

Introversion and the Arousal Jag

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The present note reports two tests of Berlyne's (1960) theory of the 'arousal jag', taken in conjunction with Eysenck's theory of individual differences. Berlyne's theory postulates that small increases in arousal—'arousal jags'—are pleasurable, but large increases unpleasant and hence avoided. Among the wide range of phenomena to which he applies this theory are gambling and looking at paintings, the explanation of these activities being that they provide arousal jags. Berlyne has himself made explicit the implications of his theory for individual differences in the size of arousal jags different individuals will seek. His theory assumes that different determinants of arousal summate, so that individuals who are characterized by chronic high levels of arousal, or in whom arousal is quickly mobilized, will be inclined to seek less violent arousal jags than those in whom arousal is low or mobilized slowly. The reason for this is that individuals with high levels of arousal are nearer to the critical point at which arousal becomes unpleasantly high, and hence will be comparatively less able to tolerate increases in arousal. If we follow Claridge (1960) and assume that introverts have higher levels of arousal than extraverts, it becomes possible to make a number of predictions.

Our first test of this theory was concerned with individual differences in gambling. Berlyne's theory of gambling is as follows. Gambling causes anxiety and a rise in arousal—'an arousal jag'—and hence is pleasurable as long as the anxiety is not too great. It is reasonable to assume that the size of arousal jag provided by gambling is related to the size of the sum of money involved, large sums of money causing more anxiety and larger arousal jags. Our prediction is therefore that individuals who score high on introversion are less able to tolerate large arousal jags and hence will be less inclined to gamble large sums of money.

This prediction was tested in the following way. One hundred and eighteen students were used as subjects for the experiment. Neuroticism and introversion-extraversion were measured with the Maudsley Personality Inventory. Inclinations for gambling were assessed by giving subjects the following instructions: 'Imagine that you have £100 and that the necessities of life are cared for by a weekly income. Someone now makes you an offer to gamble with your £100. The terms are that whatever sum you put forward will be covered by an equal amount, a coin will then be spun, and either you lose your money, or you double it. You have only one chance. Now please write down on a piece of paper how much you would gamble in response to this offer'. Those subjects who refused to gamble were then asked to state whether this was because they disliked risk taking or because they had moral objections to gambling. Six subjects stated that they had moral objections to gambling and these were eliminated in the calculation of the results. (These subjects scored somewhat higher than average on neuroticism and introversion and if they had been included the correlations would have been higher.) There was a positive and statistically significant product moment correlation between the sum gambled

and extraversion ($r = +0.27$, $p = < 0.05$) (however, it might possibly be argued that this result would be predicted on the basis of introversion-extraversion differences in socialization). There was also a negative and statistically significant correlation between neuroticism and the amount gambled ($r = -0.19$, $p < 0.5$). This result suggests that individuals who score high on neuroticism may be high on arousal, a hypothesis which is in line with the greater sympathetic reactivity of neurotics.

The second experiment concerned individual differences in aesthetic preferences. Berlyne's theory of aesthetic preferences makes use of a simplicity-complexity dimension in preferences for visual forms which various investigators have identified (e.g. Eysenck, 1941). Since there is evidence that complex figures induce more arousal than simpler ones, Berlyne argues that individuals who like large arousal jags will tend to prefer the more complex pictures. If our initial hypothesis is correct, it follows that individuals who score highly on introversion should prefer simple pictures to complex ones.

There is already some evidence available on this point. Eysenck (1941) reported a correlation between a preference for simple paintings in bright colours and extraversion and again a preference for simple bright paintings by neurotic extraverts (Eysenck, 1947). It should be noted that these findings are in the opposite direction from those demanded by our extension of Berlyne's theory. In view of these puzzling findings we decided to repeat Eysenck's investigation using a more recent and reliable measure of introversion-extraversion (Eysenck's measure of extraversion was an early questionnaire devised by Heidbreder). Accordingly, Eysenck's K test and the MPI were given to 40 female students. The product moment correlation between introversion and score on the K test was $+0.46$ ($p < 0.05$), i.e. subjects scoring introverted tended to prefer the less bright and more complex paintings; the correlation between neuroticism and the K test was $+0.12$, which is not statistically significant. These results therefore replicate and support Eysenck's earlier work and confirm that the relationship is an embarrassment to Berlyne's theory as it is formulated at present.

In considering ways of salvaging the theory, it should be observed that Eysenck (1941, 1947) himself regarded his K test as a measure of colour preferences and not, as Berlyne interprets it, a measure of preferences for simplicity or complexity. If we accept Eysenck's interpretation of his test, then it would be expected that extraverts would prefer the bright paintings and introverts the subdued ones since bright colours give greater arousal jags. This is in fact the direction in which the correlation lies, so that the theory can be salvaged by accepting Eysenck's interpretation of the K test as a measure of preferences for colour brightness. It is hoped that the findings will appear sufficiently promising to stimulate further interest in the possibility of an integration of the concepts of arousal and personality theory.

REFERENCES

- BERLYNE, D. E. (1960). *Conflict, Arousal and Curiosity*. New York: McGraw-Hill.
 CLARIDGE, G. S. (1961). Arousal and inhibition as determinants of the performance of neurotics. *Brit. J. Psychol.* **52**, 53-63.
 EYSENCK, H. J. (1941). Type-factors in aesthetic appreciation. *Brit. J. Psychol.* **31**, 262-270.
 EYSENCK, H. J. (1947). *Dimensions of Personality*. London: Routledge and Kegan Paul.