score of (-) responses, High score of (0) responses
4. High score of (+) responses, Low score of (-) responses, Low score of (0) responses
5. Low score of (+) responses, High score of (-) responses, High score of (0) responses
6. Low score of (+) responses, High score of (-) responses, Low score of (0) responses
7. Low score of (+) responses, Low score of (-) responses, High score of (0) responses
8. Low score of (+) responses, Low score of (-) responses, Low score of (0) responses

For the purposes of this study, values 2, 3, 6 and 7 of this composite variable are the most interesting, and in practice, most frequently observed. These four groups of respondent scould also be called with more convenient names as:

2. „Higher-score - Hazardous" (N = 36)
3. „Higher-score - Cautious" (N = 33)
6. „Lower-score - Hazardous" (N = 29)
7. „Lower-score - Cautious" (N = 27)

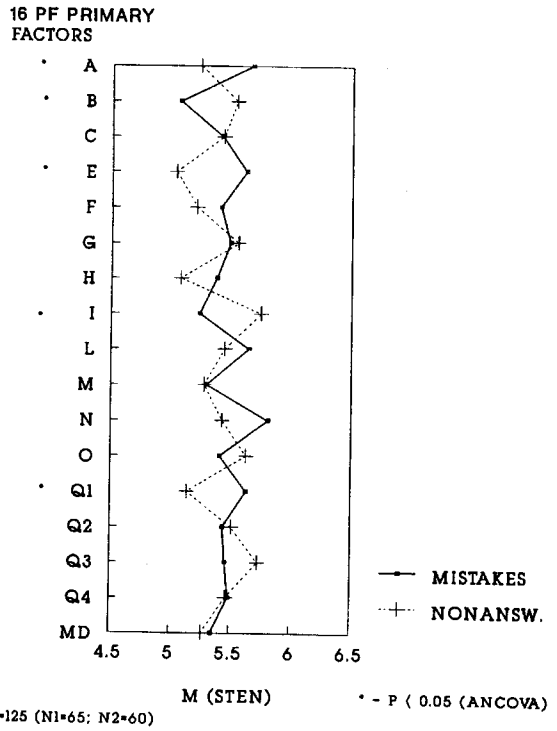

Figure 3. The number of incorrect answers ((-) responses - high-score group or 3rd tercile), the number of unanswered items ((0) responses - high-score group or 3rd tercile) on FWKT and the 16-PF primary factors.

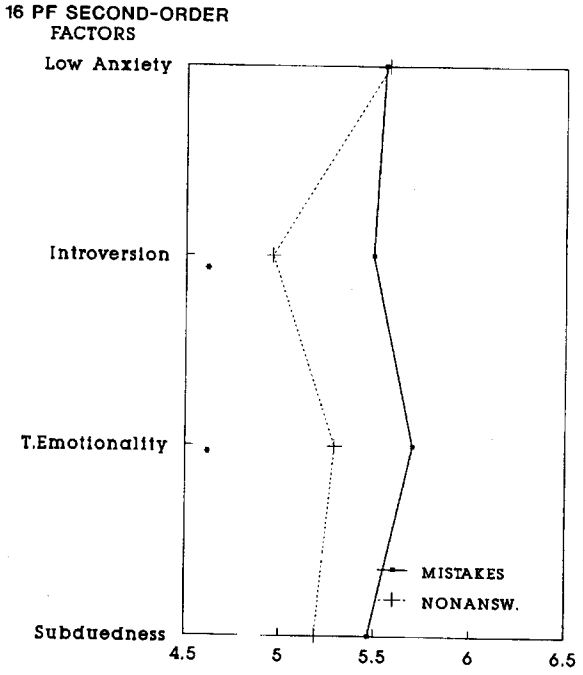

Figure 4. The number of incorrect answers ((-) responses - high-score group or 3rd tercile), the number of unanswered items ((0) responses - high-score group or 3rd tercile) on FWKT and the 16-PF superfactors.

The subjects in groups 2 and 6 should therefore be more prone to guess, with those from group 2 being more able than ones from group 6 regarding general intellectual ability, which is represented by the proportion of correct answers on FWKT. Subjects in groups 3 and 7 are supposed to be less prone to guess, that is, they should tend to give less responses on items at which they don't know the correct answer, but still differing in general intellectual ability.

If one wish to find out, which personality characteristics, measured by 16-PF test, taken all at once, are the most appropriate to distinguish between these four groups of respondents and to determine the accuracy of classification, the use of discriminant analysis seems to be a good choice. In our study, the maximal discrimination between groups was evaluated with the Direct method, where all predictors (16-PF primary factors) were involved into analysis simultaneously (Norušis, 1988). The analysis showed that the first and second discriminant function explained about 88% of total intergroup variance (function 1 - 51% and function 2 - 37%). As can be seen from Figure 5, the average values of discriminant scores (or group centroids, denoted by points and group numbers) of all four groups were drawn into the two-dimensional territorial map, defined with the first and the second canonical discriminant function.

In order to get easier interpretation of discriminant functions, before their definition by discriminating variables (or 16-PF primary factors), values of within-groups correlations between discriminating variables and canonical discriminant functions were drawn in the same space. This can be done, because values of the correlations as well as the values for-

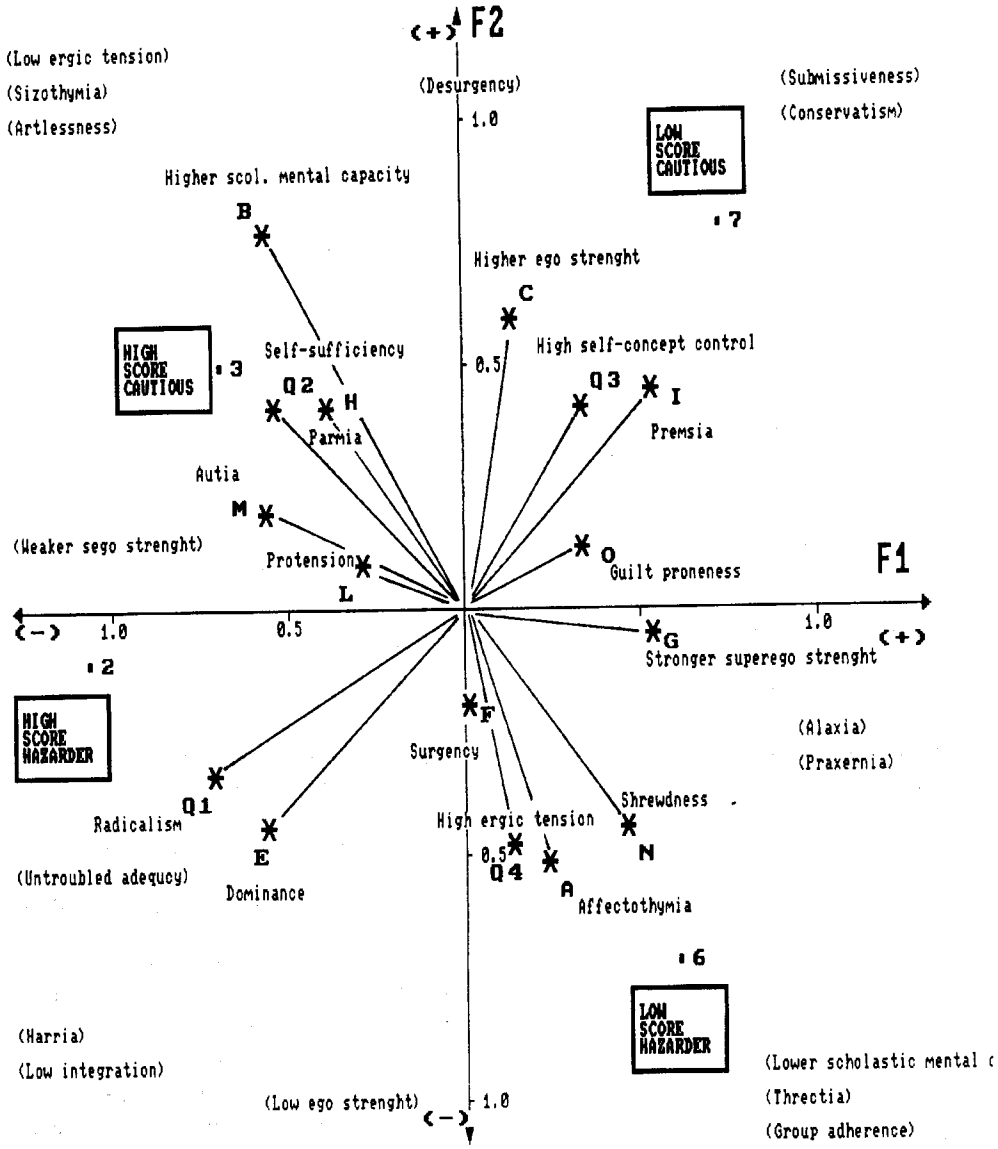

Figure 5. The group centroid positions for four groups of respondents in a space, defined by first and second discriminant functions considering 16 manifest variables - primary factorson 16-PF test (points and numbers denote the positions of group centroids, asterisks and capital letters denote the positions of 16-PF primary factors).

group centroids are standardized. The positions of particular predictors - personality factors - were denoted by asterisks, capital letters and short descriptions. The descriptions in-brackets are the opposite poles of specific factors, denoted along asterisks.

The distance of the position of particular predictor from the first or the second discriminant function axes tells us about its discriminating power regarding that function.

IV.

The adequateness and accuracy of obtained solution were also examined in other way - by combining the attributes (primary factors) and centroids (four groups of respondents) by hierarchical cluster analysis.

The specificity of agglomerative hierarchical clustering is to arrange the entities into separate groups by the principle of internal cohesiveness and external exclusiveness. It means that in one specific solution one entity is unambiguously classified into just one group- the closest one in terms of proximity.

The symmetrical distance matrix ((17 + 4) x (17 + 4)) of orthogonal projections of attribute vectors (16-PF + MD scale) on centroid vectors (4 group centroids) was evaluated from two matrices with FORTRAN programme CLUDIS (Brenk, 1989). The first matrix was the matrix of the canonical discriminant functions and attributes coefficients, and the second was the matrix of the canonical discriminant functions and group centroids, evaluated by procedures of discriminant analysis, described above.

The Squared Euclidian distance was used as the measure of similarity or dissimilarity. In the procedure of hierarchical grouping by the programme CLUSE (Batagelj, 1982), the Ward method of minimizing the variance within groups and maximizing the variance between groups on each step of grouping (Ferligoj, 1989) was applied on upper triangle of the final proximity matrix. The solution as a dendrogram structure is presented in Figure 6.

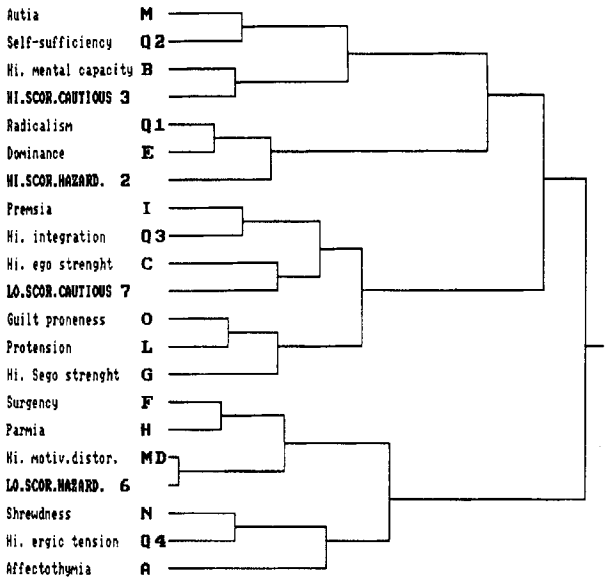

Figure 6. The hierarchy of clustering the centroids for four groups of respondents (denoted by numbers 2, 3, 6 and 7) and attributes - 16-PF primary factors (denoted by capital letters).

DISCUSSION

The groups with high and low final score on FWKT differ on nine 16-PF primary factors (Figure 1). The results on FWKT stay in relatively high correlations with some general-ability tests. Therefore, it is quite clear that respondents with higher FWKT score reach significantly higher results on general mental ability factor in 16-PF test (factor B). Some other personality traits are also characteristic for the high-score group of respondents. They tend to be more independent, dominant, self assured, assertive (factor E), less conscientious, prone to evade their duties, and have lower sense of responsibility (factor G). They are more adventurous, spontaneous and uninhibited (factor H), more imaginative, unconventional and creative (factor M), more radical, critical and liberal (factor Q1) and also more confident (factor O) and inventive (factor Q2), when compared to low-score group of respondents on FWKT. Similar structure can be found examining the differences between groups on 16-PF second-order factors (Figure 2). Subjects with higher scores are more independent, aggressive and daring (factor IV) and more uninhibited and extroverted (factor II). On the other hand, subjects with lower scores are more subdued, less expressive and to be introverted.

The results express fairly great differences in the personality structure of between subjects who attain high or low final scores in test, which, to a certain degree, represents a measure of the general mental ability. However, at this step of the analysis it is not possible to determine how and to which extent eventual guessing-proneness help certain subject to get higher or lower final score on FWKT, and to search for the nature of relation between guessing tendency and other personality traits.

Some interesting findings emerged regarding the fact that the covariate (the final score on FWKT) was accounted for in a statistical significance analysis of differences between groups of subjects, shown in Figures 3 and 4. The differences between respondents, ranging in the higher third of the incorrect - answer - score distribution (3rd tercile) and those which were placed in the 3rd tercile of unanswered - item - scores showed to be significant for factors A, B, E, I and Q1, which is predominantly consistent with the results of Zaleski (1980). Therefore, the respondents, which are more prone to guess, tend to be more careless, ready to cooperate, warmhearted, independent, aggressive, dominant, less tender-minded, more realistic and radical, critical and liberal. It is interesting that higher level of mental capacity (factor B) is more frequently found among subjects, who tend to omit the items when they don't know the correct answer. Besides, this group of respondents is best described by personality traits such as stiffness, critical stage (factor A), submissiveness and conformism (factor E), dependency and sensitivity (factor I), precaution and moderation (factor Q1). Similar personality differences between these groups can be observed considering the second - order factors (Figure 4). Subjects with higher number of incorrect answers - (-) responses - tend to be socially outgoing, uninhibited persons, good at making and maintaining interpersonal contacts (factor II), resolute, decisive, enterprising and persistent (factor III), independent, aggressive and daring (factor IV). Respondents with more skipped or unanswered items appear to have more introverted, emotional, less courageous, more group-dependent and passive personality. However, it should be mentioned that the difference between groups on factor IV was not significant at 5 percent risk-level.

It seems quite obvious that multivariate relations between personality traits and response styles on FWKT are much more evident from the perceptive map, defined by the first and the second discriminant functions (Figure 5). It could be said that the first function discriminates mainly between groups of respondents with high and low number of correct answers - (+) responses - or final scores on FWKT, whereas the second function distinguishes between the so - called „high - risk takers" and „low - risk takers". It seems that the latter function better discriminates between the hazardous and cautious subjects in the lower-score groups than in the groups with higher scores. So, it can be concluded that the differences between subjects regarding guessing-proneness tend to be more distinctive in groups of less able respondents.

Nevertheless, subjects who are more prone to guess and reach higher scores on FWTK (group 2) seem to be more radical, critical, liberal and more dominant, aggressive and determined (factors Q1 and E), but, at the same time it can be said that they have weaker superego-strength, are relatively free of anxiety, they are not highly integrated (so they seem to be less disciplined), they are more realistic and less sensitive or tender-minded. Subjects, reaching high scores but not ready to give answers to too difficult questions in tests (group 3) seem to be more intelligent, self-sufficient, accustomed to go their own way, they don't care very much for other person's opinion, they are spontaneous, uninhibited, imaginative, unconventional and „guided from inside" (factors B, Q2, H and M). Respondents, who were prone to guess and reached lower scores on FWKT (group 6) are trustful, careless, cooperative, but also sophisticated and calculating, tense, restless and inpatient (factors A, N and Q4). Subjects, gathered in group 7 (low final score and low on risk-taking), show higher degree of integration, higher self-control of emotions and general behaviour. They also tend to be more sensitive, dependent, insecure and suspicious, have higher ego-strength (factors Q3, I, O and C), being more submissive and inclined to go along with tradition, at the same time.

The dendrogram on Figure 6 shows relatively clear four-cluster solution, where one or more primary personality factors belong to each of four groups of respondents. The factors are attributed to the closest group, for which the factors are most characteristic. The solution is almost similar to that presented in territorial map on Figure 5. Factors, which helped to discriminate between groups and to describe the two-dimensional space in which each of four groups of respondents was placed, tend to be linked to the same groups in a hierarchical agglomeration procedure. Therefore, the solution, obtained by the hierarchical agglomeration of attributes and groups of respondents, doesn't need additional explanation.

CONCLUSION

In spite of the complexity of our problem and relative by small sample it can be pointed out that certain tendencies regarding the relationship between guessing-proneness, personality traits and general mental ability are evident. They lead us to the conclusion that there are some differences in personality characteristics between subjects who are more prone to guess the answer to the question or item in the test, where she or he doesn't know the correct response, and those who prefer to leave that kind of items unanswered.

The „hazarders" can be considered as more dominant, radical, independent and less sensitive than the „cautious" subjects, who are more reserved, critical and group-dependent, moderate, submissive, tender - minded and more conforming than „hazarders". Besides, it may be concluded that some differences between the respondents who guess more often and those who guess less often, regarding the final score on FWKT (which at least indirectly measure general intelligence, too), have been observed. It was found that (typical) personality „patterns" of „cautious" subjects differ with regard to their scores on FWKT. Differences were also found between „hazardous" subjects with high - and low - score on FWKT. „Cautious" respondents with better test score are likely to be unconventional, imaginative and self-sufficient, whereas „cautious" subjects with worse test scores showed to be more sensitive, uncertain, realistic, suspicious, having a high level of self-control. Better „hazarders" are radical and dominant; „hazarders" with worse test scores are enthusiastic, careless, uninhibited, but also very calculating and shrewd. This group of respondents also tried to give socially expected or approved answers on measured personality dimensions; the score on the „motivational distortion scale" in 16-PF test is the highest for this group (group 6 - as can be seen from dendrogram on Figure 6). It should also be pointed out that the distinctions between „hazardous" and „cautious" subjects are more evident in less able-subjects groups regarding g-factor of intelligence, as measured by FWKT.

Our results are in relatively high consistency with outcomes of some previous studies, mentioned above (Wotaw, 1936, cited in Petz & Žužul, 1987; Zaleski, 1980; Nazor, 1983; Zarevski & Rijavec, 1990). But the direct comparison between these studies is still complicated due to different definitions of the guessing-proneness or „risk-taking" problem, different instruments and methods of data collecting and above all, because due to the fact that in our study differences between subjects, who are more or less prone to guess, were also examined in direct dependency on the levels of subjects' general ability.

It should be mentioned, however, that the number of incorrect answers and the number of unanswered (or blank) items in a certain multiple-choice objective test are only indirect measures of guessing proneness or readiness to take a risk. Besides, one can not get clear assurance (as Petz and Žužul (1987) also concluded) whether respondent gave the incorrect answer to test item by conscious guessing, or is it maybe the case, that the incorrect answer is just the consequence of incomplete and wrong perception and/or an estimate of his or her own knowledge or ability.

„People don't know themselves well enough to give proper answers in personality questionnaires;many real-life situations can not be appropriately represented by verbal items in a test; people give different responses to the same items in different times and occasions; questionnaires show poor validity regarding external criteria ..."(Wilde, 1977). In spite of these difficulties, argued by Wilde , and in spite of our reproaches to personality questionnaires, mentioned in the introduction, it should be admitted that different analyses with different research methods and instruments still lead to correspondent results. This speaks in behalf of the stable and relatively reliable phenomenon, which affirms us that guessing-proneness seems to be one of personality traits that shouldn't be neglected in multiple-choice test application. Then, how to assure objective and equal testing conditions to all respondents if different responding strategies aroused due to different personality structures? Most likely, the best solution is presenting distinct and uniform instruction on filling out the objective test. And close to that, we nearly have no other al-

ternative than to join some other researchers (Wotaw, 1936, cited in Zarevski & Rijavec, 1990; Petz, 1978, 1985; Zarevski & Rijavec, 1990) in suggestion that the simplest way is to require responses to all test items from all respondents irrespective of possibility that they don't know the correct answers to some of the items. In this case there is no need to penalize incorrect responses and the influence of non-cognitive factors on the final test score is certainly reduced.

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