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

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2015-01-12
http://hdl.handle.net/10539/16468

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are satisfied that the chair is upright indicate this to me by saying, 'Ready'.

Between trials, while I readjust the tilt of the room and chair I want you to pull this mask down over your face please. As soon as I have completed the readjustment I will ask you to lift the mask and you may then begin to adjust your chair by using the appropriate buttons.

Whilst you are adjusting your chair these lights here will flash intermittently. When you see them flash you must say, 'Lights'. Thus while you are adjusting your chair you must look straight ahead and indicate when you see the lights.

Are the instructions quite clear? Your basic task is to adjust your chair to the vertical by using these buttons. While you are doing this you are to indicate when you see these lights flash and when you are satisfied your chair is upright you are to say, 'Ready'. Between trials you will be asked to pull the mask down and the instruction to lift it will also

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serve as the signal that you may begin to adjust your chair. Are there any questions? We are now ready to begin, please pull the mask down."

The experimenter then left the room and took up position behind the control panel. The room and chair were then tilted a specific number of degrees according to the predetermined schedule worked out by Witkin (100). (A copy is shown in Appendix F). When this adjustment was complete the subject was told to raise the hood and to start adjusting the chair while watching for the lights which the experimenter flashed intermittently.

After each trial the subject's response, in terms of absolute number of degrees the chair was from the true upright, was entered in the score sheet. The subject then pulled down the mask and the room and chair were again adjusted and the whole procedure was repeated until four practice trials and eight true trials had been completed.

4 Data Analysis

(i) The Selective Memory Index

An index of selective memory was calculated for each subject by subtracting the number of soluble anagram-syllables recalled from the number of insoluble anagram-syllables recalled. Thus a score of zero indicated no selective memory, while a positive score indicated selective memory for soluble anagram-syllables and a negative score indicated selective memory for insoluble anagram-syllables. In terms of this then, if indeed field dependance is associated with selective memory for completed tasks under non-stressful conditions while field independence is associated either with a lack of selective memory or memory for incompleted tasks then it can be predicted in the present study that field dependent subjects will obtain more negative scores than will field independent subjects.

(ii) The Perceptual Defence Index

An index of perceptual defensiveness was calculated for each subject by subtracting

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the sum of ms taken to initially recognise each of the threatening words from the sum of ms taken to initially recognise each of the non-threatening words. Thus a score of zero indicated a lack of perceptual defensiveness while a positive score indicated perceptual sensitisation and a negative score indicated perceptual defensiveness. In terms of this then, if indeed field dependence is associated with perceptual defensiveness while field independence is not then it can be predicted that field dependent individuals will obtain negative scores while field independent individuals will not.

(iii) Field Dependence-Independence Index

RFT Index

A RFT index was calculated for each subject by summing the number of degrees from the vertical at which the rod was placed over each of the eight experimental trials and then finding the mean. The RFT index could therefore be written as follows:

$$RFT = \frac{\text{sum of number of degrees of rod from the vertical}}{8}$$

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The BAT Index

A BAT index was calculated by summing the number of degrees from the vertical at which the chair was placed over each of the eight experimental trials and then finding the mean. The BAT index could therefore be written as follows:

$$BAT' = \frac{\text{number of degrees of chair from the vertical}}{8}$$

Total Field Dependence-Independence Index

A total Fd-Fdi index was then calculated for each subject by summing the RFT index and the BAT index and finding the mean. The total Fd-Fdi index could therefore be written as follows:

$$Fd\text{-}Fdi' = \frac{RFT' + BAT'}{2}$$

5 Results

The present study was designed to measure two main hypotheses, viz. that:

A. Field dependent individuals will show greater selective memory for completed versus incompleted tasks than will

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field dependent individuals under non-stressful conditions.

B. Field dependent individuals will show greater perceptual defensiveness than will field independent individuals.

Two statistical methods were used to assess these hypotheses. These were the Pearson's product moment correlation technique and the analysis of variance (anova) technique. While all subjects in the sample were used in the correlational analysis only those subjects at the extreme ends of the Fd-Fdi scale were used in the anova because this technique deals with discrete and not with continuous variables (28). The extreme Fd-Fdi groups comprised those subjects whose scores fell outside the median ± the mean error of the scores for the total group (28).

The application of these two statistical techniques however, resulted in a rejection of both the hypotheses of this study. The correlation between Fd-Fdi and selective memory was .2477 while the correlation between Fd-Fdi and perceptual defence was .06. Both these values were less than the value of .301 which is required for significance

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at the .05 level on a one tailed test of significance with df 29.

Thus on the basis of the correlational analysis of the relationship between Fd-Fdi, selective memory and perceptual defence it can only be concluded that Fd-Fdi is related to neither of the variables. This conclusion was further confirmed by the anova which showed that extremely field dependent and field independent subjects did not differ significantly from each other in their performance on the selective memory and perceptual defence tasks. The results of the anova can be presented as follows:

TABLE II

Source Table of Anova

SV	df	SS	MS	F	P
A (Selective Memory & Perceptual Defence)	1	67	67	7.28	.05
B (Fd-Fdi)	1	.4	.4	.04	.05
AB (Interaction)	2	36	18	1.96	.05
WG (Error Term)	9	83	9.2		
	13				

CHAPTER VI

DISCUSSION AND CONCLUSIONS

The above results indicated that Fd-Fdi is not related to performance on perceptual defence or selective memory tasks. If the perceptual defence and selective memory strategies are considered to be valid measures of the ability to keep thought, percept and affect separate then on the basis of the present study, field dependent and field independent individuals do not differ from one another in terms of this ability.

These findings were contrary to those predicted by Witkin in the separation hypothesis. Furthermore these findings were also contrary to those of Minard (68) who found that Fd-Fdi was indeed related to perceptual defence. There are several possible reasons why the present study did not confirm either Witkin's separation hypothesis or Minard's findings. Some of these reasons may be highlighted in the following comparison between Minard's study and the present one.

1 A Comparison Between Minard's Study and the Present Study

(i Sex Differences

The first striking difference between

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Minard's study and the present study was that while the former used male subjects the latter used female subjects. Taylor (92) has pointed out that male samples and female samples often produce vastly differing correlations between Fd-Fdi and various personality variables. In some instances, the correlations for male and female subjects can even be reversed as in the Harrington and Spiegel study on the relationship between Fd-Fdi and achievement motivation (44).

It would seem then that the sex difference across the two studies is a major difference and it could have accounted for the discrepant results. However if this is the factor accounting for the disparate results it is difficult to explain why Witkin's separation hypothesis is true for males and not for females. Alternative reasons which would explain the disparate results should therefore be investigated. One such reason which could account for this discrepancy could be the difference in the Fd-Fdi measures used across the studies.

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(xx) Differences in the Field Dependence-Independence Measures Used

While Minard used three measures of Fd-Fdi viz. the RFT, EFT and DAP the present study used only two measures, viz. the RFT and the BAT. However the present study did have scores from a third measure of Fd-Fdi viz. the DAP available. In order then to assess the importance of the omission of this test from the present study in creating the discrepancy in results a new index of Fd-Fdi was calculated including this test. However, a significant relationship between Fd-Fdi and perceptual defence was still not found. Thus if the difference in the test strategies used across Minard's and the present study was the important factor creating the discrepant results the DAP was obviously not the contributing factor.

The DAP notwithstanding however Minard's test strategy still differs from the present one in that he used the EFT rather than the BAT as a measure of Fd-Fdi. The differences between these tests as measures of Fd-Fdi have already been discussed

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in detail in the test selection section. In essence however, the BAT may be considered the purer measure of Fd-Fdi because the EFT does not belong exclusively to the perceptual realm. Furthermore the EFT involves cognitive factors rather heavily while the BAT does not.

In light of the above then if the difference in results between Minard's and the present study can be related to the use of different Fd-Fdi measures an interesting possibility is raised, viz. that the positive results obtained by Minard might have been due to the fact that the EFT tape variables other than Fd-Fdi, viz. cognitive variables. Further, this possibility that the positive results found by Minard might have been an artifact of contamination in the tests used is lent weight when the differences between Minard's and the present study's perceptual defence strategy are considered.

(ii) Differences in Perceptual Defence Strategy

In Minard's study words which were personally threatening to each subject were used.

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These words were selected for each subject in terms of the long reaction times they elicited for that particular subject on a word association test. In the present study however, words were not chosen in terms of their personal threat value but they were selected in a more general way by judges familiar with the student population. The threat value of the words chosen was then validated in a post hoc fashion for the student sample actually used in the study by means of a t-test.

The present study did not use Minard's method of stimulus selection partly because Meissner (71) maintains that this method introduces an unmeasurable set for threatening words and partly because Minard's rationale for using this precaution at all is in question. The word association method of stimulus selection was originally introduced into perceptual defence studies by investigators who wished to eliminate R-bias. These investigators wished to eliminate R-bias in order to prove that perceptual defence

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was operative at the visual rather than the verbal level. The issue of R-bias however is irrelevant to the seperation hypothesis which merely states that field dependent subjects are more affected by their emotions than are field independent subjects. There is no specification in the seperation hypothesis that affect is only operative on the visual level but rather the implication is that affect is operative on both visual and verbal levels. It is puzzling therefore why Minard deemed it necessary to control for R-bias and to try and seperate visual from verbal factors in the first instance.

Be this as it may however, the implications of introducing a control for R-bias into the perceptual defence strategy should be considered. Although stimulus selection via word association tests does not effectively eliminate R-bias nevertheless it does reduce the impact of emotional factors at the verbal level because the shock value of taboo words

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is eliminated. Thus the introduction of a R-bias control into perceptual defence studies does attenuate to some extent the influence of emotional factors at the verbal level at least. This then makes the fact that Minard found a relationship between Fd-Fdi and perceptual defence while the present study did not even more puzzling, for while Minard attenuated emotional factors at the verbal level the present study allowed affectual factors maximum play at both the visual and the verbal levels. This then raises the possibility that in Minard's study field dependent and field independent subjects were discriminated from one another not solely on the basis of their differential susceptibility to emotional stimuli but on the basis of some additional factor which was not operative in the present study.

It is Minard himself who gave a clue as to what this additional factor might be. Minard (68) pointed out that performance on perceptual defence tests involves in

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part the ability to form and maintain stable stimulus representations and that furthermore Pd-Pdi is related to this ability (67, 69). Now, despite the difficulties involved in separating visual from verbal processes it is nevertheless clear that if such a separation is permitted for the sake of convenience, this ability would be operative at the visual rather than the verbal level. If this is accepted then it can be hypothesised that Minard by reducing the importance of emotional factors at the verbal level and increasing the importance of visual factors increased the role that the ability to maintain stable stimulus representations plays in determining perceptual defence responses. This ability has already been shown to be related to Pd-Pdi. Thus Minard's study might have been contaminated and his positive results might have been an artifact of his tests measuring overlapping variables.

Minard (68) however although he was aware

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of this possibility of contamination in his perceptual defence study was not concerned with it. This was because he saw differences in the ability to fixate and maintain stable stimulus representations as the medium through which emotion could have it differential effect on field dependent versus field independent subjects. He postulated that the lack of a stable stimulus representation would increase stimulus ambiguity and would therefore allow emotional factors a freer reign.
It was this facilitation of emotional variables which was the important factor in separating field dependent subjects from field independent subjects in perceptual defence studies. However, in the present study where emotional factors were facilitated by using taboo words field dependent subjects could not be differentiated from field independant subjects. Thus the facilitation of emotional factors alone does not seem to be the means whereby the difference in ability to fixate and maintain a stable stimulus representation discriminates

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between field dependent and field independent subjects.

The question now arises as to what alternative hypotheses can be offered to explain how Minard's emphasis on visual factors and the visual ability to form and maintain stimulus representations could have accounted for his positive results. Minard's idea that this ability serves as the medium through which emotional factors can have an effect has been rejected. Therefore an alternative hypothesis can now be put forward, viz. that this visual ability serves as the medium through which cognitive factors can have an effect. It is important thus at this point to consider the importance of cognitive factors in the area of Fd-Fdi in general. Furthermore a consideration of cognitive factors at this point will also serve to complete the three pronged approach to the study of the fate of stimulus input advocated by Neisser (71) and Hunt et al (49).

Those writers have stated that in order to trace the fate of stimulus input not

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only the nature of stimulus input but motivational factors within the individual as well as cognitive mediating processes need to be studied. In light of this however, Witkin's work can be subjected to criticism because there is a failure to recognise the importance of cognitive factors in contributing to the relationships found between Fd-Fdi and various personality variables. Some general criticisms of this nature which have been directed against Witkin's work will now be considered and some alternative explanations of his work investigated. This will be done with a view to testing the hypothesis that cognitive factors in Minard's study were the vital ones discriminating between field dependent and field independent subjects.

2 Alternative Explanations of the Relationships found by Witkin

Zigler (107) maintained that the correlations found between Fd-Fdi and personality scores was due to the common relationship of all these scores to intelligence as defined by the standard intelligence test. Zigler put forward this view on the basis of the

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relationship he found to exist between Fd-Fdi and overall intelligence quotients. Subsequently evidence accumulated to support this view that Witkin's correlations between Fd-Fdi and personality variables were an artifact of the relationship to intelligence which these scores have in common. Dubois and Cohen (18) correlated the RFT and EFT with the State University Admissions Examination (SUAE) and other achievement tests. They found that both Fd-Fdi measures were significantly correlated with both the verbal and the non-verbal achievement tests but the degree of correlation was somewhat higher on the EFT. Furthermore, the correlations obtained by Dubois and Cohen were about the same as those correlations typically obtained between disparate measures of intellectual achievement. On the basis of this then they suggested that Fd-Fdi should be regarded as a semi-specific factor of intelligence.

The above findings are contrary to those of Witkin who put forward that Fd-Fdi is not related to intelligence in general but only to specific subtests. Witkin (101) holds that Fd-Fdi is related only to the Block Design, Picture Completion and

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Object Assembly tests on the Wechsler. He maintains that there is no relationship between Fd-Fdi and the Vocabulary, Information and Comprehension subtests. However, even in Witkin's own work there is evidence to the contrary. Witkin combined scores on the Block Design, Picture Completion and Object Assembly subtests to form an intellectual index. Similarly scores on the Vocabulary, Information and Comprehension subtests were combined to form a verbal index. These indices were then used in Witkin's correlational matrices but Zigler on a close analysis of Witkin's work found that the correlations between these indices, Fd-Fdi and personality measures were not always in the expected direction (107). Furthermore contrary to Witkin's predictions in one of his own samples a significant correlation was found between Fd-Fdi and the Stanford-Binet vocabulary scores. Thus it would seem that in actual fact Fd-Fdi does correlate with general scores of intelligence. Therefore the view that the relationships found by Witkin, between Fd-Fdi and various personality measures, might in part be due to the relationship these variables have in common with intelligence seems to be worthy of consideration. And, if indeed this view is accepted then the

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results found in this study in contradistinction to those found in Minard's study can be explained.

If Zigler's view is accepted then there is an increased possibility that Minard found a positive relationship between Fd-Fdi and perceptual defence because his experimental design emphasised cognitive factors. The design increased the role of cognitive factors in two ways. Firstly it indirectly increased the role of cognitive factors by attenuating emotional factors through the elimination of R-bias. Secondly it directly increased the role of cognitive factors by the use of the cognitively loaded EFT. Thus it can validly be hypothesised that the positive results found by Minard were in part a function of the contamination of both the Fd-Fdi and the perceptual defence measures by cognitive factors. That the positive results found by Minard were in part due to contamination is supported by the results of the present study in the following way.

In the present study a much higher correlation ($r = .24$) was found to exist between selective memory and Fc-Fdi than was found to exist between perceptual defence and Fd-Fdi ($r = .06$). These correlations are in the expected direction if Zigler's view

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concerning the importance of cognitive factors is correct because the selective memory task involves cognitive factors to a far greater extent than does the perceptual defence task. Thus the results of the present study support Zigler's view concerning the importance of cognitive factors in producing Witkin's original correlations between Fd-Fdi and various personality measures.

This being the case however, it could be questioned why the present study did not find a significant correlation between Fd-Fdi and the cognitively loaded selective memory task. However it must be remembered that the present study attenuated cognitive factors in the selective memory task by requiring subjects to pre-learn the syllables to a criterion of one perfect trial before actually commencing the selective memory task. Furthermore the present study used the BAT and RFT as indices of Fd-Fdi and these tests are not cognitively loaded to the same degree as the EFT. Thus Zigler's criticism of contamination in Witkin's work stands and this same criticism of contamination can be directed against Minard's work. The question now arises therefore as to what implications this has for Witkin's work in general and at this point it might be of value to attempt an overall evaluation

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of Witkin's theory and experimental findings.

3 An Evaluation of Witkin's Work

Witkin built up his theory of psychological differentiation around the significant correlations he found between his measures of Fd-Fdi and various personality measures. Zigler has now pointed out that similar correlations might have been obtained had a general intelligence test been used rather than Fd-Fdi measures (107). The question can now be raised however as to what significance this finding of Zigler has. It may be argued that standard intelligence tests have never been conceptually related to any major theory of human behaviour and therefore if Witkin adequately relates his findings to a general theory of human behaviour his approach is of great value. It therefore becomes imperative to examine Witkin's conceptualisation of Fd-Fdi as it relates to human functioning.

In his book Psychological Differentiation (102) Witkin employed the term differentiation to conceptualise the communality in behaviour that he found to exist in different areas of psychological functioning. More specifically, by differentiation

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he meant the association among such characteristics as an articulated way of experiencing the world, a clear sense of separate identity and the use of specialised defences. At high levels of differentiation, the individual experiences his world in an articulated fashion, has a clear sense of separate identity and uses specialised defences. At low levels of differentiation, the individual does not experience his world in an articulated fashion, nor does he have a clear sense of separate identity and nor does he use specialised defences. Ontogenetically development proceeds from low to high levels of differentiation.

Thus it is clear that Witkin's ideas concurning differentiation tie in with Werner's orthogenetic principle which states that "development proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation and Hierachic integration" (105, p. 135). However, while Werner used this definition as an heuristic concept, Witkin used it as an explanatory principle from which he derived lower order constructs.

On a closer examination of Witkin's concept of differentiation however, it becomes clear that the

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only second order construct which he did actually derive from it was that of decontextualisation. Constructs such as an articulated body construct and a sense of separate identity which were put foward as second order constructs are in fact not second order but third order constructs being derived from the decontextualisation and not the differentiation concept. Thus the concepts of differentiation and decontextualisation may be considered to be synonymous.

The question can now be raised as to the utility of the decontextualisation principle as an explanatory one in accounting for human functioning and behaviour. This question must be considered both from a static and from a developmental viewpoint. When this is done however, it is found that when this principle is viewed ontogenetically especially, a number of difficulties emerge. For example Witkin has postulated that decontextualisation is related only to performance on Object Assembly, Block Design and Picture Completion. It is not related to performance on Vocabulary, Information or Comprehension subtests. However if decontextualisation is seen as an ontogenetic principle then from the above it

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must be hypothesised that a variety of verbal behaviours are at best only minimally related to developmental processes. Such a conclusion runs contrary to the widely accepted views of theorists such as Piaget and Werner who have accumulated much evidence to support their views (96). Thus Witkin's conclusion would appear untenable and his principle of decontextualisation may be considered to be inadequate in explaining human development and functioning. Thus the concepts of differentiation and decontextualisation do not seem to have any advantages over the concept of intelligence in explaining behaviour. Therefore the criticism levelled against Witkin's correlations between Fd-Fdi and personality variables in terms of contamination because of the common relationship all these scores bear to intelligence still stands.

In addition to this criticism which has been directed against Witkin's interpretation of his correlations in terms of Fd-Fdi rather than in terms of intelligence, several writers have also criticised Witkin's experimental procedure. Writers such as Gruen (42) have hit right at the core of Witkin's work.

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4 Gruen's Criticisms of Witkin's Work

Gruen (42) examined the personality tests used by Witkin to assess such variables as sense of separate identity and development of internal frames of reference. On doing this, he found that these personality tests operated on the basis of a few selected items the presence or absence of which gave a personality score. Thus the personality score represented an indication of the presence or absence of discontinuous personality variables rather than an indication of the degree to which any one particular variable was present. Witkin however utilised these scores as though they were measuring a variable along a continuum and used correlational analysis.

It can be questioned however whether such a procedure which adds discontinuous variables and then correlates them can be logically correct. Gruen (42) makes the point that Witkin appears to have been measuring a number of things badly rather than one thing well. Thus Gruen criticised the statistical techniques used by Witkin to obtain the correlations between Fd-Fdi and the personality measures upon which he based his theory. However Gruen did not leave his criticisms at this point but he carried

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Name of thesis The Relationship Of Field Dependence-independence To Perceptual Defence And Selective Memory. 1972

PUBLISHER:
University of the Witwatersrand, Johannesburg
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