on the whole it was found that taboo words did indeed have higher recognition thresholds than neutral words.

The word frequency criticism however, was not the only one which Howes and Solomon (47) levelled against McGinnies' (63) interpretation of his results. Their second criticism did not question that there was a difference between the recognition thresholds of emotional and neutral words because of the tabooness of the former but questioned whether tabooness operated at the visual level or the verbal report level to create this difference. The interpretation of perceptual defence in terms of the effects of tabooness on verbal reports became known as the response suppression hypothesis.

Two techniques were then developed in an attempt to investigate the validity of this response suppression hypothesis. One technique involved presenting subjects with ambiguous words which had both neutral and taboo meanings. When this was done however, it was found that contrary to the response suppression hypothesis, subjects who were aware of taboo meanings had significantly lower recognition thresholds than did subjects who were unaware of taboo meanings (99).

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Goldfarmond (38) suggested that this might have been due to a build-up in aware subjects of a set for taboo words. Be this as it may however, the response suppression hypothesis is not supported by studies of this nature.

The second technique developed to cope with response suppression has tried to counteract this phenomenon by warning subjects of the liklihood of taboo stimuli being presented in the hopes that this will encourage them to report what they see. However, studies using this technique have yielded discrepant results and in light of this Brown (6) has questioned the feasibility of attempting to cope with response suppression experimentally as forewarning the subject may lead to either over or under-correction for response suppression.

It would seem then that response suppression remains a problem area within perceptual defence studies. However, it is important to note in this regard that the difficulty lies in the interpretive rather than the experimental area. The crux of the issue is not whether taboo words affect recognition thresholds but rather whether taboo words affect what people see or only what they say. However in the present study it is not vital to take a stand on this issue as the separation hypothesis merely states that in field

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dependent individuals affect will have a greater influence on the outcome of stimulus input than it will have in field independent individuals. It is therefore irrelevant to the present study to establish whether affect is exerting influence more specifically on the visual or the verbal processes. Thus, although the response suppression problem represents an almost irresolvable problem within the perceptual defence area, for the aims of this study the perceptual defence strategy is still a tenable one for testing the separation hypothesis and it has already been used by other workers in this area such as Minard (68).

4 Minard's Experimental Work on the Separation Hypothesis using the Perceptual Defence Strategy

One author who has already used the perceptual defence strategy to investigate certain aspects of the separation hypothesis is Minard (68). More specifically Minard used the perceptual defence strategy to investigate the hypothesis that the field dependent individual will evidence a greater influence of emotion on perception than will the field independent individual. It is of interest to note that Minard does not hypothesise that in the field dependent individual affect will have a greater influence on

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the final outcome of stimulus input in general but he limits the affect of affectual factors to the perceptual area thus laying himself open to the response suppression difficulties in perceptual defence studies.

Within himself however in the original seperation hypothesis did not specify at what level affectual factors were specifically operative. Minard nevertheless was solely concerned with the influence of emotional factors on perception and for this reason he went to great lengths to separate visual factors from verbal factors in order to control response suppression.

For this reason in the perceptual defence strategy he employed, taboo words were not used as stimuli as they encourage response suppression (68). Rather stimuli were selected individually for each subject via a word association test. Matched high and low reaction time words were chosen for each subject and subjects were then required to learn these critical stimulus words as a further control for familiarity. Personal response biases were assessed by exposing the subject to an occasional blank slide and recording the response made to the blank. Each person's response bias was then controlled for in the final calculation

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of the perceptual defence index.

Minard thus believed that any difference found between responses to high versus low reaction time words could only be accounted for in terms of the effect these words had on visual rather than verbal processes as the latter processes had been controlled. Therefore when Minard found that indeed among males, field dependent subjects showed more perceptual defensiveness than field independent subjects he concluded that this was because of the influence of emotion on perception. On the basis of this conclusion he then proposed the mechanism of operation whereby emotion had a greater influence on perception in the field dependent as opposed to the field independent person by referring to the work of theorists such as Piaget and Flavell (76, 27).

It has been indicated by Flavell that the extent to which a person is differentiated in Piagetian terms is related to the extent to which he is able to form and maintain a stable representation of a naturally fixated visual stimulus. The differentiated person is able to maintain stable stimulus representations while the undifferentiated person is unable to do so and large clearly visible stimuli may thus seem to disappear or fragment. Minard has pointed out that

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the typical correlation between differentiation and duration of stimulus disappearance is about the same as the correlation between differentiation and degree of perceptual defensiveness. However in drawing conclusions from these observations he used the Piagetian and the Witkin notions of differentiation interchangeably. This of course can be questioned, although in descriptive terms Piaget's concept of differentiation is similar to that of Witkin. For this reason Minard's ideas deriving from his observations of the similarity of the correlations between differentiation in the Piagetian sense and stability of stimulus representations and between differentiation in the Witkin sense and perceptual defence are worthy of consideration as postulates.

Minard used the observed similarity in correlations as a basis for explaining the greater effect emotion has on perception in the field dependent as opposed to the field independent individual. He did this by reference to the work of authors such as Hunt (49) who stated that the effect which emotional factors have on stimulus input at any one particular time is dependent both on the compellingness of stimulus factors and the intensity of motivational factors. The more ambiguous the stimulus factors the greater the influence of motivational state in cognitive outcome and vice versa.

.../Therefore

Therefore in the field dependent individual who lacks stable representations of stimuli and who therefore experiences greater ambiguity in the stimulus material it is logical to predict that emotion will have a greater influence on cognitive outcome than it will have in the field independent individual. Thus the relationship between Fd-Fdi and perceptual defence may be explained.

This then represents a relatively plausible explanation of Minard's findings and the separation hypothesis. Nevertheless it has been subject to criticism. Neisser (71) has been one of the critics of this work although his criticisms have been aimed not so much at Minard's interpretation of his results but at his initial premise as to the feasibility of separating out the effects of emotion on visual as opposed to verbal processes. Neisser deems it impossible to distinguish clearly between visual and verbal processes as Minard has attempted to do.

Neisser questioned the efficacy of word association tests as a means of eliminating response bias because of the danger of creating unmeasurable sets in the subjects. He also questioned the blank slide technique as a means of eliminating personal response bias. The blank slide technique was originally formulated by Goldiamond (38).

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Goldiamond gave his subjects varying numbers of trials to learn an array of nonsense words and he then created the expectation that these words would be shown tachistoscopically. Only meaningless smudges were however actually shown and subjects were required to make a response to these on each trial. A significant word frequency effect was found and since this appeared in the absence of a real stimulus it was concluded that this effect was acting solely on response bias i.e. on verbal processes alone.

This experiment has frequently and justly been criticised because the authors seem to imply that stimuli make no difference at all to responses, an implication which is hardly valid. A second and more radical criticism of this experiment, however, has also been made. This criticism has been made against the assumption that no subject would have "perceived" the unpresented nonsense words. Implicitly this accepts a definition of perception as something which cannot occur without appropriate distal stimulation. Neisser (71) questions this and puts forward that it is quite possible that some of the subjects may have hallucinated some of the words and actually "seen them with their own eyes" (71, p. 120).

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This issue cannot be avoided by defining an hallucination as something different from a perception because of the difficulties in determining how they differ. Hallucinations are not just experiences which do not make use of stimulus information because many of them do. Furthermore, perceptions cannot be defined as experiences which are faithful to stimulus input because in general they are not. Neisser therefore concludes that the concept of perception is only useful if it is used to refer to a process within the subject. To define it with reference to the presence or absence of an external stimulus is "to stop treating it as a process and to use it only as a category in a poor taxonomy of behaviour". (71, p. 121).

Neisser thus criticises Minard and states that trying to separate perceptual effects from response bias by using behaviour in the absence of stimuli as a base line is inappropriate. Behaviour when a smudged blank slide is presented may well be different from behaviour with respect to a real word, but there is no justification for assuming that only the second case involves perception.

In light of this, Minard's interpretation of his results in terms of field dependent subjects evidencing a greater susceptibility to the influence of emotion

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on perception than do field independent subjects seems unjustified. Rather the results should be interpreted more generally as evidencing the greater susceptibility of field dependent subjects to the influence of emotional factors in the conversion of stimulus input to stimulus output. The present study is aimed at testing this more general statement and it is for this reason that no attempt has been made to control for verbal response bias factors in the perceptual defence strategy used. Furthermore, because this study is interested in the influence of emotional factors on stimulus output rather than on perception per se it has been possible to introduce a further test of the separation hypothesis viz. a test of selective memory.

# CHAPTER III

## HISTORICAL BACKGROUND OF SELECTIVE MEMORY

### 1 Selective Memory as a Critical Test of the Separation Hypothesis

As previously mentioned, a critical test of the separation hypothesis necessitated that field dependent and field independent subjects be required to make a similar response to sets of stimuli which are alike in all respects except that one set of stimuli is emotionally charged and the other is not. The selective memory test meets these requirements.

In a standard test of selective memory, subjects are required to learn to a criterion a series of e.g. nonsense syllables which are matched in structure and difficulty. Half of these nonsense syllables are then paired with experiences of success while the other half are paired with experiences of failure. The former half are then regarded as relatively neutral stimuli while the latter half are regarded as emotional stimuli and it can later be assessed which half the subjects remember best.

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## 2 The Evolution of Selective Memory Studies

The first experimenter who found direct evidence of selective memory was Zeigarnik (105). He was not concerned with selective memory for success and failure per se but was working within the general framework of Lewin's tension theory. Zeigarnik's experiment was designed to measure the relative effectiveness of the recall of completed versus incompleted tasks. In this experiment the tasks were heterogenous, some were difficult and some were easy and the experimental setting itself was informal and non ego threatening. Furthermore, the interruption of the selected tasks was done in such a way that the subject was not aware that the interruption qua interruption was important. It was stressed that the experimental session was in no way a test of the subject.

Under these conditions, when subjects were required to recall the tasks they had learned, more incompleted than completed tasks were recalled. This was explained within the framework of the unresolved tension theory. A closer examination of Zeigarnik's results however showed that certain subjects deviated from this overriding pattern of recall in that they recalled more completed than incompleted tasks.

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Although these subjects were in the minority, their significance can be more clearly understood when reference is made to the work of Rosenweig (82).

Rosenweig modified Zeigarnik's interrupted task technique by changing the informal experimental setting to a formal, ego involving one. He effected this by telling the subjects that they were to engage in a competition. Thus in his experiment subjects experienced task interruption as personal success or failure rather than experimenter induced interruption. Under these conditions, Rosenweig found a reversal of Zeigarnik's findings in that more completed than incompleted tasks were remembered. Once mor however there were individual deviations from this pattern.

On investigation, Rosenweig found these individual differences in recall to be related to differences in stress tolerance (82). Subjects who had a high stress tolerance recalled incompleted tasks in a non stressful situation and completed tasks in a stressful situation. Subjects with a low stress tolerance on the other hand showed the reverse pattern, i.e. completed tasks were recalled in a non stressful

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situation while incompleted tasks were recalled in a stressful situation. These individual differences can now be related to Fd-Fdi.

In terms of Witkin's separation hypothesis, if field independent individuals are less influenced by affect and therefore presumably have a high stress tolerance then they should show the first pattern of selective memory described above. The field dependent individual on the other hand should show the second pattern. More specifically therefore, under non stressful conditions field independent individuals should recall incompleted tasks while the field dependent individuals should recall completed tasks. Similarly the reverse should be true under stressful conditions. In the present study however, non stressful conditions were used and it might at this point be of value to recapitulate the aims of the study.

3 Recapitulation of the Aims of the Study

The primary aim of this study is to test Witkin's separation hypothesis, i.e. to test the notion that field dependent individuals show less separation of percept, ideation and affect than do field independent individuals. Two strategies for testing

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this hypothesis have been suggested, (a) perceptual defence and (b) selective memory. In terms of these two strategies, therefore, the perception hypothesis can be reformulated as follows and it is these following statements which constitute the specific hypotheses of this experiment

(a) Field dependent individuals show greater perceptual defensiveness against taboo stimuli than field independent individuals.

(b) Field dependent individuals show greater recall of completed than incompleted tasks under non stressful conditions than do field independent individuals.

# CHAPTER IV

## TEST SELECTION AND EXPERIMENTAL DESIGN

### 1 Rationale for the Selection of the Tests of Field Dependence-Independence

Two of the first tests developed by Witkin to measure Fd-Fdi were the RFT and the BAT. These two tests measure the individual's ability to make a judgement of verticality regardless of a confusing background. Subsequently, Witkin developed a third core test of Fd-Fdi, viz. the EFT which requires that the subject locate a simple figure within a complex background. It is clear therefore that while the EFT is similar to the RFT and the BAT in that all require judgements to be made independent of a confusing background, the EFT is different to the other two tests in that it does not require judgements concerning verticality.

A further test developed by Witkin which yields some information on the Fd-Fdi is the DAP test. This test however is not a pure measure of Fd-Fdi nor was it designed specifically for this purpose but rather it

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was designed to yield information on individual differences in body concept.

The three core tests of Fd-Fdi therefore are the RFT, the BAT and the EFT although there are other tests of Fd-Fdi such as the rotating room and the room adjustment tests. According to a review of the literature by Taylor however, most studies which have used more than one of Witkin's measures have made use of the EFT and the RFT (92). One of the reasons for this is the relatively simple apparatus required to administer these two tests as opposed to the complex apparatus needed to administer the BAT, room adjustment and rotating room tests.

The RFT however, seems to have been a good test to have selected because it has subsequently been found to be the purest and most reliable measure of field orientation (92). The EFT on the other hand however seems to have been an unfortunate test to have chosen. Adevai, Silverman and McGough administered a battery of ten perceptual tasks previously used to provide information on Fd-Fdi to a group of 92 college males (2). They then subjected the results of these tests to a factor analysis and this yielded four factors. Each perceptual test was then regarded in the light of these factors. The RFT was found to

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have 40% of its variance accounted for by factor 1 and which Adevai and Silverman regarded as the factor on which measures of "pure" field orientation will load. The EFT on the other hand had only 14% of its variance accounted for by this factor. Furthermore the EFT had only 50% of its total variance accounted for by all four factors and it was hypothesised that this was due to the fact that the EFT does not belong exclusively to the perceptual realm.

It was for these reasons that in this experiment despite the ease of administration of the EFT it was not used. Rather, the more complicated BAT was used. The BAT together with the RFT was one of the original measures which constituted the basis upon which Witkin conceptualised the notion of Fd-Fdi. It was therefore deemed fit in the present study that these two measures viz. the BAT and the RFT should be used as indices of Fd-Fdi.

However although only the BAT and RFT were used in the final calculation of the Fd-Fdi index subjects were also required to complete the DAP test. This was done to facilitate a secondary aim of the study, viz. to check Witkin's Fd-Fdi inter-test correlations.

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## 2 Rationale for the Selection of the Perceptual Defence Strategy

Perceptual defence as defined in the present study refers to that particular difference in ease of recognition between neutral and emotional stimuli in which emotional stimuli are more difficult to recognise than are neutral stimuli. There are several approaches to the problem of how to quantify differences in the ease of recognition of stimuli. These various approaches are however based on the same basic principle. The subject is exposed to a sequence of presentations of the stimuli in which the early presentations in the series are made under conditions which prevent the subject from correctly recognising the stimuli. As the sequence proceeds, however, a series of predetermined and cumulative modifications are made which progressively facilitate the correct recognition of the stimuli. This is continued until the subject is able to meet an agreed criterion of correct recognition of the stimuli.

There are two methods of making visual stimuli difficult to recognise, these are obscuration and temporal restriction. Obscuration may take either of two forms (a) some sort of masking is superimposed on the stimulus or, (b) the stimulus itself is reduced in clarity either by increasing the

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distance between the stimulus and the subject or by varying the illumination of the stimulus.

There is only one temporal restriction method however and this method vies with the illumination obscurity method as to which is the most popular. In the temporal restriction method, stimulus duration or exposure time is gradually increased through successive presentations of the stimulus. The exposure time at which recognition first occurs gives a measure of the recognition threshold. In the present experiment it was this method of temporal restriction which was used to assess perceptual defensiveness.

The visual stimuli in this experiment comprised taboo versus non-taboo stimuli. No attempt was made to choose stimuli in terms of their personal relevance for subjects because of Brown's view that this precaution is unnecessary (6) and because of Neisser's view that this precaution desirable because it introduces a personal set for each subject, the effects of which are unquantifiable (71). However, several precautions were taken to ensure that the taboo stimuli used in this study did in fact have emotional significance for the student sample used

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in the experiment. Firstly the taboo stimuli were carefully chosen by seven judges who were familiar with the student population and secondly the emotional value of the stimuli was checked in a post hoc fashion. The emotional value of the stimuli was checked by comparing with the aid of a t-test the mean recognition time of time of the taboo versus the non-taboo stimuli for the total subject sample actually used. The t-test used for this purpose showed that the taboo words were indeed emotionally laden for this sample as the mean recognition time for these stimuli was significantly higher than the mean recognition time for the non-taboo stimuli ($t = 2.72$, $df$ 14, $p < .05$). As the taboo and non-taboo stimuli were equated in all respects other than their emotional qualities these results could only be ascribed to the affective factors involved in the taboo words. The taboo and non-taboo stimuli were matched in all other respects in the following ways:

(i) Retinal Locus of Material

The retinal locus of the material was controlled by presenting all the stimuli via a standard Dodge-type tachistoscope. This tachistoscope allowed the subject's

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head to be held in a fixed position and stimuli were presented on a screen a standard distance away.

(ii) Practice

Practice effects were controlled in two ways. A sample of naive subjects was used and the order of stimulus presentation between subjects was rotated by a Latin square design.

(iii) Stimulus Familiarity

Once more two methods were used in order to equate the taboo and non-taboo stimuli in terms of familiarity. The first of these methods involved matching the stimuli via the Thorndike-Lorge word count. Some of the taboo words however, did not appear in the word count and in these cases taboo words were matched with the least frequently appearing words in the English printed language, viz. those appearing one in a million times.

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The second method used to control familiarity on the other hand required the subjects to rate the taboo and non-taboo stimuli on a five point scale of familiarity in a post hoc fashion. The order of presentation of words on the scale was rotated between subjects by a Latin square design and a t-test was done on the ratings. This test however showed that in general there was no significant difference in the familiarity of the taboo and non-taboo stimuli ($t = 1.23$, $df\ 14$, $p$ .05) i.e. the taboo and non-taboo words were indeed equated in terms of familiarity.

(iv) Imposed Set

Imposed set was controlled by designing an introductory patter which did not lead subjects to expect that any particular class of stimuli would be presented. Subjects were merely told that they were to look straight ahead and that some words would be flashed on a screen and

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they would be required to guess what they were. It was stressed that real words and not nonsense syllables would be flashed on the screen in order to encourage subjects to use words rather than letters as their standard unit of analysis.

(v) Physical Structure

A final control that was introduced into the study was a matching of the taboo and non-taboo words in terms of physical structure so that they all were four lettered words which began with the same consonant and had the vowel in the same position. Thus the words were as similar as is allowable.

It would seem from the above therefore that the taboo and non-taboo stimuli were matched in every way as far as is

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