

# Attention, extraversion, and stimulus-personality congruence<sup>1</sup>

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In this study Ss classified as extraverts, ambiverts or introverts on the Maudsley Personality Inventory looked at photographs rated as extravert, ambivert, or introvert for as long as they wished. It was hypothesized that there would be a tendency for Ss to look relatively longer at pictures congruent with their personality characteristic. Support for this hypothesis was found in a significant picture by personality interaction. Extraverts clearly looked longer at extravert pictures and introverts showed a very slight preference for introvert pictures. Ambivert pictures were looked at the longest by all groups. This high looking time for ambivert pictures and the small difference between the looking time at extravert and introvert pictures by introvert Ss is explained in terms of greater complexity of the ambivert and extravert pictures used in this experiment.

An important problem in the area of attentional behavior is the study of determinants of individual differences in the stimuli attended to. Given the same set of potential stimuli, different individuals may differentially select from them to constitute a set of effective stimuli. As William James has said, "my experience is what I agree to attend to" (James, 1890, p. 402).

The problem of individual differences in attention or stimulus selection may be approached by studying the interaction between personality variables and stimulus variables. McReynolds (1963) for example has shown a relationship between schizophrenic withdrawal and attention to novel stimuli. Zamansky (1956, 1958) has shown relationships between both homosexuality and paranoia and attention to pictures of females. Christiansen (1961) has shown a relationship between heterosexual interpersonal contacts of psychiatric patients and attention to pictures with heterosexual content.

The present study was designed to test the hypothesis that normal Ss will tend to select or attend to stimuli which are congruent with their personality characteristics. The time spent looking at a stimulus in a free looking task is used as a measure of attention. Three groups of Ss varying on the dimension of extraversion-introversion were allowed to look freely at a set of pictures judged to vary on the extraversion-introversion

dimension. Time spent looking at the pictures was studied as a function of the extraversion-introversion level of Ss. It was predicted that Ss would look relatively longer at pictures congruent with their extraversion-introversion status.

## Method

**Subjects.** Sixty Ss, 30 male and 30 female, were selected from an introductory psychology course on the basis of scores on the extraversion scale of the Maudsley Personality Inventory. Ss were unaware of the basis for their selection. Selection of Ss was from the top, middle, and bottom 15% of the distribution of extraversion scores resulting in six sub-groups as shown in Table 1.

**Apparatus.** Stimuli were black and white photographs from national magazines, mounted on white 3 x 5 cards, enclosed in clear plastic. The cards were stacked face down in a black wooden holder, so that S could remove one card at a time for viewing. A small rectangular cardboard box was provided into which S placed the pictures after looking at them.

A total of 42 pictures was selected by the experimenters to cover the range of extraversion-introversion. For example, a picture of a group of people at a party was considered an extravert picture; a picture of a man reading a book was considered an introvert picture; a picture of a group of people working in a laboratory was considered an ambivert picture. There was at least one person in all but one of the pictures. The pictures appeared in an apparently random order subject to the restrictions that no three successive pictures of one type should occur together, and that pictures of one type should not cluster in any part of the series.

Looking time for each picture was measured by a continuously running stopwatch. The watch was not visible or audible to S and Ss were not told that their looking time was being measured.

**Procedure.** Ss sat individually at a table on which was placed the stack of pictures and the discard box. E sat at a second desk at a right angle to and behind S, out of his line of vision. S was instructed to look at the pictures one at a time, viewing each one for as long as he wanted. He was instructed to discard each picture in the box provided before picking up the next one. He was told that the experiment was not a test of memory and that he would not be asked to recall or answer questions about any of the pictures. However, he was told that there was a second part to the experiment. This second

Table 1. Mean Extraversion Scores

|           | Male | Female |
|-----------|------|--------|
| Extravert | 39.2 | 39.5   |
| Ambivert  | 28.9 | 29.2   |
| Introvert | 12.7 | 12.1   |

Table 2. Mean Looking Time in Seconds

| Personality | Sex    | Extravert | Ambivert | Introvert |
|-------------|--------|-----------|----------|-----------|
| Extravert   | Male   | 8.08      | 8.59     | 6.97      |
|             | Female | 5.48      | 5.81     | 4.55      |
|             | Total  | 6.78      | 7.20     | 5.76      |
| Ambivert    | Male   | 5.94      | 6.00     | 5.67      |
|             | Female | 9.59      | 10.03    | 8.49      |
|             | Total  | 7.76      | 8.01     | 7.08      |
| Introvert   | Male   | 8.59      | 9.04     | 8.21      |
|             | Female | 6.46      | 7.36     | 6.92      |
|             | Total  | 7.53      | 8.20     | 7.56      |

part consisted of sorting the pictures into two, not necessarily equal, piles. Ss were instructed to place all of the pictures they thought were extravert into one pile and all of the pictures they thought were introvert in the other pile. The second part was administered immediately after S finished looking at the pictures.

On the basis of Ss classifications of the pictures, the pictures were classified into three groups of 14 each, an extravert group, an ambivert group, and an introvert group. The classification of the pictures was essentially the same for all three groups of Ss and was in agreement with a classification made by the experimenters.

**Results**

The mean looking time by groups and pictures is presented in Table 2. Analysis of variance applied to this data showed significant effects for pictures,  $F = 26.5$ ,  $df = 2/104$ ,  $p < .01$ , Pictures by Personality  $F = 29.1$ ,  $df = 4/104$ ,  $p < .01$ , and Sex by Personality,  $F = 3.8$ ,  $df = 2/54$ ,  $p < .05$ . The pictures effect was due to different looking times elicited by the different kinds of pictures. The looking time for ambivert pictures was considerably longer than for either extravert or introvert pictures; this was true for all three subject groups. A possible explanation of this result will be considered below.

The significant ( $p < .05$ ) interaction between Personality and Sex is due to a tendency for Ss in the ambivert female group to have longer looking times than Ss in the ambivert male group; an opposite tendency was found in the introvert and extravert groups. No reason for this interaction is apparent.

Most interesting in view of the hypothesis that led to this study is the significant Personality by Picture interaction, illustrated in Fig. 1.

For the extraverts there is a distinct preference for extravert over introvert pictures; for the introverts there is a very slight preference for introvert over extravert pictures. Introverts spend almost as much time looking at extravert pictures as they do looking at introvert pictures. Though Ss in the ambivert group look longer at extravert pictures than they do at introvert pictures, they are intermediate between the extreme groups in terms of the discrepancy between time spent looking at extravert and introvert pictures.

**Discussion**

The results of this study support the general hypothesis that Ss will spend more time looking at stimuli congruent with their personality. The relation between a personality trait and attention or stimulus selection suggests that a trait may be conceived of as a relatively permanent readiness to respond selectively to stimuli congruent with the trait.

The results of the experiment raise a number of questions, however. First, why were ambivert pictures looked at longest by all groups? Second, why did ambivert Ss prefer extravert pictures to introvert pictures? Third, why was there so little difference for introvert Ss in their looking time at introvert and extravert pictures?

Inspection of the pictures classified as extravert, ambivert, and introvert suggested a possible explanation of these findings. It turns out that ambivert pictures, on the average, had more people in them than either extravert or introvert pictures (median of seven people). Extravert pictures had a median of two people in them and most of the introvert pictures had only one person. It seems that with the particular set of pictures used, extraversion-introversion and number of people were confounded or correlated. It is likely also that the more people in the picture, the greater is its complexity. Since complexity of stimuli has been shown to be positively related to looking time (Berlyne, 1958, 1963; Leckart & Bakan, 1965) it is assumed that picture complexity was influencing the results of this experiment.

This analysis helps to answer the question raised about the results of the experiment. The ambivert pictures, since they were the most complex were looked at the longest by all subject groups. The fact that ambivert Ss looked longer at extravert pictures than at introvert pictures follows from the greater complexity of the extravert pictures. Finally, the small difference in

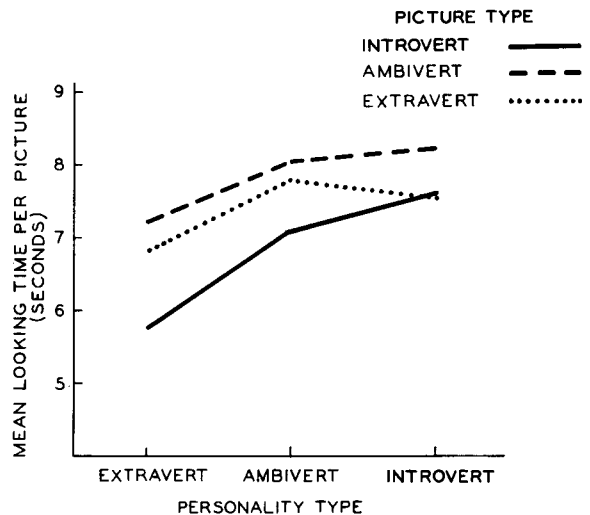


Fig. 1. Looking time as a function of personality and picture type.

looking time between extravert and introvert pictures, which was found for introverts, could also be explained in terms of a relatively inflated looking time elicited by extravert pictures due to their higher complexity.

Despite the likely confounding of complexity with extraversion-introversion in the pictures, there was still enough difference in the looking behavior of the subject groups to yield the significant Personality by Picture interaction which supports the hypothesis relating attention and stimulus-personality congruence.

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## Note

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