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The relationship of field dependence-independence to perceptual defence and selective memory

Bryce, Gillian

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possible. Therefore any difference found to exist between responses to taboo and non-taboo words must be ascribed to the emotional qualities of the former.

3 Rationale for the Selection of the Selective Memory Strategy

There are a number of methods which have been used to measure selective memory. The most primitive of these is the questionaire method which merely entails asking subjects whether they remember pleasant or unpleasant experiences best (3).

A second method which has been used however has been called by Zeller the method of associations with sensory stimuli (106). Glixman for example used this method when he presented subjects with pleasant and unpleasant odours and then assessed memory of these odours (36). A variation of this method which has also been used by Glixman (36) is to pair nonsense syllables with pleasant and unpleasant odours and then to assess which nonsense syllables are remembered best (32).

.../Zeller

Zeller however has criticised both these methods as measures of selective memory (106). He points out the fallacy of assuming that sensory pleasantness and unpleasantness is similar to conative pleasantness and unpleasantness and it is conative material which is important if one is concerned with the effect of affect on stimulus output. Zeller points out that negative affect is a function of conflict between certain conative material and ego supporting drives (106). He therefore maintains that the Zeigarnik task interruption method is the best one to use if one is concerned with the effect of affect on stimulus output and not just concerned with the effects of various sensory stimuli on memory as this method uses conative material. As the present study was specifically concerned with the effect of affect on stimulus output, the Zeigarnik method was obviously the method of choice. However, some modifications of this method were introduced according to the recommendations made by Gosset (42).

Gosset required subjects to learn a list of nonsense syllables equated in terms of length and difficulty to a criterion of one perfect trial (42).

.../These

These syllables were then associated with success or failure on personality and intelligence tests and after a filler task subjects were required to recall the syllables. Thus while other experimenters merely associated stimuli with success or failure Gosset took the precaution of ensuring that the stimuli to be invested with affect were initially equated in terms of their retention potential. This precaution was incorporated into the present study. However for reasons outlined previously, the present study was interested in responses under task rather than ego involving conditions and therefore personality and intelligence tests were not administered. Instead, subjects were required to learn the nonsense syllables to a criterion of one perfect trial and then each syllable was paired with an anagram. Half of these anagrams were soluable while the other half were insoluble. The pairing of each nonsense syllable with each anagram was rotated by a Latin square design, the order of presentation of the pairs was similarly rotated.

Subjects were given a task involving patter in which they were told that they were to be given anagrams some of which they would be able to solve and some of which they would not be able to solve. This patter was designed so that subjects would experience interruption not as failure but as experimenter induced.

.../Subjects

Subjects were then presented with each syllable-anagram pair for sixty seconds and asked to solve the anagram. Thus each syllable-anagram pair was presented for an equal length of time within which associations could be built up. The subjects were then given the other experimental tasks used in the study and after this they were asked to recall the nonsense syllables. Thus the other experimental tasks served a similar function to Gosset's filler tasks (42). However as can be seen in the following section on test sequence the use of Gosett's selective memory strategy in some way limited the order of the other experimental tasks.

4 Experimental Design

In summary, the following were the tests used in the study:

(a) The selective memory test which comprised three sub parts (1) learning six nonsense syllables, (2) attempting to solve six anagrams, (3) recalling the original nonsense syllables.

(b) The Fd-Fdi tests which included the DAP, BAT and RFT.

.../(c)

(c) The perceptual defence test in which a temporal restriction method was used.

The first test which was administered to all subjects was the DAP. This test was in fact given to all the first year psychology students not just to the present sample and it was from these students that the present sample was drawn. Scores on the DAP however were not actually used for selection purposes but the DAP test session was used to introduce the idea that subjects were required for an experiment and to obtain the names and addresses of all first year students. Neither were the scores on the DAP obtained by the subjects used in the main experiment included in the calculation of their final Fd-Fdi indices. However their DAP scores were used in the secondary aspects of this experiment which involved a re-examination of Witkin's original Fd-Fdi inter-test correlations. Nevertheless it was not deemed necessary to vary the order of presentation of the DAP as it was not essential to the main study although the order of presentation of all the other tests in the study was systematically varied as far as possible.

Of necessity however, the first two subtests of the selective memory task, viz. learning the nonsense syllables

.../and

and solving the anagrams were presented first in all cases in order to allow the other experimental tests to serve as filler tasks. For similar reasons, the final subtest of the selective memory task, viz the recall of the nonsense syllables was in all cases presented last. The order of presentation of the selective memory task could not be rotated because it was necessary to give each subject an equal time gap between learning the nonsense syllables and recalling them.

It is clear, therefore, that there were only three tasks which were free to vary. These were the BAT, the RFT and the perceptual defence test and these tests were rotated between subjects by a Latin square. The design of the study therefore could be represented as follows:

TABLE I

Order of Test Administration

S_1	DAP	Syll-ables	Ana-grams	RFT	BAT	Percep-tual Defence	Recall
S_2	DAP	Syll-ables	Ana-grams	BAT	Percep-tual Defence	RFT	Recall
S_3	DAP	Syll-ables	Ana-grams	Percep-tual Defence	RFT	BAT	Recall

CHAPTER V

THE EXPERIMENTAL STUDY

1 Description of the Sample

Thirty female first year psychology students were randomly chosen from the first year student population in the following way. A month prior to the actual study, all first year students were asked to do the DAP test and at this session they were acquainted with the idea that some of them would be required to participate in an experiment. After all the students had completed the task and before the test was scored, thirty drawings were chosen at random and the artists of these drawings were then asked to serve as subjects. Two of these subjects however, were unable to participate in the study as they had vacation jobs and the study was carried out in the vacation. Two further random selections were therefore made.

All the subjects selected were naive with respect to the material involved in the present study. Their naivity was ensured by reference to the first year psychology syllabus and by post experimental questioning. In sum then, the subjects comprised thirty

.../naive

naive, first year, female psychology students who were randomly selected.

2 Description of the Apparatus

(i) Apparatus for Field Dependence-Independence Tests

Fd-Fdi was measured by the RFT and the BAT. The apparatus required by these two tests may be described as follows:

The RFT:

In the standard RFT, the subject is seated in a darkened room and is shown a luminous frame within which there is a luminous rod. The frame and rod are pivoted at their centres so that they can move from right to left independently of each other.

The National Institute for Personnel Research however has developed a modified version of the RFT. The subject is still shown a rod and a frame pivoted at the centre but rather than being in a dark room the subject looks through

.../a

a mask into a box made of black material in order to perceive this. The elimination of the need for a completely darkened room is an advantage because unless the room in question is especially constructed so that it can be completely dark, the test cannot be conducted. It was this modified version of the RFT which was used in this study.

In sum then the apparatus in this study comprised a box 100 cm long which was made of black material. At one end of this box was a black rod and frame against a translucent, 'milk' perspex background. This background provided a diffuse illumination thereby excluding extraneous cues. At the other end, was a mask with straps to hold the subject's head in position. In front of this mask through which the subject viewed the rod and frame was a curtain of black material which the experimenter could lower or raise by pulling a cord at the back of the box. This curtain prevented the subject from viewing the adjustments made to the rod and frame after each trial.

.../Also

Also situated at the back of the box were two levers which the experimenter could manipulate in order to change the angle of the rod and the frame. Here too was an instrument panel from which the experimenter could read off the extent of the tilt of the rod and the frame. At the front of the box was a single lever which the subject could manipulate to change the angle of the frame. This then was the apparatus used for the RFT in the present study and a photograph of it is available on the following page.

Special score sheets were used to enter the subject's response on each trial. A predetermined schedule outlined by Witkin (100) was used to adjust the tilt of the rod and the frame on each trial. (A copy of this schedule which served also as the scoring sheet is found in Appendix E).

In sum then the apparatus for the RFT comprised: a box containing an adjustable rod and frame and some score sheets prepared according to a predetermined schedule.

.../The



Fig 1. The portable end-sound-fix apparatus.

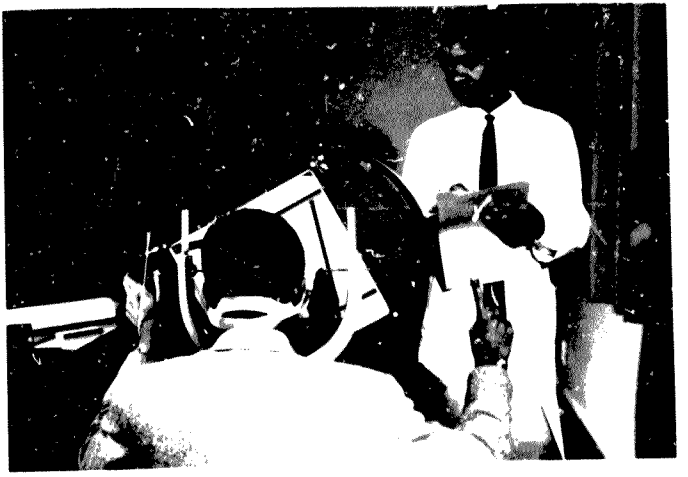


Fig 1. The crystal orientation apparatus.

The RAT:

In the present study the standard apparatus developed by Witkin was used. This apparatus comprised a small room measuring 1.69 m in length and width and 1.74 m in height. This room could be tilted from right to left on its own axis. Within this room was a chair which could also be tilted on its own axis independently of the tilt of the room. On the arms of the chair were two control buttons by means of which the subject could regulate the tilt of the chair. Above the subject's chair was a mask which could be lowered or raised so that the tilt of the room and chair could be changed after each trial without the subject picking up visual cues.

On the wall opposite the subject's chair were four small light bulbs which could be flashed in random order. By asking the subject to report which of these was flashing while he was trying to assess the upright it could be ensured that he was

.../not

not using visual cues outside the tilted room to assist him.

Outside the tilted room was an instrument panel by means of which the experimenter could regulate the tilt of both the room and the chair. This panel also gave exact readings of the angle of the room and chair. A photograph of the RAT apparatus is available on the following page.

Special score sheets were used to enter the subject's response on each trial. A predetermined schedule outlined by Witkin (100) was used to adjust the tilt of the room and chair on each trial. (A copy of this schedule is available in Appendix F).

In sum then the apparatus for the RAT comprised: A tilting room within which was an independently tilting chair, and some score sheets prepared according to a predetermined schedule.

(ii) Apparatus for the Perceptual Defence Test

A standard Dodge-type tachistoscope was

.../ used



used for this test. This consisted of a square box into which the subject looked through a mask in order to see a lighted screen. Onto this screen the experimenter flashed the relevant stimuli by manipulating the controls at the back of the box.

The following represented the controls which the experimenter had at his disposal:

A. a rotating drum which could accommodate eight stimulus cards and which could be moved by hand so that any of the eight stimulus cards could be presented at any one particular time;

B. a number of dials by means of which the exposure time of the stimulus cards could be varied from a duration of 1 ms to 10 secs by 1 ms intervals.

.../The

The eight stimulus cards used were 10 cm square dull grey cardboard ones in the middle of which the stimulus words were printed in 1.2 cm black letraset. These stimulus cards were presented in a predetermined but varied order for each subject. The schedule sheet prepared for each subject served also as the score sheet for that subject. (An example of a schedule sheet which contains the eight stimulus words used is available in Appendix C). A five point rating scale of the familiarity of the stimulus words was also prepared for each subject and the order of the words on this rating scale was varied between subjects. (An example of this scale is available in Appendix D).

In sum then the apparatus for the perceptual defence task comprised: A Dodge-type tachistoscope, eight specially prepared stimulus cards, score sheets prepared according to a predetermined schedule and a stimulus familiarity rating scale.

(iii) Apparatus for the Selective Memory Test

A standard Gerbrands memory drum was used.

.../This

This comprised a rotating drum behind a metal screen which had an apperture in it. The drum was rotated by a motor controlled by the experimenter in such a way that the stimuli on the drum appeared in the apperture at a controlled rate. The stimuli comprised six matched nonsense syllables typed on standard white unlined paper in a predetermined but varied order for each subject (A copy of the list of nonsense syllables is available in Appendix A).

For each subject a sheet of paper was prepared on which was typed the six stimulus anagrams each headed by one of the six nonsense syllables. The order of the anagrams and the syllables with which they were paired were both varied between subjects (A copy of the anagram-syllable pairs sheet is available in Appendix B).

Each subject was also given a pencil and two pieces of blank paper. One piece of paper was used to enter the anagram solution while the other was used at the end of the experimental session to record the

.../recall

recall of the nonsense syllables. In addition to the above one further piece of equipment was used, viz. a stop watch to regulate the exposure time of the anagram-syllable pairs.

In sum the apparatus for the selective memory task comprised: A Gerbrands memory drum, a sheet of typed nonsense syllables, a sheet of syllable anagram pairs, pencils, pieces of paper and a stop watch.

3 Method and Procedure

(i) The DAP:

As mentioned previously, the first test to be administered in all cases was the DAP. A month prior to the main study, the first year psychology class was approached en masse and was asked to participate in this test. The students were requested to put their names and addresses at the top of a sheet of paper on which they were to draw (a) the picture of a man, and (b) the picture of a woman. The following were the instructions which were given:

.../"You

"You are about to participate in a pilot study for an experiment in which some of you will later be asked to participate. Please place your names and addresses at the top of the sheets of paper provided. When you have done this, you will then please proceed to draw, (a) the picture of a man, and (b) the picture of a woman. You may draw these figures in any way you wish but you may not draw stick-figures. When you have completed these drawings please hand the sheets of paper to me. Thank you."

From these drawings thirty were randomly selected and the artists were asked to participate in the main study. The main study was carried out at the National Institute for Personnel Research where a special room containing all the necessary apparatus was provided. This room was well lighted and was air-conditioned thus providing standard working conditions for all the subjects. As previously mentioned, of necessity all subjects were presented with the first part of the selective memory task before any of the

.../other

other tests were presented while the second part of the selective memory task was presented after all the other tasks had been presented. For the sake of convenience however, the procedure used for the selective memory task will be described in toto in the following section.

(ii) The Selective Memory Task

Subjects having been ushered into the experimental room and seated at a table upon which was a Gerbrands memory drum were then given the following instructions:

"The apparatus which you see before you is a Gerbrands memory drum. When I throw this switch a number of three lettered combinations will appear in the window. As they appear I want you to spell them out aloud please. Do you have any questions?"

Or a the subject had indicated that the instructions were clear the experimenter threw the switch and as the combinations appeared the subject spelt them out aloud.

.../The

The order of presentation of the syllables between subjects was rotated by a Latin square. After each of the six combinations had appeared once the experimenter switched off the drum and continued the instructions as follows:

"I am going to present the combinations to you again. This time, however, I want you to anticipate the combinations before they appear, i.e. you must predict which combination is about to appear in the window. If you are unable to anticipate the combination or if you mispredict it then you must spell out the combination as it appears. Do you have any questions?"

Once the subject had indicated that the instructions were clear the experimenter again set the drum in motion. The apparatus was then only stopped when the subject predicted all combinations correctly on a single trial.

Following this the subject was presented with the anagram-syllable pairs sheet and the following instructions were given:

.../'Before

"Before you are six anagrams. You are to unscramble the letters of each anagram to make a word. Some of the anagrams are easy while others may not be amenable to solution. You will be given one minute per anagram to try and work out a solution. You are to start with the anagram at the top of the page and are to work systematically down to the bottom of the page. I will now place this blank piece of paper over all the anagrams except the top one which is the one with which you are to begin. Here is a piece of paper and a pencil. You are to write your solution to each anagram upon this paper. Do you have any questions? Are you ready? You may now begin."

The experimenter then switched on the stop watch and allowed the subject to work for sixty seconds. After this time had elapsed the experimenter interrupted the subject and moved the blank paper down to reveal the succeeding anagram while folding the preceding one out of sight. The subject was then asked whether she was ready and on answering in the affirmative was asked to begin. This procedure was repeated

.../until

until the subject had been exposed to each anagram-syllable pair for 60 seconds.

This then concluded the first part of the selective memory task. The second part of the task was presented after the Fd-Fdi and perceptual defence tasks had been completed and involved presenting the subject with a blank piece of paper and a pencil and giving the following instructions:

"Do you remember that at the beginning of this experimental session you were presented with three letter combinations. Please write down as many of them as you can remember. The order in which you write them down is not important."

However, before this part of the selective memory task was given the perceptual defence and Fd-Fdi tasks were administered. The procedure followed in these tasks is presented below.

(iii) The Perceptual Defence Task

The subject was seated at a table on which was placed the Dodge-type tachistoscope and

.../these

these instructions were given:

"The apparatus which you see before you is called a tachistoscope. When you look through this mask you will see a lighted screen. Look through the mask and tell me whether you can see the screen. I am now going to sit behind the tachistoscope and I am going to flash some words onto the screen. One second before I flash a word I will give you a warning that a word is about to appear by saying 'ready'. One second later the word will be flashed onto the screen and you are to tell me what that word was. The stimuli are real words and not nonsense syllables but they will only appear on the screen for a very brief instant. Therefore, do not be alarmed if at first you cannot see the words clearly. Just try to do your best to report what you see. Do not be afraid to guess. Do you have any questions? Now, we may begin. Remember the warning signal is the word ready. 'ready.'"

.../The

The experimenter then presented the eight stimulus words successively in the pre-arranged order for that particular subject. The stimuli were initially presented at an exposure rate of 1 ms but this was increased by a further 1 ms on each successive trial. This procedure was followed until the subject had reported all eight stimulus words correctly at least once. The individual exposure rate at which the subject reported the stimulus word correctly for the first time was recorded for each word. After this, each subject was asked to rate all the stimulus words on a five point scale of familiarity. (An example of the rating scale is available in Appendix D).

(iv) <u>The Field Dependence-Independence Tasks</u>

<u>The RFT:</u>

After the subject had been seated at a table on which the RFT was placed the following instructions were given:

"When you look through this mask, you will see at the back of this box a frame or

.../square

square within which is a black rod or line. By moving this knob to the right or left, you will be able to move the rod to the right or left. Your task is to move the rod to the true vertical while the frame which contains it is tilted. In other words you must move the rod so that is is perpendicular to the floor of the room, i.e. to the floor that your feet are on, not to the floor of the frame. In other words you are to turn this knob and adjust the position of the rod to the true vertical regardless of the tilt of the frame. When you are certain that the rod is vertical indicate this to me by saying, 'Ready'. Between each trial I will cut off your vision of the rod and frame by lowering a curtain. This is to prevent you from viewing the adjustments which I will make to the rod and frame between trials. Do you have any questions? Now we will begin."

The subject's head was then secured in the mask and the curtain raised to reveal the

.../tilted

tilted rod and frame and the subject was required to correct the position of the rod. After each trial the curtain was lowered and the tilt of the rod and frame was adjusted according to a predetermined schedule. This schedule sheet also served as a score sheet for the subject's responses. (A copy of this is available in Appendix E). The subject's responses were scored in terms of absolute number of degrees her positioning of the rod deviated from the true vertical. Four practice trials and eight experimental trials were given.

The BAT:

Having been led into the tilting room which at this stage was vertical the subject was asked to sit in the tilting chair which was also vertical at this point. The head rest and shoulder and thigh clamps were then adjusted for each subject and each subject was asked to keep her head against the head rest and her feet on the floor for the duration of the test. This having been completed the following

.../ instructions

instructions were then given:

"This is the tilting room tilting chair test. The apparatus consists of a room and a chair both of which can be tilted independently of each other. You, however, will only have control over the tilt of the chair. There are two buttons on the arm rests of your chair and these are the control buttons for the tilt of your chair. If you press the button on the left arm rest your chair will move to the left while if you press the button on the right arm rest your chair will move to the right.

When I leave this room I am going to tilt both the room and the chair and by manipulating the buttons on the arm rests of your chair, your task will be to return your chair to the true vertical regardless of the tilt of the room. In other words, you must bring your chair back to the true vertical so that it is parallel with the walls and perpendicular to the floor of the outside room regardless of the tilt of this room. As soon as you

.../are

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