Cognitive and affective aspects of boredom

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It is argued that previous research may have been mistaken in assuming that monotony in sensory stimulation is a necessary and sufficient cause of boredom.

Five investigations are reported which used personal construct theory and repertory grid techniques to investigate three hypotheses: (1) that boredom is associated with subjective monotony, (2) that boredom is associated with a high degree of frustration and (3) that boredom arises when stimulation lacks meaning for the individual.

Results supported hypotheses (1) and (2) but no evidence was found to support hypothesis (3).

In the occupational field, boredom has been associated with lowered output, poorer mental health and increased voluntary labour turnover among production workers (Wyatt et al., 1929; Kornhauser, 1965; Wild & Hill, 1970). In the educational field, boredom may be a major factor in early school leaving (Morton-Williams & Finch, 1968) and possibly partially responsible for unruly classroom behaviour. Yet although boredom appears a common and important phenomenon it remains poorly understood, perhaps in part because of the assumptions made by researchers about its nature and origins.

Much recent experimental research has arisen from the major theories of boredom put forward by Hebb (1955, 1966) and Berlyne (1960, 1967). Both these authors argue that the antecedent of boredom is monotony: the physical monotony of stimulation impinging on the individual. This notion that physical monotony is a necessary and sufficient condition for the occurrence of boredom has been taken almost as an 'act of faith' by most subsequent researchers (for example, London et al., 1972; Thackray et al., 1974, 1975; Bailey et al., 1976) who have proceeded to investigate psychophysiological changes associated with boredom induced by monotonous stimulation.

However, industrial research on individual differences in susceptibility to boredom among people engaged in repetitive, monotonous work clearly suggests that sensory monotony is not a sufficient condition for the occurrence of boredom. If monotony were a sufficient condition, everyone faced with monotonous work should get bored, yet this is clearly not the case. A variety of factors have been found to affect susceptibility to boredom including: age (Smith, 1955; Hill, 1975; Stagner, 1975), emotional lability (Rosseel, 1974; Hill, 1975) and satisfaction with domestic and personal life (Smith, 1955).

Further, two types of evidence suggest that monotony is not a necessary condition for the occurrence of boredom. Firstly, anecdotal evidence is quite persuasive. People often complain of boredom at lectures or parties where there must, in fact, be quite a variety of novel auditory and visual stimulation. Secondly, Bailey et al. (1976) found that subjects got bored with a task of high visual complexity which could not be described as monotonous.

If sensory monotony is neither a necessary nor a sufficient cause of boredom, then an explanation for its occurrence must be sought in other terms. Two cognitive hypotheses may be advanced.

Fiske & Maddi (1961) proposed that boredom may result when stimulation lacks meaning for the individual. Although this hypothesis has received little attention, Landon & Suedfeld (1969) found, in their studies of sensory deprivation situations, that lack of meaning was a more important determinant of boredom than physical monotony.

Secondly, it may be hypothesized that boredom results from the perception of stimulation as monotonous (whether it actually is or not): that is, boredom may be a consequence of
subjective, rather than objective, monotony. Morton-Williams & Finch (1968) and Robinson (1975) found boredom among school pupils to be associated with perceived monotony of school work and Locke & Bryan (1967) found that boredom could be alleviated by changing the subject’s perception of the task.

Phenomenologically boredom is an aversive state, yet to be bored is to experience something more than mere dislike, and people seem to have no difficulty in distinguishing experiences they dislike (but do not find boring) from those they dislike and do find boring. To date no research has addressed the issue of what differentiates dislike and boredom. A number of anecdotal reports suggest that boredom is associated with a high degree of restlessness and emotional tension (Heron, 1957; Berlyne, 1960) and with frustration (Barmack, 1937; Baldamus, 1951; Zweig, 1953; Stagner, 1975). The small amount of experimental work relating to these points has yielded conflicting results. Gjesme (1977) found perceived frustration of achievement needs related to boredom at school, whilst London et al. (1972) found no relation between boredom and ratings of frustration in an experimental task. However, neither of these studies attempted a detailed examination of perceived satisfactions and frustrations of a range of needs or motives. Thus a third hypothesis, concerning the nature of boredom rather than its cause, might be that boredom is associated with a higher degree of frustration than the experience of dislike without boredom.

Thus the investigations reported here were designed to test three hypotheses: (1) that boredom arises when stimulation lacks meaning for the individual, (2) that boredom is associated with subjective monotony, and (3) that boredom is associated with a high degree of frustration.

The first two experiments reported were directed towards the first two hypotheses. In considering the meaning of stimulation two points must be considered. Firstly, that it is unlikely that any stimulus totally lacks meaning for an individual, and secondly that the meaning of a stimulus lies not in the stimulus itself but in the perceiver (Kelly, 1955). Therefore, in order to measure the meaning of a stimulus an approach derived from Osgood et al. (1957) was used, where a meaningless stimulus would be conceived of as lying at the neutral point on each of a set of semantic differential scales. Operationally, therefore, one may consider that the less meaning a stimulus has for a person, the closer it will be rated to the neutral point on semantic differential or personal construct scales. In terms of subjective monotony, it was argued that physically varied stimuli may be perceived as ‘being all the same’ and that in such a case the individual making the perception would be likely to use fewer personal constructs and make fewer distinctions among stimuli on each construct. Thus the approach used in investigating the first two hypotheses utilized Kelly’s (1955) personal construct theory and its associated repertory grid technique.

In the third experiments an attempt was made to relate subjects’ construing to affective factors associated with interest and boredom. Directive state theory (Allport, 1955) postulates that an individual’s motives (wants, wishes or need states) can influence the nature and selectivity of perceptions. Thus it may be argued that the constructs an individual applies to events will in part be influenced by existing motives and that the constructions made may be instrumental, through the behaviour they elicit, in providing satisfaction or frustration for underlying motives. Not all constructions are necessarily instrumental in this way, and some are likely to be irrelevant to at least some motives. In adopting this view, the degree of satisfaction or frustration associated with a given construction is likely to be influenced by the strength and saliency of motives. For example, the hungry person is likely to experience more severe frustration than the less hungry person if (s)he construes available food as poisonous.
Clearly, by introducing motivational constructs into the construing process we are departing from conventional personal construct theory. However, the adequacy with which the theory deals with motivation has already been severely questioned by Foulds (1973).

In terms of the affective quality of boredom and the distinction already made between the experience of boredom and mere dislike, in the final experiments it was felt important to consider both disliked and boring experiences as well as the experience of interest.

Experiment 1

This experiment used a repertory grid technique to test the following operational hypotheses derived from the 'meaning' and 'subjective monotony' hypotheses already discussed: (1) that bored subjects will construe stimuli (grid elements) closer to the neutral point of construct scales than interested subjects, (2a) that bored subjects will use fewer constructs than interested subjects in construing stimuli, and (2b) that, on the constructs they use, bored subjects will make fewer distinctions among stimuli than interested subjects.

Method

Subjects. Twenty-four undergraduates (mean age 21.6 years) were chosen, on the basis of their replies to a set of eight questions concerning motorcycles, to form two groups, each of six men and six women: one group likely to find the task interesting, the other likely to find it boring.

Materials. Seven 6 × 8 in colour pictures of motorcycles served as elements in a repertory grid. A list of six bipolar constructs to be supplied to subjects was drawn up prior to the experiment by choosing the six most commonly occurring constructs elicited from a group of 10 undergraduates chosen at random.

Procedure. Each subject was tested individually. A paired comparison procedure was used in order to familiarize subjects with the stimuli, in which subjects were asked to make preference judgements for each pair of stimuli. The results of this exercise were not analysed.

Constructs were elicited from each subject using the minimum context method (Bannister & Mair, 1968), involving 21 triplets of stimuli. To increase the permeability of constructs, subjects were asked not to offer constructs concerning the physical details of the motorcycles, for example, colour. If the subjects were unable to provide a construct, five standard prompts were used relating to the qualities and uses of the motorcycles. Thus subjects who found difficulty in giving constructs received more prompting than those who found it easy: a conservative procedure biased against a too ready acceptance of hypothesis 2a.

After the subject had given each construct (and a contrast pole) (s)he was asked to rate the stimulus pictures on that construct using a seven-point scale, tied ratings being allowed. Subjects were then asked to rate the seven stimuli on the six supplied constructs. These were included to permit a more controlled comparison between the construing of bored and interested subjects than could be achieved using only elicited constructs.

At the end of the experiment each subject was asked to rate their degree of interest or boredom on a six-point scale (slightly, reasonably, very interesting/boring).

Results

Subjects were divided into bored (B) and interested (I) groups on the basis of their stated boredom/interest with the task. The bored group comprised three slightly, five reasonably and three very bored subjects. The interested group comprised three slightly, eight reasonably and two very interested subjects. In the case of three subjects, interest/boredom ratings did not correspond to their responses on the initial subject selection questions.

Hypothesis 1. An operational measure of degree of meaning accorded to stimuli was established in terms of a Total Discrepancy Score. This offered a numerical assessment of the extent to which subjects construed elements near to the central (neutral) point of
construct scales. For each subject a Total Discrepancy Score for elicited constructs (TDSE) and for supplied constructs (TDSS) was calculated. These were calculated for each construct by summing the discrepancy between each stimulus rating and the midscale value, ignoring algebraic signs. Thus if the seven stimuli were rated 1, 3, 3, 2, 6, 5, 7 on a construct, the discrepancy score for that construct would be 

\[(1 - 4) + (3 - 4) + (3 - 4) + (2 - 4) + (6 - 4) + (5 - 4) + (7 - 4) = 13.\]

By summing discrepancy scores over all constructs a Total Discrepancy Score was obtained. The higher the value of the TDS, the more meaning the subject was assumed to have obtained from, or accorded to, the stimuli.

Table 1 shows the mean Total Discrepancy Scores for elicited and supplied constructs. As the number of constructs elicited varied considerably between subjects the mean TDSE value was derived from the first nine constructs elicited from each subject.

**Table 1. Mean Total Discrepancy Scores (TDS) and mean Category Usage Scores (CUS) for bored and interested subjects in Expt 1**

<table>
<thead>
<tr>
<th>Subject group</th>
<th>Mean TDS for elicited constructs</th>
<th>Mean TDS for supplied constructs</th>
<th>Mean CUS for all elicited constructs</th>
<th>Mean CUS for the first nine elicited constructs</th>
<th>Mean CUS for supplied constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bored</td>
<td>125.27</td>
<td>79.45</td>
<td>4.44</td>
<td>4.52</td>
<td>4.21</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>(12.2)</td>
<td>(11.3)</td>
<td>(0.38)</td>
<td>(0.36)</td>
<td>(0.49)</td>
</tr>
<tr>
<td>Interested</td>
<td>116.15</td>
<td>73.77</td>
<td>5.25</td>
<td>5.24</td>
<td>5.28</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>(11.8)</td>
<td>(5.5)</td>
<td>(0.49)</td>
<td>(0.58)</td>
<td>(0.59)</td>
</tr>
<tr>
<td>(t)</td>
<td>1.85</td>
<td>1.52</td>
<td>4.58</td>
<td>3.66</td>
<td>4.79</td>
</tr>
<tr>
<td>(P &gt; 0.05)</td>
<td>(P &gt; 0.05)</td>
<td>(P &lt; 0.001)</td>
<td>(P &lt; 0.002)</td>
<td>(P &lt; 0.001)</td>
<td></td>
</tr>
</tbody>
</table>

**Hypothesis 2a.** In order to test this hypothesis the number of constructs elicited from each subject was recorded. The mean number for the bored group was 14.18 and for the interested group was 18.77. A \(t\) test showed the difference between these means to be significant \((t = 3.9, \ P < 0.001)\).

**Hypothesis 2b.** To compare distinctions made among elements by bored and interested groups a measure called the Category Usage Score (CUS) was developed. The CUS on a construct was defined as the number of different ratings given to elements on that construct. For example, if the seven grid elements were given ratings: 1, 2, 3, 5, 7, 6, 4, seven different ratings and hence seven distinctions among elements would be evident, and so \(\text{CUS} = 7\). For elements rated: 1, 1, 3, 4, 7, 7, 7, only four distinctions would be made and \(\text{CUS} = 4\).

Mean Category Usage Scores were computed for each subject for both elicited and supplied constructs. Because of the different number of constructs elicited from bored and interested subjects, the mean CUS was calculated for all constructs elicited and for the first nine elicited. These mean CUS for the two groups of subjects can be seen in Table 1.

**Discussion**

The results of the first experiment indicated that bored and interested groups of subjects did not differ significantly in terms of the meaning extracted from the task as measured by
the Total Discrepancy Score. Thus, using a semantic differential approach to the quantification of ‘meaning’, no evidence emerged to support Fiske & Maddi’s (1961) view that boredom is associated with a lack of meaningful stimulation. On the other hand, bored subjects did produce significantly fewer constructs, and made significantly fewer distinctions among stimuli than interested subjects, lending support to the hypothesis that subjective monotony is associated with boredom. However, ratings of boredom and interest were made only at the end of the task and it was not therefore possible to determine whether a change from initial interest in the task to subsequent boredom was accompanied by changes in construing. Therefore a further experiment was designed to examine such changes, and to investigate whether the finding of an absence of association between boredom and Total Discrepancy Scores could be replicated without the confounding effects of memory for previous judgements and the problem of differential knowledge that could possibly have influenced the results of Expt 1.

**Experiment 2**

This experiment again used a repertory grid approach to test the following operational hypotheses: (1) a shift from interest to boredom during the course of the task will not be accompanied by a change in Total Discrepancy Score, (2a) a shift from interest to boredom during task performance will be accompanied by a decrease in Category Usage Score, and (2b) when initial interest is maintained throughout the task there will be no change in Category Usage Score.

Previous research carried out by the authors suggested that a task involving construing three different sets of faces might offer the possibility of generating boredom in some subjects whilst allowing others to remain interested.

**Method**

**Subjects.** Twenty-six sixth-form college students, 19 female and 7 male, mean age 16·88 years.

**Materials.** Three sets of 10 full-face photographs formed the elements in three repertory grids. Each set consisted of five male and five female faces in the age range 18–24 years.

**Procedure.** Each subject was tested individually. Using six different triplets of photographs from the first set, six constructs were elicited using the minimum context method. Following elicitation of each construct, all 10 photographs in the set were rated on a 10-point scale, tied ratings being allowed. After completing the first grid subjects were required to complete two further grids using the two other sets of photographs as elements, but the same six constructs elicited in the first grid. Thus each subject completed three grids. The three sets of photographs were used in all six possible orders for the three grids to counteract possible order effects.

After the first and third grid each subject was asked to rate their degree of interest/boredom with the task on the six-point scale used in Expt 1.

**Results**

On the basis of their ratings of interest/boredom, two groups were distinguished; the first was a bored group (B) who after Grid 1 rated the task as interesting, but after Grid 3 rated it as boring. Sixteen subjects formed the bored group (mean interest rating 4·9 after Grid 1 and 2·7 after Grid 3). This group contained four ‘dubious’ cases who merely showed a decrease in level of rated interest, that is, they were interested after the first grid and still interested, but less so, after the third grid. A second group of 10 subjects showed either constant or increased ratings of interest (mean interest rating 4·6 after Grid 1 and 5·2 after Grid 3). This interested group (I) contained two ‘dubious’ cases, one showing a constant rating of slight boredom, the other moving from slight boredom to slight interest.

Throughout, analyses were carried out both including and excluding these dubious cases.
Hypothesis 1. This was tested by computing Total Discrepancy Scores (TDS) for Grid 1 and Grid 3. Table 2 shows the mean TDS for bored and interested groups.

Hypotheses 2a and 2b. These were tested by comparing Category Usage Scores (CUS) for Grid 1 and Grid 3 for bored and interested groups separately. The mean CUS can be seen in Table 2.

Discussion
The results shown in Table 2 provide strong support for hypotheses 2a and 2b and thus lend further support to the hypothesis that subjective monotony is associated with boredom. Further, the results lend no support to the Fiske & Maddi (1961) hypothesis by confirming the conclusion of Expt 1 that boredom is not associated with failure to extract meaning from stimulation, at least when 'meaning' is quantified using a semantic differential approach.

It is possible, however, to conceptualize and assess 'meaning' in a rather different manner. A stimulus may be considered as having 'meaning' in the sense of being imbued with emotional significance if it is perceived as relevant to motives possessed by the perceiver. The sight of a glass of water will ordinarily have no significance unless one is thirsty. Furthermore, it has a distinctively different 'meaning' if whilst thirsty one observes a glass of sea water. Thus it is possible that boredom may be related to the 'meaning' of stimulation if 'meaning' is defined in terms of perceived relevance to the satisfaction or frustration of motives. In this sense a stimulus would be considered 'meaningless' if all perceptions of it are irrelevant to the satisfaction or frustration of the perceiver's needs, and more 'meaningful' the greater the number of perceptions made of it which are relevant to need satisfaction or frustration. Thus one might anticipate that interesting experiences would be construed in terms of a large set of constructs relevant to need satisfaction. By contrast, in addition to anticipating that boring experiences might be associated with a high degree of overall frustration (hypothesis 3), it may be that this frustration is allied to a small (though powerful) set of constructs giving rise to frustration, but a large set of constructs irrelevant to motive satisfaction or frustration. Disliked activities might be construed as moderately frustrating, and fall between interesting and boring experiences in terms of the number of constructs associated with motivational satisfaction or frustration.

Thus two further experiments were designed to investigate not only whether boredom is associated with a high degree of frustration, but also to examine the relationship between boredom and failure to extract 'meaning' from stimulation in this reconceptualized sense.

Experiments 3A and 3B
These experiments were designed to test two sets of operational hypotheses. The first set concerning the relationship between boredom and frustration were as follows:
(3a) interesting experiences will be construed as providing satisfaction for underlying needs,
(3b) boring and disliked experiences will be construed as providing frustration for underlying needs, and
(3c) boring experiences will be construed as providing a higher degree of frustration than disliked experiences. In relation to the 'meaning' hypothesis, the second set of operational hypotheses tested were as follows: (4a) interesting activities will be construed in terms of a large number of constructs relevant to need satisfaction,
(4b) boring activities will be associated with a large number of constructs irrelevant to motive satisfaction or frustration, and
(4c) disliked activities will be associated with fewer constructs relevant to motive satisfaction or frustration than interesting activities but more than boring ones.
<table>
<thead>
<tr>
<th>Mean scores for the interested group</th>
<th></th>
<th>Mean scores for the bored group</th>
<th></th>
<th>Excluding dubious cases n = 8</th>
<th>Excluding dubious cases n = 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grid 1</strong></td>
<td><strong>Grid 3</strong></td>
<td><strong>TDS</strong></td>
<td><strong>CUS</strong></td>
<td><strong>TDS</strong></td>
<td><strong>CUS</strong></td>
</tr>
<tr>
<td>Mean</td>
<td>Mean</td>
<td>(SD)</td>
<td>(SD)</td>
<td>(SD)</td>
<td>(SD)</td>
</tr>
<tr>
<td>128.1</td>
<td>128.8</td>
<td>27.3</td>
<td>25.1</td>
<td>0.94</td>
<td>0.70</td>
</tr>
<tr>
<td>t</td>
<td>t</td>
<td>0.11</td>
<td>0.11</td>
<td>0.89</td>
<td>0.89</td>
</tr>
<tr>
<td>P &gt; 0.05</td>
<td>P &gt; 0.05</td>
<td>P &gt; 0.05</td>
<td>P &gt; 0.05</td>
<td>P &gt; 0.05</td>
<td>P &gt; 0.05</td>
</tr>
</tbody>
</table>
Method

Subjects. In Expt 3A the subjects were 18 College of Further Education students (10 women and 8 men; mean age 18-7 years). In Expt 3B the subjects were 24 Comprehensive school sixth formers (13 women and 11 men; mean age 16:3 years).

Materials. To examine the constructions made of interesting, disliked and boring experiences and relate these constructions to the satisfaction and frustration of motives a form of repertory grid was developed which we called the Motivational Need Satisfaction Schedule (MNSS). This consisted of 30 paired statements, two relevant to each of the 15 ‘needs’ of the Edwards Personal Preference Schedule (EPPS) (Edwards, 1953). One member of each pair of statements represented the emergent pole of a construct, the other the contrast pole. The statement at one pole indicated feelings of satisfaction for an EPPS need, the other pole indicated feelings of frustration of that same need. For example, the construct relating to the need for order had at its emergent and contrast poles:

I felt things were orderly I felt things were chaotic.

These constructs were presented in random order, each with a seven-point visual rating scale on which activities could be rated. If the neutral scale point was used, subjects were asked to specify whether this indicated neutral feelings or that the construct in question was irrelevant to the construction of the experience being rated.

The final set of constructs used in the MNSS was arrived at through a series of pilot studies (Perkins, 1981) designed to ensure adequate internal validity of the instrument (Hill, 1976). The EPPS was used in conjunction with the MNSS for weighting purposes.

Procedure. Each subject was tested individually. In Expt 3A participants were asked to nominate two subjects that they had studied in the fifth form at school that they had found interesting (I), two they had disliked (D), and two they had found boring (B). In Expt 3B participants were asked to nominate three specific activities they had engaged in within the last month which they had found interesting (I), three they had disliked (D), and three they had found boring (B). Efforts were made to ensure that the scale of the activities was comparable (for example, flying to Paris would not have been considered comparable to washing up). These scholastic subjects and activities formed the elements of the MNSS grid in Expts 3A and 3B respectively. Both specific, sharply defined, activities and whole sets of activities (school subjects occurring over a period of a year) were considered in order to assess whether the two would yield similar results.

The order in which interesting, disliked and boring activities/school subjects were elicited and subsequently rated on the MNSS was varied among the participants. After completing the MNSS for all activities/school subjects, each participant completed the Edwards Personal Preference Schedule.

Results

Scoring. Responses on the MNSS visual rating scale were transcribed to a seven-point numerical scale (+3 to −3). Positive scores were given to expressions of satisfaction, negative scores to expressions of frustration. The numerical ratings given on the two constructs reflecting each need were added, taking into account algebraic signs. Thus 15 MNSS scores were obtained for each participant on each activity rated. These scores were then weighted by multiplying each by the T score the subject yielded for that need on the EPPS. This was done because the frustration or satisfaction of a need is likely to be greater if the need is stronger. Finally, to obtain overall measures of satisfaction/frustration, the 15 weighted MNSS scores were added over the sets of interesting (I), disliked (D) and boring (B) activities/school subjects rated, giving three final I, D, and B scores for each participant.

Hypotheses 3a, 3b and 3c. Table 3 shows the mean overall satisfaction/frustration scores for interesting, disliked and boring school subjects and activities. In both Expts 3A and 3B statistical comparison showed I, D, and B scores to be significantly different from one another. Interesting school work and activities were associated with overall satisfaction of motives (positive mean I scores). Disliked and boring school work and activities were
Table 3. Mean overall satisfaction/frustration scores for interesting (I), disliked (D) and boring (B) activities in Expts 3A and 3B

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Interesting activities (I)</th>
<th>Disliked activities (D)</th>
<th>Boring activities (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3A</td>
<td>3B</td>
<td>3A</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>731.9 (290.7)</td>
<td>1389.4 (476.6)</td>
<td>-39.3 (464.0)</td>
</tr>
</tbody>
</table>

Note. Wilcoxon tests showed both for 3A and 3B that IDB scores were significantly different at the 1 per cent level of confidence or better: 3A B/D comparison - T = 18, I/D comparison - T = 0, I/B comparison - T = 0; 3B B/D comparison - T = 25, I/D comparison - T = 0, I/B comparison - T = 0.

associated with overall frustration of motives (negative mean D and B scores). Boredom and dislike were differentiated very significantly in terms of the former being associated with a higher degree of frustration than the latter. Thus these experiments both offer strong support for hypotheses 3a, 3b and 3c.

Table 4 shows the mean satisfaction/frustration scores for each EPPS need. Examination of the patterns of satisfaction and frustration in Expt 3A shows that disliked and boring school work were significantly differentiated in terms of satisfaction of four needs (order, dominance, change and endurance). On nine further needs interesting school work was differentiated from disliked and boring work, but the latter two were not significantly different in terms of degree of satisfaction/frustration. Turning to the pattern of satisfaction/frustration in Expt 3B, again the needs for change and endurance differentiated between disliked and boring activities (together with achievement and exhibition). In both investigations, interesting activities were construed as providing satisfaction for the needs for change and endurance, whilst disliked, and particularly boring, activities were construed as providing frustration for them.

Hypotheses 4a, 4b and 4c. As a crude index of the ‘meaning’ (in terms of satisfaction/frustration of motives) of the activities which served as elements in the MNSS grids, for each participant in Expts 3A and 3B, the number of MNSS constructs where ratings indicated satisfaction, frustration, and irrelevance to need satisfaction or frustration was found. Means across participants were calculated separately for interesting, disliked, and boring activities in each experiment. Table 5 shows these mean scores.

Related samples t tests showed that the number of constructs associated with satisfaction of EPPS needs distinguished significantly between interesting, disliked, and boring activities (P < 0.005 in Expt 3A; P < 0.001 in Expt 3B). However, the number of constructs associated with frustration of EPPS needs distinguished significantly between interesting activities on the one hand and disliked and boring ones on the other (P < 0.001), but did not distinguish significantly between the latter two. In neither experiment was boredom associated with a significantly greater number of constructs irrelevant to EPPS needs. Thus, again, there was no support for the hypothesis that boredom is associated with a lack of meaningful stimulation.

General discussion

Boredom and subjective monotony

In Expts 1 and 2 subjects were required to examine and rate sets of physically different stimuli. Some subjects reported boredom with the tasks, others did not, and this supports
Table 4. Mean satisfaction/frustration scores for interesting (I), disliked (D) and boring (B) activities in Expts 3A and 3B

<table>
<thead>
<tr>
<th>EPPS need</th>
<th>Expt 3A</th>
<th>Expt 3B</th>
<th>Mean satisfaction/frustration score</th>
<th>Expt 3A</th>
<th>Expt 3B</th>
<th>B</th>
<th>Expt 3A</th>
<th>Expt 3B</th>
<th>Pattern of satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td></td>
<td></td>
<td>D</td>
<td></td>
<td>B</td>
<td>Expt 3A</td>
<td>Expt 3B</td>
<td></td>
</tr>
<tr>
<td>Achievement</td>
<td>117.7</td>
<td>155.4</td>
<td>-43.3</td>
<td>38.0</td>
<td>-79.9</td>
<td>-137.5</td>
<td>I &gt; D = B</td>
<td>I &gt; D &gt; B</td>
<td></td>
</tr>
<tr>
<td>Deference</td>
<td>-7.9</td>
<td>-41.2</td>
<td>25.6</td>
<td>56.4</td>
<td>26.6</td>
<td>57.7</td>
<td>I = B &gt; I</td>
<td>I = B &gt; I</td>
<td></td>
</tr>
<tr>
<td>Order</td>
<td>74.4</td>
<td>91.9</td>
<td>8.6</td>
<td>-37.7</td>
<td>-34.5</td>
<td>-18.3</td>
<td>I &gt; D &gt; B</td>
<td>I &gt; D &gt; B</td>
<td></td>
</tr>
<tr>
<td>Exhibition</td>
<td>43.7</td>
<td>141.2</td>
<td>-3.6</td>
<td>-2.4</td>
<td>-25.2</td>
<td>-68.3</td>
<td>I &gt; D = B</td>
<td>I = D = B</td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>41.0</td>
<td>197.2</td>
<td>-52.8</td>
<td>-125.7</td>
<td>-41.6</td>
<td>-104.8</td>
<td>I &gt; D = B</td>
<td>I = D = B</td>
<td></td>
</tr>
<tr>
<td>Affiliation</td>
<td>119.3</td>
<td>184.8</td>
<td>49.1</td>
<td>-61.5</td>
<td>35.1</td>
<td>-67.4</td>
<td>I &gt; D = B</td>
<td>I &gt; D = B</td>
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<tr>
<td>Succorance</td>
<td>58.2</td>
<td>92.6</td>
<td>-0.3</td>
<td>-59.7</td>
<td>-15.3</td>
<td>-62.2</td>
<td>I &gt; D = B</td>
<td>I &gt; D = B</td>
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</tr>
<tr>
<td>Dominance</td>
<td>49.7</td>
<td>96.6</td>
<td>-29.9</td>
<td>-53.9</td>
<td>-61.5</td>
<td>-63.7</td>
<td>I &gt; D = B</td>
<td>I &gt; D = B</td>
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<tr>
<td>Abasement</td>
<td>-98.3</td>
<td>-16.7</td>
<td>-49.2</td>
<td>11.4</td>
<td>57.8</td>
<td>-58.4</td>
<td>D = B &gt; I</td>
<td>D = B &gt; I</td>
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</tr>
<tr>
<td>Nurturance</td>
<td>38.1</td>
<td>87.3</td>
<td>-23.9</td>
<td>22.0</td>
<td>-18.4</td>
<td>-2.4</td>
<td>I &gt; D = B</td>
<td>I &gt; D = B</td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td>113.3</td>
<td>179.0</td>
<td>-19.3</td>
<td>-55.1</td>
<td>-113.2</td>
<td>-200.5</td>
<td>I &gt; D &gt; B</td>
<td>I &gt; D &gt; B</td>
<td></td>
</tr>
<tr>
<td>Aggression</td>
<td>-11.0</td>
<td>9.22</td>
<td>-3.3</td>
<td>26.2</td>
<td>-7.3</td>
<td>-59.8</td>
<td>I &gt; D &gt; B</td>
<td>I &gt; D &gt; B</td>
<td></td>
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<tr>
<td>Endurance</td>
<td>74.6</td>
<td>132.3</td>
<td>-0.6</td>
<td>23.8</td>
<td>-33.5</td>
<td>-126.3</td>
<td>I &gt; D &gt; B</td>
<td>I &gt; D &gt; B</td>
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<tr>
<td>Heterosexuality</td>
<td>31.4</td>
<td>130.2</td>
<td>6.7</td>
<td>8.5</td>
<td>1.8</td>
<td>12.9</td>
<td>I = B = B</td>
<td>I &gt; D = B</td>
<td></td>
</tr>
<tr>
<td>Intraception</td>
<td>99.3</td>
<td>119.5</td>
<td>-28.3</td>
<td>13.5</td>
<td>-24.3</td>
<td>-30.6</td>
<td>I &gt; D = B</td>
<td>I &gt; D = B</td>
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</table>
Table 5. Mean number of constructs associated with satisfaction (S), frustration (F) and irrelevance (I) to EPPS needs in Expts 3A and 3B (figures in parentheses are standard deviations)

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Satisfaction (S)</th>
<th></th>
<th>Frustration (F)</th>
<th></th>
<th>Irrelevance (I)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3A</td>
<td>3B</td>
<td>3A</td>
<td>3B</td>
<td>3A</td>
</tr>
<tr>
<td>Interesting</td>
<td>32.3_3^a</td>
<td>41.8_3^a</td>
<td>8.2_3^a</td>
<td>14.4_3^a</td>
<td>18.9_3</td>
</tr>
<tr>
<td></td>
<td>(7.3)</td>
<td>(7.8)</td>
<td>(2.9)</td>
<td>(9.3)</td>
<td>(8.1)</td>
</tr>
<tr>
<td>Disliked</td>
<td>19.3_3^b</td>
<td>22.4_3^b</td>
<td>23.6_3^b</td>
<td>31.5_3^b</td>
<td>18.3_3</td>
</tr>
<tr>
<td></td>
<td>(8.1)</td>
<td>(5.3)</td>
<td>(9.7)</td>
<td>(7.0)</td>
<td>(9.5)</td>
</tr>
<tr>
<td>Boring</td>
<td>13.6_3^c</td>
<td>16.6_3^c</td>
<td>27.1_3_b</td>
<td>35.2_3^b</td>
<td>20.3_3</td>
</tr>
<tr>
<td></td>
<td>(7.4)</td>
<td>(4.4)</td>
<td>(8.6)</td>
<td>(7.8)</td>
<td>(10.0)</td>
</tr>
</tbody>
</table>

Note. Within a column means having different letter subscripts are significantly different (P < 0.005 or better).

our initial argument that physical monotony in sensory stimulation is not a necessary cause of boredom. However, in Expt 1, bored subjects produced significantly fewer constructs of their own when construing the stimuli than did subjects who expressed interest in the task (Table 1). Thus boredom seems to be associated with the use of a smaller set of constructs and construing may be considered less differentiated. Also, the bored subjects made significantly fewer distinctions among stimuli on both supplied and elicited constructs as evidenced by their lower Category Usage Scores in Table 2. We shall refer to this tendency to make few distinctions among stimuli as a tendency towards relatively ‘homogeneous’ construing. By contrast, subjects interested in the task made more distinctions among the stimuli and thus showed relatively ‘heterogeneous’ construing. It seems reasonable to conclude that when a set of varied stimuli is construed in both less differentiated and a more homogeneous manner the individual will experience the stimuli as being ‘much the same’: that is, the experience will tend towards subjective monotony. Thus the results of Expt 1 suggest that boredom, although not necessarily produced by physical monotony in stimulation, is associated with perceived or subjective monotony.

Experiment 2 showed that subjects initially interested in the task who subsequently became bored displayed a significant decline in Category Usage Scores whilst those who remained interested showed no significant decline (Table 2). Thus a shift from interest to boredom was accompanied by a change in the direction of more homogeneous construing, that is, a change towards an experience of greater subjective monotony.

Of course, it is one thing to find that boredom is associated with subjective monotony, and the growth of boredom associated with changes indicating the growth of subjective monotony, but it is quite another thing to establish causal relationships. We started our investigations with an interest in both the nature and origins of boredom, and whilst we feel we have certainly learned a little more about the nature, namely that being bored is a state in which cognitive activity is such as to give rise to a feeling of subjective monotony, we can be less certain about the question of the origins of boredom. Our findings are consistent with two virtually opposite views:

(a) that cognitive changes in the direction of less differentiated and more homogeneous construing give rise to a state of subjective monotony which induces, or perhaps even represents, the state we call boredom;
(b) that boredom occurs as a result of processes as yet unknown, and that this state induces cognitive changes which we have referred to as subjective monotony.

On balance we believe (a) to be the more credible view. If the observed changes were the result rather than the cause of boredom (and in principle they could result from lowered attention or lessened motivation to carry out task performance with due care) one is left wondering what the unknown processes were which induced boredom. The nature of the tasks we used and the clear individual differences found in reaction to the tasks preclude an explanation in terms of physical monotony and lowered levels of physiological arousal. On the other hand clinical psychologists quite readily accept the idea that, depending upon how an individual perceives or conceives of a stimulus, so will feelings about it vary. Evidence on this point can be found in relation to feelings of anxiety (Lader, 1972), depression (Seligman et al., 1979; Raps et al., 1982) and humour (Schacter & Wheeler, 1962).

Boredom and frustration

The results of Expts 3A and 3B provide strong support for the previous speculations that boredom is associated with frustration (Barmack, 1937; Baladmus, 1951; Stagner, 1975). The data of Table 3 show that activities evoking interest, dislike and boredom are construed in different ways. Interesting activities are construed as providing motivational satisfaction, disliked activities as providing mild frustration and boring activities as providing a high level of frustration.

The data of Table 4 show that in Expt 3A it was only in the case of four needs (order, dominance, change and endurance) that disliked and boring activities were construed as significantly different in terms of degree of frustration. In 3B the needs for change and endurance again emerged (with achievement and exhibition) as differentiating between dislike and boredom. It would therefore seem that boredom is particularly related to the construction of activities as highly frustrating of the needs for change and endurance. This result provides an interesting link between our findings concerning subjective monotony and those concerning frustration. If, as Expts 1 and 2 demonstrate, boredom is associated with subjective monotony it would be expected that the occurrence of subjective monotony would strongly frustrate the need for change and variety in the individual’s experience, and this is exactly what was found in Expts 3A and 3B. It is less clear why frustration of the need for endurance should emerge in the two studies as differentiating boring from disliked experiences. A possible explanation is that the subjective monotony associated with boredom is so aversive that the individual ‘leaves the field’ if this is possible and thus frustrates the need to endure, continue and persist with the activity.

Boredom and the meaning of stimulation

The data of Tables 1 and 2 show that in neither Expt 1 nor Expt 2 did bored subjects construe stimuli significantly closer to the neutral point of construct scales than interested subjects. Thus using a semantic differential approach to the quantification of ‘meaning’ no evidence emerged from the present studies to support Fiske & Maddi’s (1961) view that boredom is associated with a lack of meaningful stimulation.

In Expts 3A and 3B the ‘meaning’ of stimuli was conceptualized in terms of the number of constructs applied which were relevant to satisfaction or frustration of motives. Using this view of ‘meaning’ an activity, event or stimulus was considered to lack meaning when constructions made of it were mainly irrelevant to the satisfaction or frustration of motives. Table 5 shows that the number of constructs irrelevant to the satisfaction or frustration of motives did not differ significantly in the case of interesting, disliked and boring activities. Thus again no support was found for the Fiske & Maddi (1961) hypothesis.
Boredom and instrumental construing

In Expt 3 subjects were asked to use constructs relevant to the needs measured by the Edwards Personal Preference Schedule. Thus grid elements were construed as instrumentally relevant or irrelevant to the satisfaction or frustration of needs. For the sake of exposition we shall refer to this type of construing as ‘instrumental construing’. In considering instrumental construing it is apparent from Table 5 that interesting activities were construed in terms of a significantly larger number of instrumental constructs associated with need satisfaction than were disliked activities. Disliked activities were construed in terms of a significantly larger number of such constructs than boring activities. Thus the number of instrumental constructs associated with need satisfaction distinguished clearly among the three types of activity. This was not found to be the case for instrumental constructs associated with frustration of needs. Here, although interesting activities were distinguished from disliked and boring activities, the latter two did not differ significantly in terms of the number of constructs associated with need frustration.

References


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