

## A FACTOR ANALYSIS OF THE GRAY-WILSON PERSONALITY QUESTIONNAIRE

GLENN D. WILSON, JEFFREY A. GRAY and PAUL T. BARRETT

Department of Psychology, Institute of Psychiatry, University of London, De Crespigny Park,  
London SE5 8AF, England

(Received 2 March 1990)

**Summary**—Principal components analysis of the Gray-Wilson Personality Questionnaire revealed six fairly independent factors that bore only a partial resemblance to the six animal behaviour paradigms that the test was devised to measure. Taken together with the inter-scale correlations reported previously this raises certain questions about the application of brain systems derived from animal learning studies to the analysis of individual differences at the human level.

### INTRODUCTION

This paper presents further results relating to the Gray-Wilson Personality Questionnaire (GWPQ) which was designed to lock into Gray's theory of personality in much the same way as the EPQ (Eysenck & Eysenck, 1975) relates to Eysenck's theory of personality. Like Eysenck, Gray postulates three major dimensions, but they are rotated relative to Eysenck's and related to different presumed biological systems. Gray's theory focuses on the separate evolution of reward and punishment mechanisms in the vertebrate brain and derives mainly from laboratory studies of animal learning and the effects of psychotropic drugs (Gray, 1987a, b).

The three main brain/behavioural systems that Gray believes to underlie individual differences are: (1) *Activation*, which refers to sensitivity to signals of reward,\* (2) *Inhibition*, dealing with response to signals of punishment, and (3) *Fight/Flight*, which is concerned with unconditioned aversive experiences. Each of these systems may be divided into two parts as follows:

- (1) Activation
  - (a) Approach (Reward-seeking)
  - (b) Active avoidance (Taking positive steps to avoid punishment)
- (2) Inhibition
  - (a) Passive avoidance (Avoiding punishment by inactivity and submission)
  - (b) Extinction (Abandoning behaviours that do not bring reward)
- (3) Fight/Flight
  - (a) Fight ('defensive', as distinguished from predatory, aggression)
  - (b) Flight (Rapid escape from sources of punishment).

This paper describes the development of a questionnaire to measure human equivalents of these animal behaviours using factor analysis to check whether this structure holds true at the human level.

### METHOD

The GWPQ (Appendix 1) was constructed by devising 10 items to represent each of the six types of behaviour and then writing approximate reversals for each of the 60 items so generated. This yielded six *a priori* scales, each containing 20 items balanced for direction of scoring. Item content

\*J. A. Gray normally refers to this as the 'Approach system'. The term 'Behavioural Activation System' (Fowles, 1980) is used here because *Approach* in the form of incentive motivation is scaled separately from *Active avoidance*. Fortunately, the terminology converges when the abbreviation BAS is used for the overall system.

was varied as much as possible within each scale; 'Approach', for example, was in relation to money, food, addictive substances, general consumer goods, sex partners, social events, attractive clothing, birthday presents, theatrical experiences and career advancement. In the final form of the questionnaire the order of items cycles around the six scales, while alternating the direction of scoring (see score key).

The GWPQ was administered to a sample of 243 students in college halls of residence and parents approached while waiting to collect their children from schools. There were 159 women and 84 men, average ages 25.46 and 26.71 respectively. This sample may not be perfectly representative of British adults but is sufficiently wide-ranging for present purposes of correlation and factor analysis.

Two principal components analyses were undertaken on the total sample. The first included age, sex and the EPQ scores as marker variables to assist in the interpretation of factors. The second analysis used just the 120 questionnaire items and age. Both analyses used three tests of factor extraction quantity, the Kaiser-Alpha, Velicer, and Autosree (Barrett & Kline, 1982). Hyperplane maximised direct oblimin rotation (Jennrich & Sampson, 1966; Barrett & Kline, 1982) was used to rotate each component solution to optimum simple structure. In order to assess the effect on the factor pattern of including the EPQ marker variables, a factor similarity analysis was undertaken between the first and second rotated component solutions. Using the Kaiser-Hunka-Bianchini (KHB) coefficient (Kaiser, Hunka & Bianchini, 1971), the Pearson correlation coefficient, and the congruence coefficient (Barrett, 1986), three factor similarity coefficient matrices were generated. The five marker variables (EPQ: P, E, N, L, and sex) in the first solution, not shared in the second, were removed so as to equalise the number of variables in the two solutions. From this analysis, it would be apparent whether or not the marker variables were having a significant effect on the GWPQ component structure.

## RESULTS

Means and standard deviations for the six scales have been reported previously (Wilson, Barrett & Gray, 1989). Means were generally around the scale mid-points of 20, which is ideal because it allows maximum discriminability. *t*-Tests revealed sex differences on only two of the scales; women were higher on Active Avoidance and Flight.

Alpha coefficients were mostly around 0.6 to 0.7, indicating reasonable levels of internal consistency. These might have been higher if items were more repetitive in content and not balanced for response set but this is not good practice in questionnaire construction.

Intercorrelations among the six scales were also reported by Wilson *et al.* (1989). These showed much the same pattern for men and women, but the six scales did not pair up in the manner predicted by Gray's theory of personality. Fight and Approach were related (0.45 for men, 0.44 for women) as were Flight and Passive Avoidance (0.36 and 0.48). Approach and Active Avoidance (two components of Activation according to Gray's theory) were actually negatively related (-0.38 and -0.25). Fight and Flight showed a nonsignificant positive relationship (0.19 and 0.10). Only Passive Avoidance and Extinction correlated significantly in the direction predicted by Gray's theory (0.37 and 0.26).

Correlations with EPQ scores showed that Approach was related primarily to P (0.32 and 0.39) but also high E and low L. Active Avoidance, however, was associated with low P (-0.36 and -0.42). Passive Avoidance was strongly associated with N (0.67 and 0.42) while Extinction was more related to low E (-0.42 and -0.35). Fight showed much the same pattern as Approach, the highest correlation being with P (0.30 and 0.40), while Flight was again like Passive Avoidance, correlating mostly with N (0.37 and 0.18).

With regard to the results from the component factor analyses, the three tests of factor extraction quantity all indicated that 6 factors should be extracted from both matrices. The second, non-marker variable analysis Autosree test did in fact indicate 5 factors as being optimum although 6 were indicated as a third choice option. Since the Autosree (as with the manual Scree test) is the least effective of the three factor extraction tests used here, we decided to proceed on the basis of the 6 factor indication. Both factor solutions were thus rotated yielding almost orthogonal solutions. The available variance accounted for in factor solution 1 and 2 was 22.49 and 21.98% respectively. The factor similarity analysis between the reduced variable subset in

solution 1 and the 121 variables in solution 2 yielded very clear results. The KHB mean solution cosine was 0.99, indicating almost identical factor patterns, with all KHB factor comparisons between relevant factors above 0.95. The relevant Pearson coefficients were all above 0.95 except for the Factor 6 comparison which was 0.94. The relevant congruence coefficients were all above 0.95. Thus, we can state with certainty that the EPQ marker variables did not distort the Gray–Wilson questionnaire structure to any significant degree. For the purposes of explaining the results below, the marker variable analysis alone will be used as the reference.

Table 1 shows items loading  $>0.35$  on each of the six factors, suggested names for the factors and the percentage of overall variance accounted for after rotation. Factor I, called 'Stoicism',

Table 1. Loadings  $>0.35$  on six rotated factors from the GWPQ

Loading	Summary of item content	Item No.	<i>A priori</i> scale
<b>I STOICISM (4.76% variance)</b>			
0.54	Stalwart and courageous under pain	78	Flight –
0.53	Controlled and clearthinking in fire	30	Flight –
0.51	Still and calm when faced with wild animal	6	Flight –
–0.47	Panic and rush about in earthquake	24	Flight +
–0.47	Yelp with pain with twisted ankle	84	Flight +
–0.43	Able to attend severe wounds	69	Passavoid –
0.43	Placid and calm when events unpleasant	11	Fight –
–0.43	Flinch when injected	72	Flight +
0.42	Remain calm if nearly hit by car	54	Flight –
0.41	Endure discomfort at dentist	66	Flight –
–0.40	'Lost for words' in public speech	51	Passavoid +
0.40	Easily keep temper when others drive badly	59	Fight –
0.39	Brave when hurt at school	102	Flight –
–0.38	Pull away when dentist hurts	60	Flight +
–0.36	Turn away at sight of blood	63	Passavoid +
–0.35	Jump if car horn sounds close by	48	Flight +
<b>II VIRTUOUSNESS (4.07% variance)</b>			
–0.52	Physical fights as child	65	Fight +
0.50	Stayed out of fights at school	71	Fight –
0.44	Resist unhealthy habits	31	Approach –
–0.41	Would kick annoying dog	41	Fight +
–0.41	Felt like killing someone	113	Fight +
–0.40	Yell abuse at other drivers	53	Fight +
0.39	Murder never contemplated	119	Fight –
–0.39	Prone to mild addictions	25	Approach +
–0.37	Curse audibly under duress	5	Fight +
0.35	Conscientiously feed parking meter	116	Actavoid +
<b>III CAREFULNESS (3.68% variance)</b>			
0.51	Careful in buying clothes	67	Approach –
0.49	Careful not to leave money in dressing room	44	Actavoid +
–0.48	Buy clothes impulsively	61	Approach +
–0.48	Lax about security	50	Actavoid –
–0.43	Give up trying to telephone somebody	94	Extinction +
0.43	Keep trying for telephone contact	100	Extinction –
–0.43	Would watch a fight at personal risk	114	Flight –
0.38	Careful to complete homework at school	32	Actavoid +
0.36	Would leave bar if fight broke out	108	Flight +
<b>IV RESILIENCE (3.50% variance)</b>			
0.58	Enjoy challenging games with superior opponents	88	Extinction –
–0.53	Avoid competition if likely to lose	82	Extinction +
0.48	Try, try again	76	Extinction –
–0.42	Avoid exam if likely to fail	46	Extinction +
0.41	Happy to try for unlikely goals	52	Extinction –
–0.39	Take criticism to heart and 'fall to pieces'	75	Passavoid +
<b>V SENSATION-SEEKING (3.44% variance)</b>			
–0.45	Stay in secure job rather than risk exciting one	115	Approach –
–0.43	Easy to resist flirting	43	Approach –
0.41	Pursue attractive person despite rebuffs	16	Extinction –
–0.40	Safety first in driving	55	Approach –
0.40	Make sexual approach to attractive person	37	Approach +
0.39	Drive fast to pleasurable event	49	Approach +
–0.38	'Lost for words' in public speech	51	Passavoid +
0.38	Relaxed in TV interview	57	Passavoid –
0.35	Carry on asking for pay increase although refused	112	Extinction –
<b>VI REACTIVITY (2.88% variance)</b>			
0.48	Would hit back if assaulted	29	Fight +
–0.47	Assume fire bell is false alarm	74	Actavoid –
0.38	Would attack burglars	89	Fight +
0.37	Immune to criticism	81	Passavoid –
0.36	Blank mind in exams	27	Passavoid +
–0.36	Pacifist even when provoked	35	Fight –

accounting for 4.76% of variance, loads on items concerned with being calm, controlled and brave in painful and stressful circumstances. Not surprisingly, this showed a negative loading for N ( $-0.30$ ). No other marker variables loaded significantly. The majority of items comprising this factor came from the "Flight" scale of the questionnaire, although three were originally intended to measure Passive Avoidance and three Fight.

Factor II ('Virtuousness'), accounting for 4.07% variance, loads on items which deal with avoidance of fights, abusive behaviour and other delinquent, antisocial tendencies such as drug addiction. Related marker variables were low P ( $-0.46$ ), female sex ( $-0.46$ ), high L (0.36) and young age ( $-0.33$ ). Seven out of 10 high loading items came from the *a priori* 'Fight' scale.

Factor III ('Carefulness'), accounts for 3.68% of variance, and loads on items which suggest responsible, non-impulsive behaviour. Marker variables were low P ( $-0.37$ ) being older (0.37) and low N ( $-0.28$ ). These items came from a mixture of four *a priori* scales (Approach, Active Avoidance, Extinction and Flight).

Factor IV ('Resilience') accounting for 3.50% of variance, loads on items that refer to willingness to compete against difficult odds and capacity to bounce back after initial failure. This was slightly more typical of males (0.25), low N ( $-0.26$ ) and high E people (0.24). Most of these items come from the 'Extinction' scale in the original scoring procedure.

Factor V ('Sensation-seeking') accounts for 3.44% of variance and loads on items which suggest a preference for excitement rather than security. The desire for sensation extends into the spheres of sexual conquest, driving, and public appearances. This factor loads powerfully on E (0.64) and youthfulness ( $-0.41$ ). It also relates to low L ( $-0.33$ ) and low N ( $-0.24$ ). Rather surprisingly, it is not significantly associated with gender. Most of the items were from the Approach scale, although Passive Avoidance and Extinction were also represented.

Factor VI ('Reactivity') accounting for 2.88% of variance, was the most difficult to identify and name. There were high loadings on items concerned with hitting back if sufficiently provoked, not assuming fire alarms to be false, immunity to criticism and going blank in exams. The only significant marker variable was N (0.32). Items came from the Fight, Passive Avoidance and Active Avoidance scales and the meaning of the factor remains unclear.

## DISCUSSION

This factor analysis provides only limited confirmation of the *a priori* structure of the GWPQ. Impartial criteria did suggest a six factor solution as optimal, but the six factors do not correspond exactly to those initially built into the questionnaire. Factor I (Stoicism) was close to (the absence of) Flight, Factor II (Virtuousness) overlapped considerably with (the absence of) Fight, Factor IV (Resilience) was much like (the absence of) Extinction, and Factor V (Sensation-seeking) had strong elements of Approach. However, Active Avoidance and Passive Avoidance were rather distributed around the six factors.

Some statisticians would argue that the original scoring system of the questionnaire should thus be abandoned in favour of a new one based upon these factor analytic results. We do not favour this path for reasons given by Wilson (1985). Blind use of factor analysis leads to the development of narrow scales of reiterative item content and scales based on mixtures of personality content and response biases. At the extreme, this leads to nonsensical conceptual restructuring, like Bem's argument that masculinity and femininity are unrelated concepts. Factor analysis is a useful technique for summarising intercorrelations among large numbers of test items but it should remain servant, not master, in the development of psychological theory. While we may use these results to refine the GWPQ in future work, we do not recommend the outright replacement of the original logic and scoring procedure in favour of one that is dictated by the results of factor analysis. The value of the GWPQ remains that for which it was originally conceived—as a research device for studies which attempt to relate human personality traits to animal behaviour paradigms (e.g. Boddy, Carver & Rowley, 1986; Nichols & Newman, 1986; Patterson, Kosson & Newman, 1987).

Taken together with the intercorrelations among the six scales, the results of this factor analysis present some difficulty for Gray's theory of personality as it applies to the human level. The groupings which emerge (at least those which are interpretable) look rather like personality factors that have been identified and measured many times in the past—factors like emotional stability,

aggressiveness, superego strength, achievement motivation and sensation-seeking. Although carefully written to comprise the nearest possible human equivalents of the laboratory paradigms described in the animal learning literature, they did not link up as human individual differences into the hypothesised (and fairly well established) neurological systems. Fight tended to get tangled with Approach (as two aspects of assertiveness) while Passive Avoidance tended to mix with Flight (as types cowardice).

It thus appears that the sources of individual variation that emerge as salient in human society may draw upon complex mixtures of biological systems. Fight and Flight, for example, may well share much the same neurological and hormonal mechanisms, but what is most significant at the level of human personality is what determines why one person characteristically opts to stand and fight while another flees. Similarly, reward-seeking and active avoidance behaviour may both derive, in terms of evolutionary history, from a joint 'Activation System' but they connect with separate personality traits at the human level (impulsive assertiveness on the one hand, and timid circumspection on the other).

*Acknowledgement*—We are grateful to Ruth Shelley for distribution of the questionnaires.

## REFERENCES

- Barrett, P. T. (1986). Factor comparison: An examination of three methods. *Personality and Individual Differences*, 7, 327–340.
- Barrett, P. T. & Kline, P. (1982). An item and radial parcel analysis of the 16PF questionnaire. *Personality and Individual Differences*, 3, 259–270.
- Boddy, J., Carver, A. & Rowley, K. (1986). Effects of positive and negative verbal reinforcement on performance as a function of extraversion-introversion: Some tests of Gray's theory. *Personality and Individual Differences*, 7, 81–88.
- Eysenck, H. J. & Eysenck, S. B. G. (1975). *Manual for the Eysenck Personality Questionnaire*. London: Hodder & Stoughton.
- Fowles, D. (1980). The three arousal model: Implications of Gray's two-factor learning theory for heart-rate, electrodermal activity and psychopathy. *Psychophysiology*, 17, 87–104.
- Gray, J. A. (1987a). The neuropsychology of emotion and personality. In Iversen, S. D., Stahl, S. M. & Goodman, E. C. (Eds), *Cognitive neurochemistry*. Oxford: Oxford University Press.
- Gray, J. A. (1987b). Perspectives on anxiety and impulsivity: A commentary. *Journal of Research in Personality*, 21, 493–509.
- Jennrich, R. I. & Sampson, P. E. (1966). Rotation for simple loadings. *Psychometrika*, 31, 313–323.
- Kaiser, H. F., Hunka, S. & Bianchini, J. (1971). Relating factors between studies based upon different individuals. *Multivariate Behaviour Research*, 6, 409–422.
- Nichols, S. & Newman, J. P. (1986). Effects of punishment on response latency in extraverts. *Journal of Personality and Social Psychology*, 50, 624–630.
- Patterson, C. M., Kosson, D. S. & Newman, J. P. (1987). Reaction to punishment, reflectivity and passive avoidance learning in extraverts. *Journal of Personality and Social Psychology*, 52, 565–575.
- Wilson, G. D. (1985). The 'catchphrase' approach to attitude measurement. *Personality and Individual Differences*, 6, 31–37.
- Wilson, G. D., Barrett, P. T. & Gray, J. A. (1989). Human reactions to reward and punishment: A questionnaire examination of Gray's personality theory. *British Journal of Psychology*, 80, 509–515.

## APPENDIX 1

### *Gray-Wilson Personality Questionnaire*

Occupation .....

Age ..... Sex .....

Please answer *each* question below by putting a *circle* around either the 'yes' or 'no'. If you find it impossible to answer for any reason, put a *circle* around the '?'. Work quickly and do not worry too much about the exact meaning of questions—there are no right or wrong answers and no trick questions.

- |   |     |   |    |
|---|-----|---|----|
| (1) If you were considering a change of job, would the money be a major consideration for you?  | YES | ? | NO |
| (2) Are you casual about parking in places where you might get a ticket?  | YES | ? | NO |
| (3) If you have a sore throat do you avoid talking until it is better?  | YES | ? | NO |
| (4) If you had agreed to participate in a concert, would you go through with it even though you were getting unfavourable feedback at rehearsals? | YES | ? | NO |
| (5) Are you inclined to curse audibly if something goes wrong?  | YES | ? | NO |
| (6) Could you remain still and calm if faced with a dangerous animal?   | YES | ? | NO |
| (7) Would you say that there are many things in life much more important than money?  | YES | ? | NO |
| (8) Do you visit the doctor for regular check-ups?  | YES | ? | NO |
| (9) If you had a twisted ankle would you carry on walking just as much as ever and ignore the pain?   | YES | ? | NO |

(10) If people appear not to like you, do you prefer to avoid their company?	YES	?	NO
(11) Generally speaking, do you remain placid and calm if events go against you?	YES	?	NO
(12) If a meal you had ordered were slow in coming, would you be likely to get up and leave the restaurant?	YES	?	NO
(13) Would you find it difficult to pass a restaurant serving your favourite food even if you were not hungry?	YES	?	NO
(14) Do you wait for your car or appliances to break down before having them serviced?	YES	?	NO
(15) Are you inclined to forget unpleasant appointments such as visits to the dentist?	YES	?	NO
(16) If you found a person very attractive, would you continue trying to get to know them even if they seemed cool and unresponsive?	YES	?	NO
(17) If you had a sore throat would you shout all the louder just to spite it?	YES	?	NO
(18) If someone is late for an appointment, do you wait patiently for them?	YES	?	NO
(19) Could you easily turn down an offer of food you particularly like if you were dieting?	YES	?	NO
(20) If rain is forecast do you remember to carry a coat or umbrella when you go out?	YES	?	NO
(21) If you needed dental attention would you see to it immediately rather than put it off until later?	YES	?	NO
(22) If you had been caught in a traffic jam on two or three occasions would you be sure to avoid that route in future?	YES	?	NO
(23) Would you avoid talking as much as possible if you had a throat infection?	YES	?	NO
(24) If you were in a building that started shaking due to an earthquake, would you panic and rush about?	YES	?	NO
(25) Would you say you are prone to acquiring addictions even if only mild ones like cigarettes, chocolates, coffee or ice cream?	YES	?	NO
(26) Do you often find yourself unprepared for bad weather?	YES	?	NO
(27) Have you ever found that your mind went blank when you were sitting an important exam?	YES	?	NO
(28) If your shortest route to work had been blocked by road works, would you keep trying it in the hope that they would be finished?	YES	?	NO
(29) If someone hit you would you almost certainly hit them straight back?	YES	?	NO
(30) Could you remain controlled and clear-thinking if your life was threatened by a forest fire?	YES	?	NO
(31) Do you find it easy to resist forming habits that you think might be bad for your health?	YES	?	NO
(32) As a schoolchild were you careful to do any homework required of you?	YES	?	NO
(33) Do you perform to your normal level of ability under the stress of test conditions?	YES	?	NO
(34) Do you avoid buying raffle tickets because you never seem to win?	YES	?	NO
(35) Are you a pacifist to the extent that you would not return a blow that was aimed at you?	YES	?	NO
(36) If you were accosted in the street by muggers, would you probably scream and run?	YES	?	NO
(37) If someone appeals to you sexually would you immediately make it known to them by some sort of approach?	YES	?	NO
(38) Were you often punished as a child for things that you should have done but failed to do?	YES	?	NO
(39) Do you prefer to stay out of somebody's way if they are angry with you?	YES	?	NO
(40) Are you ever the optimist when it comes to raffles and lotteries?	YES	?	NO
(41) If a dog yapped at your heels threatening to bite you, would you be likely to kick it?	YES	?	NO
(42) If threatened by a strong man with a knife would you hand over all your money and valuables upon demand?	YES	?	NO
(43) Do you find it easy to resist flirting when you are in the company of an attractive person?	YES	?	NO
(44) If you are leaving your clothes in a dressing room are you careful to take your money and valuables with you?	YES	?	NO
(45) If you heard that somebody had a 'bone to pick' with you, would you contact them to sort it out?	YES	?	NO
(46) Would you prefer not to sit an exam if the indications were that you would fail?	YES	?	NO
(47) Are you tolerant of other people's pets if they scratch or bite you?	YES	?	NO
(48) Do you automatically jump if a car horn suddenly sounds close to you?	YES	?	NO
(49) Would you be inclined to drive faster than you ought if you were late for a pleasurable occasion?	YES	?	NO
(50) Are you inclined to be lax about security, (e.g. leaving your house unlocked or keys in your car)?	YES	?	NO
(51) If you had to make a public speech, might you be 'lost for words'?	YES	?	NO
(52) Are you happy to have a go at achieving goals even though past experience suggests that your chances are low?	YES	?	NO

(53) If another driver makes a dangerous manoeuvre when you are on the road, are you likely to yell abuse at them?	YES	?	NO
(54) Could you remain calm if you had nearly been hit by a passing car?	YES	?	NO
(55) Would you put safety first when driving a car even though it might mean you would be late for some fun?	YES	?	NO
(56) Are you inclined to tell lies if you think they will get you out of trouble?	YES	?	NO
(57) Would you be relaxed and forthcoming in a television interview?	YES	?	NO
(58) Would you quickly give up if you were losing in a gambling situation?	YES	?	NO
(59) Can you easily keep your temper in heavy traffic when other people are driving badly?	YES	?	NO
(60) If the dentist hurts you, do you instinctively pull away?	YES	?	NO
(61) If you saw some clothes you liked in a shop when you were in a hurry would you be likely to buy them without trying them on properly?	YES	?	NO
(62) Do you find it difficult to bluff your way out of a tight spot?	YES	?	NO
(63) Would the sight of blood cause you to turn away from the scene of an accident?	YES	?	NO
(64) If you had lost some money in a game of cards, would you be inclined to carry on playing?	YES	?	NO
(65) As a child, did you get involved in physical fights with other children?	YES	?	NO
(66) Are you able to endure discomfort at the dentist without being a troublesome patient?	YES	?	NO
(67) Are you always careful to make sure that clothes fit you properly before buying them?	YES	?	NO
(68) If a fire alarm rang in a public building would you be quick to make your escape?	YES	?	NO
(69) Could you work effectively in a medical job that involved attending to severe wounds?	YES	?	NO
(70) If you had failed twice to pass a driving test, would you give it up as a bad job?	YES	?	NO
(71) Did you manage to stay out of fights when you were at school?	YES	?	NO
(72) Do you flinch badly when you are getting a medical injection?	YES	?	NO
(73) Are you inclined to run up debts if credit facilities are readily available?	YES	?	NO
(74) When you hear a fire bell ringing do you usually assume it is a false alarm?	YES	?	NO
(75) Do you take it to heart and 'fall to pieces' if someone criticizes you?	YES	?	NO
(76) If you fail at a task, are you inclined to try, try and try again?	YES	?	NO
(77) If you hurt yourself accidentally, do you sometimes blame somebody who happens to be nearby even though you realize, on reflection, that they were not responsible?	YES	?	NO
(78) Are you fairly stalwart and courageous when it comes to medical procedures that involve you in short-term pain?	YES	?	NO
(79) Do you think carefully about whether you can afford something before going ahead and buying it?	YES	?	NO
(80) If your boss was displeased with your work, would you redouble your efforts?	YES	?	NO
(81) Are you pretty much immune to the critical comments of others?	YES	?	NO
(82) Do you avoid competitive games and sports if there is a high probability you will lose?	YES	?	NO
(83) Can you easily resist the temptation to blame others for the accidents that happen to you?	YES	?	NO
(84) Are you likely to yelp with pain if you twist your ankle or prick yourself accidentally?	YES	?	NO
(85) Do you get so excited opening Christmas presents that you rip the paper off them rather than unwrap them systematically?	YES	?	NO
(86) If your work output was criticized, would you carry on regardless at your own pace?	YES	?	NO
(87) Would visiting a classroom in your old school evoke unhappy memories?	YES	?	NO
(88) Do you enjoy the challenge of playing games against people who are superior to you?	YES	?	NO
(89) If you caught somebody stealing your property would you be likely to attack them?	YES	?	NO
(90) Could you remain calm and silent if you hit your thumb with a hammer?	YES	?	NO
(91) If a present arrived for you in advance of your birthday, would you save it for opening on the day?	YES	?	NO
(92) Do you make a practice of walking around ladders rather than under them?	YES	?	NO
(93) Would you get pleasant feelings of nostalgia walking around the grounds of your old school?	YES	?	NO
(94) If you try to telephone somebody several times and they do not answer, do you get frustrated and give up?	YES	?	NO
(95) If you thought there were burglars in your house would you call the police rather than go in after them?	YES	?	NO
(96) As a child, did you make much of a fuss if you hurt yourself?	YES	?	NO
(97) When at the theatre, do you get agitated waiting for the curtain to rise?	YES	?	NO
(98) Do you ignore superstitious customs like avoiding cracks in the pavement?	YES	?	NO
(99) Do you get a momentary pang of guilt, however irrational, when you see a policeman in uniform?	YES	?	NO

(100)	If you had difficulty contacting somebody by telephone, would you keep trying them until you succeeded?	YES	?	NO
(101)	If a door was stuck, would you be inclined to give it a good bash?	YES	?	NO
(102)	At school, were you fairly brave if you fell over and hurt yourself?	YES	?	NO
(103)	At a cinema, do you enjoy sitting relaxed and waiting for the film to begin?	YES	?	NO
(104)	Do you clean your teeth with great regularity?	YES	?	NO
(105)	Can you remain fairly relaxed when you hear a police or ambulance siren?	YES	?	NO
(106)	Do you prefer not to ask for something that will probably be refused?	YES	?	NO
(107)	If the lid of a jam jar is difficult to unscrew, do you examine it carefully and try to think why?	YES	?	NO
(108)	If a fight broke out in a bar where you were drinking, would you leave as fast as possible?	YES	?	NO
(109)	If you had an opportunity to improve yourself by changing jobs, would you jump at the chance?	YES	?	NO
(110)	Are you very lax when it comes to cleaning your teeth?	YES	?	NO
(111)	Are you easily upset by socially embarrassing situations?	YES	?	NO
(112)	Would you carry on asking for an increase in pay even though you had been refused in the past?	YES	?	NO
(113)	Have you ever felt like killing someone?	YES	?	NO
(114)	If you stumbled across a group of people fighting, would curiosity cause you to stop and watch even though there was a danger of getting involved?	YES	?	NO
(115)	Would you rather stay in a secure job than risk one that might be more exciting?	YES	?	NO
(116)	If you were parking your car on a meter, would you always try to feed it with enough coins to cover your intended absence?	YES	?	NO
(117)	Would you say you are little affected by the opinions of others?	YES	?	NO
(118)	Would you pull out of an amateur dramatic production if you were having trouble learning your lines?	YES	?	NO
(119)	Do you find it hard to imagine how anyone could become so angry as to commit murder?	YES	?	NO
(120)	If you were suddenly confronted with a ferocious looking dog, would you probably run away immediately?	YES	?	NO

*Score key:*

(For each + item score Yes = 2, ? = 1, No = 0; For each - item score No = 2, ? = 1, Yes = 0)

Approach	1+, 7-, 13+, 19-, 25+, 31-, 37+, 43-, 49+, 55-, 61+, 67-, 73+, 79-, 85+, 91-, 97+, 103-, 109+, 115-.
Actavoid	2-, 8+, 14-, 20+, 26-, 32+, 38-, 44+, 50-, 56+, 62-, 68+, 74-, 80+, 86-, 92+, 98-, 104+, 110-, 116+.
Passavoid	3+, 9-, 15+, 21-, 27+, 33-, 39+, 45-, 51+, 57-, 63+, 69-, 75+, 81-, 87+, 93-, 99+, 105-, 111+, 117-.
Extinction	4-, 10+, 16-, 22+, 28-, 34+, 40-, 46+, 52-, 58+, 64-, 70+, 76-, 82+, 88-, 94+, 100-, 106+, 112-, 118+.
Fight	5+, 11-, 17+, 23-, 29+, 35-, 41+, 47-, 53+, 59-, 65+, 71-, 77+, 83-, 89+, 95-, 101+.
Flight	6-, 12+, 18-, 24+, 30-, 36+, 42-, 48+, 54-, 60+, 66-, 72+, 78-, 84+, 90-, 96+, 102-, 108+, 114-, 120+.