AUTHORITARIANISM
AND THE
CLOSURE PHENOMENON

by

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ABSTRACT

The purpose of this study was to note the effect of certain variables on perceptual closure. Closure has been defined by Mooney (1951) as, "the facility with which individuals can apprehend the structural implications of a confused or incomplete visual configuration." Since research into the effect of variables such as age, sex, and intelligence have yielded few results, it was thought that the field of personality traits might be a lucrative one in which to look for factors affecting closure ability. Authoritarianism was chosen as a possible starting-point because it has been shown that high authoritarians are high in rigidity, a factor having a deterrent effect on closure. (Luchins 1959)

The Pensacola Z Scale (Jones 1957) was used as the measure of authoritarian personality, since it consists of four factored, separately scorable, subscales: anxiety; dependency; hostility; and rigidity. The closure phenomenon was measured by Mooney's Closure Test (1951) because it can be administered to either an individual or a group. The sample consisted of fifty volunteer students attending the University of British Columbia summer session. Subjects were divided into two groups for testing purposes; one group received the Closure Test first, and the other received the Pensacola first. The purpose of this procedure was to randomize the effects of the two tests on each other.

Analysis of the data yielded a Pearson Product-Moment coefficient of $-.345$, significant at the 5% level, between Closure and the total Pensacola scores, which supported the original hypothesis that there would be an inverse relationship between scores obtained on a measure of authoritarianism and those obtained on a measure of closure. When Closure was correlated with each of the Pensacola subscales, only two were significant; closure-anxiety ($-.32$) at 5% level, and closure-dependency ($-.40$) at the 1% level. The other two coefficients can only be regarded as chance occurrences. The multiple correlation coefficient of $-.495$ calculated between closure, and anxiety and dependency, indicated the better predictive value of the combined scales of dependency and anxiety over the use of them singly, or over the use of the total Pensacola scale.

From this study it was concluded that high authoritarians possess qualities which interfere with the ability necessary for achieving closure. Also, the results of this study point to the fact that one place to look for variables affecting closure is within the field of personality traits.

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CHAPTER I

INTRODUCTION

One of the most interesting phenomena in the field of perceptual psychology is that of closure, the ability of a person to glean the implications of a picture, figure, or form, when the details are confused or incomplete, so that at first glance, the contents cannot be readily apprehended. Compared to the exploration of other aspects of psychology, relatively little work has been done to discover the variables which allow one individual to achieve a closure easily, while preventing other individuals from ascertaining the implication of a confused pattern. Studies have indicated factors which do not affect closure ability, such as age, sex, and intelligence, and it is partly by this process of elimination that one is confronted with a possible relationship between closure and personality characteristics.

It is the purpose of the present study to delve further into this relationship. Armchair speculation suggests that personality traits may be a lucrative starting-point when wishing to discover factors causing differences in closure facility between individuals. If such qualities as age, sex and intelligence are not the reason for the variation, logically then, the variance might emanate from more personal traits. Moreover, since rigidity is the only personality characteristic which so far has been shown to affect closure ability, (it seems to have a slightly deterrent effect to achieving closure - Rokeach 1948; Frenkel-Brunswik 1949; Luchins 1959), and since rigidity is

considered a component of high authoritarianism, (Adorno, 1950; Millon, 1957), it would appear that by examining the larger field of the authoritarian personality, not only could substantiation be gleaned for the results of the closure-rigidity studies, but also new variables might perhaps be found that would have some bearing on this perceptual phenomenon, which might indicate a path for future research.

Because, however, there are so many components which have been grouped under the broad, and not too definitive title, "Authoritarian Personality", it would be attempting too much to try, in one study, to relate them all to closure. Consequently, only four were chosen, but four that have been shown to be an integral part of authoritarianism. (Adorno, et al. 1950) These are: anxiety; dependency; hostility; and rigidity. By using each as a separately-scorable subscale, Jones (1957) has created a fairly reliable measure of authoritarianism, which correlates highly with the California F Scale. Since there is only little indication from previous research as to the relationship of three of the four core traits to closure, the hypotheses upon which this study is based are truly hypothetical.

Rigidity has been shown to be detrimental to closure ability. (Rokeach, 1948; Millon, 1957; Luchins, 1959) Therefore, it is to be expected that an inverse relationship should be manifest between a measure of this factor and closure. With regard to hostility, there are a few weak suggestions (Frenkel-Brunswik, 1949; Adorno, 1950), that there might also be an inverse

covariation between it and closure in the same manner as that of rigidity and closure. Anxiety also gains slight support from previous work (Verville 1946; Smock 1957), since there is reason to believe that high anxiety is a deterrent to high closure facility. There has been no research, however, concerning the relationship of dependency to closure, so that there is no indication whether it has any effect at all on closure ability, or whether it enhances or interferes with the necessary facility.

Because an inverse relationship can be expected for rigidity, anxiety, and hostility, when correlated with closure, it would seem logical to expect an inverse covariation between authoritarianism and closure, unless of course, dependency is working positively. That is, it is possible that the effect of dependency will be to negate the combined effects of the other three factors, in which case there would be manifest a positive relationship between closure and the authoritarianism consisting of these four traits. But this is unlikely if the inverse relation between the other three and closure is strong enough. The lack of foreknowledge about dependency lends an aura of equivocality to the outcome of this study.

CHAPTER II

REVIEW OF THE LITERATURE

Closure

Closure: according to Gestalt theory, a basic principle whereby a situation is resolved and the configuration (whether of behaviour or of mental process) tends to as complete or "closed" a figure as the circumstances permit. An interrupted sneeze or a face in profile without a nose is an unclosed configuration which one tends to "complete". (Murphy 1947)

The term "closure" was given psychological currency by Wertheimer, Koffka, and Köhler, in their early expositions of Gestalt theory. It was one of the organizing forces -- similarity, proximity, closure, good continuation -- which determined the direction of perceptual organization. The early "crucial" illustrations of these factors were given in simple visual patterns. In these, closure has a literal aptness in describing the closing of gaps in lines, circles, triangles, and the like.

Closure may be described in a more general sense as the moment of perceptual resolution; as the terminal phase in an act of perceptual contemplation; as the tension-relieving instant when meaning is ascribed to, or is recognized as emerging from, a compelling constellation of objects or events. Its common manifestation would be in the rapid, habitual recognition of common-place objects or events-- its measure being, presumably, in terms of speed.

The present Closure Test of Mooney's (1951) used in this study is a development of a test first created and used by

R.F. Street in 1931. Although few studies were conducted with this instrument, similar types of test material have been used experimentally by Leeper (1935), Sheeham (1938), Thurstone (1944), Verville and Cameron (1946), and Verville (1946). However, the test material in these studies was, for the most part, presented tachistoscopically, and was not readily adaptable for general test purposes.

Mooney's intention was to develop a test which was more extensive in scope, and more refined in items, and which could be administered on either an individual or a group-testing basis. "The present closure test is regarded as measuring the facility with which individuals can apprehend the structural implications of a confused or incomplete visual configuration". (Mooney and Ferguson, 1951). Mooney feels that the factor isolated by Thurstone (1944) and referred to by him as speed and strength of closure is well represented in this test. (Thurstone hypothesized that this factor represented the ability to form a closure in a given presentation, and that the factor was best represented when the subject was required to form a closure against some distraction.) Since little work has been done using this test, the only available data are the original norms based on a group-testing program with 103 college students (62 men; 41 women) with a mean age of 20.5 years. By the Kuder-Richardson formula the reliability co-efficient was found to be .881. Of a total possible score of forty, the mean obtained was 17.21 and the standard deviation was 7.32. In the norm testing program, sex differences were not found to be significant, a

result in keeping with earlier ones (Street 1931; Verville and Cameron 1946).

Mooney himself states that very little is known about the usefulness of this type of material in the clinical or other applied fields. "While it is possible to speculate at length with regard to the fundamental nature and importance of the abilities involved in test material of this type, it is clear that until further experimental evidence is available, such speculation will be undertaken at considerable risk," (Mooney 1951)

R.F. Street, the originator of the first closure test, in his attempt to compare the ability to recognize incomplete pictures with intelligence, found no correlation between the tests of intelligence (Kuhlman-Anderson; Healy Picture Completion II) and scores obtained on the incomplete pictures, and no consistent differences in scores between the sexes or the age groups. This latter result was not unexpected, because in selecting his test items he had eliminated those which showed age and sex differences in the pre-test group of subjects. Four years later, Leeper (1935), using some of Street's picture items plus some new figures, found that verbal and visual assistance helped subjects to see the pictures clearly, and that there was retention of the perception over a three week period, even when the original exposure time was very short.

Thurstone, in A Factorial Study of Perception, states that he has reason to believe that Street's original Gestalt

Completion Test involved some factors maturing at an early age, which indicate some fundamental and primitive mental function. He based this premise on the fact that Street found no consistent differences in scores for grades three, six, and high school. Thurstone also found that the principal factor which appeared in the Gestalt Completion Test from factor-analysis was one which he called speed of perception, and then later, strength and speed of closure.

In 1946 Verville and Cameron designed a study specifically to note age and sex differences with regard to closure ability. They showed tachistoscopically various adaptations of Street's figures to two groups of subjects, the younger of which ranged in age from sixteen to twenty-three and the older from thirty-five to fifty-six. Their results indicated no consistent sex differences in the younger group, but in the older group, men had quicker reaction time scores for the total set of ten pictures. In general, the younger group consistently reacted more quickly than the older group. Since the authors suggest factors which would minimize age and sex differences (the ability to eliminate the set established by the previous picture, and the effects of success, failure, and apprehension on reaction time), they seem to imply that the differences may not be intrinsic in closure ability, but may be accounted for by other factors. This is supported by Mooney (1957), who found no consistent age differences in school children with regard to closure ability.

In the middle fifties, C.M. Mooney conducted some experiments exploring the physical properties of the closure

phenomenon by pictures presented tachistoscopically. He was interested in the effects of: flickering and steady light; long and short exposure time; negative after-images; eye movements; multiple visual fixations; clarity; and consistency. From this set of studies he concluded that flickers do not contribute to achieving closure, but do facilitate when used during the viewing period; that the perception of closure pictures is not essentially dependent upon, nor facilitated by, prolonged inspection or a sequence of scanning eye movements. The results of this extensive research led him to believe that closure occurs fortuitously and instantaneously at a single glance or fixation.

Authoritarianism

The term "Authoritarian Personality" is too broad, and embraces too many traits and qualities, some of which are extremely nebulous, to formulate a cohesive definition of the term. No author or researcher has yet created one extensive enough to cover all the variables involved. Many writers have not even made an attempt (Adorno 1950; Christie 1954). Perhaps they are wise, at this date, not to try, for the results of research designed to exploit this area have not been compiled in such a way as to give an overview of the factors inherent in this type of personality. Compared to other aspects of the field of Psychology that have been explored, authoritarianism is relatively young, the first, and to date, most comprehensive work having been published only thirteen years ago (Adorno 1950).

The Authoritarian Personality began as a set of studies of anti-Semitism, but in the course of the five years which went into its compilation, the scope of the undertaking widened into the exploration of a more comprehensive problem; the relation between personality, social discrimination, and political ideology.

Although the studies are not exploring a problem peculiar only to this generation, they are utilizing a new approach, because its authors made converge on the age-old subject several recent trends in social theory and research. The entire work is permeated with the theoretical system of psychoanalysis. Not only are the basic questions formulated and interpretations performed in terms of psycho-analytic theory, but also the methods of data collection and analysis are geared to this orientation. The authors' use of projective techniques and questions, and of the clinical interview for the exploration of political ideologies and their relation to personality structure is a relatively rare and new approach. Also, The Authoritarian Personality has benefited considerably by taking advantage of another trend in American social science; the methodological development of opinion and attitude measurement and the corresponding techniques of statistical analysis.

With regard to the scope of this study, the California group sheds considerable light on some of its problems. For instance, it points out that rigidity is related to Ethnocentrism, one of the components of authoritarianism. High scorers on the ethnocentric scale tend to be more rigid and intolerant of ambiguity, whereas low scorers are more ready to think over matters and come to a solution on their own. They are also unwilling to

take over traditional and fixed concepts without scrutiny.

Frenkel-Brunswik (1948), Rokeach (1948), and Block and Block (1950) in separate studies, indicate that the ethnically prejudiced tend to impose, in a rigid manner, certain preconceived sets upon ambiguous perceptual data, or upon the solving of reasoning problems. The extremely prejudiced individual, to keep unacceptable tendencies and impulses out of consciousness, has to maintain rigid defenses.

Thus all evidence seems to point toward a greater over-all rigidity in high scorers as compared with low scorers. These results, however, as with many others, may be valid only for the extreme groups. In the medium range, ...rigidity may be neither pervasive nor relatively absent throughout the personality as a whole, but may be differentially distributed over some areas of personality, while other areas retain their flexibility. (Adorno 1950)

With regard to anxiety, the California group states that: low scorers show less anxiety with respect to conformity than high scorers, and are less intolerant toward manifestations of socially unacceptable behaviour. This does not mean however, that low scorers show no anxiety, but they manifest it through preoccupation with feelings and impulses. Far from escaping emotional ambivalences and feelings of anxiety they tend to dwell on them. But even though they do dwell on them, they are not entirely free from self-deception, because their thoughts are often morbid and lacking in insight. However, it is pointed out that this conscious consideration and comparative acceptance of impulses may prevent the development of rigid defenses. This is the difference between the anxiety of the low scorers and that of the high. In part, too, the fact that the low scorers are

conscious of their anxiety and consequently do not tend so much to develop defenses, possibly accounts for the difference in rigidity between high and low scorers.

Dependency in high scorers is manifest by dodging responsibility, a general underlying passivity, helplessness, and weakness. The orientation in high scorers towards material benefits promotes dependency, since they tend to regard people as a means of advancement. High scoring males cannot express their dependency because it violates the image of the normal, masculine man-- acquisitive, rugged, independent. Part of their defense against this is a rigid over-valuation of work. In low scorers, dependency is mainly manifest in a concern with love. They seem to be highly concerned with emotional exchange in personal relationships, certainly in contrast to the high scorers. However, the study of dependency as a factor of authoritarianism in The Authoritarian Personality is based solely on male subjects, for it was thought that in women dependency is more socially acceptable, and consequently more likely to be equally distributed in both high and low scorers.

Adorno's high scorers were found to project immoral tendencies onto out-groups and thus express hostility without the fear of victimization which could have resulted from projection onto their associates. In contrast, low scorers seemed upset by feelings of hostility in themselves, and by observing hostility and exploitation in others.

Frenkel-Brunswik summarizes the position of the California group on the relationship between authoritarianism

and ambiguity-intolerance by stating, "There is more than an empirical affinity between the strength of hostility, of power orientation, of externalization, and of rigid stereotyping, on the one hand, and the intolerance of ambiguity on the other."

(Frenkel-Brunswik 1949)

In 1957 Jones developed the Pensacola Z Scale as the measure of authoritarianism for the broader study, the Pensacola Z Survey. (it is the measure utilized in this study.) It is based on the theory that authoritarianism can be located through the subject's personal qualities such as habit, temperament, reactions, independent of sociopolitical reference, and is a reaction against the "fascist" orientation of the California F Scale (Adorno 1950), whose items are attitudinal in form and political in reference. There are four factorial core traits toward which the items of the Z scale are oriented: anxiety; dependency; rigidity; and hostility, which were isolated in prior studies by the administration of four standard personality inventories in conjunction with the F scale. The items are written in forced-choice form, hopefully to minimize fakability. Norms were established by administering the Z scale to 766 naval cadets, 80% of whom had had two years of college, and the rest of whom had finished high school. Test-retest reliability after twenty-four hours was .87; after four weeks, .74. Cross-validation with the F scale yielded a coefficient of .43. The mean score of a possible high of 66 was 35.51, and the standard deviation was 6.33. The curve has a negative skew significant at the 1% level and a tendency to platykurtosis which is not significant.

Analysis of variance yielded a coefficient of .72 in the cross-validation study. Of the 66 items in the final version of the scale, 19 are oriented toward dependency; 20 toward rigidity; 15 toward anxiety; and 12 toward hostility.

Even though the initial research into authoritarian determinants by Adorno, Frenkel-Brunswik, and Rokeach obtained positive relationships between the California F Scale and intellectual and perceptual measures of rigidity and intolerance of ambiguity, subsequent studies have failed, in part, to substantiate their findings. For instance, Kenny and Ginsberg in 1957 found no significant relation between aggression and ambiguity-intolerance. The view that an atmosphere of ego-involvement in the ambiguous situation may be a necessary condition for obtaining such relationships has been advanced by Brown (1953), but experiments designed to test this view have merely contributed more conflicting evidence, (French 1955; Davids 1956). In 1957 Millon designed a study specifically to discover the effect of ego-involvement on rigidity, authoritarianism, and ambiguity-intolerance. He found that whereas ego-involvement did have a significant effect on the relationship between authoritarianism and rigidity, it did not significantly increase intolerance of ambiguity. He also found that the relationship between authoritarianism and ambiguity-intolerance achieved significance beyond the 1% level of confidence. In contrast to these results, two later studies, (Smock 1957; Fleshbach 1959) indicate that anxiety is an

important determinant of the intolerance of ambiguity when the ambiguous situation is dependent upon ego-involvement. It would appear from these studies then, that either the effect of ego-involvement is not unequivocal, or that it enhances the position of anxiety with regard to ambiguity-intolerance, yet does not affect rigidity. As Kenny and Ginsberg (1958) point out when unable to find any significant relation between aggression and the intolerance of ambiguity; "It cannot be assumed that intolerance of ambiguity is necessarily linked to authoritarianism. An individual can be intolerant in one situation, but not in all equivocal situations."

In summary, it has been shown that, through the years, theories concerned with factors which influence the perception of ambiguous situations have moved from supporting such variables as age, sex, and intelligence, to a position advocating more personal traits such as those presently classed under the heading "authoritarianism". There have been studies (Frenkel-Brunswik 1949; Millon 1957; Luchins 1959) which have given supporting evidence to the relationship between perceptual closure and personality variables, and there have been studies which indicate no such relationship (Kenny, Ginsberg 1958; Davids 1956). It is the purpose of this present study to yield either substantiation or negation to these theories and results by noting the relationship between closure and four factors integral to the authoritarian personality.

CHAPTER III

METHOD

The design of this study involved the administration of both the Pensacola Z Scale and Mooney's Closure Test to fifty volunteer subjects attending second, third, and fourth year courses in Psychology given in the 1963 summer session at the University of British Columbia. The subjects were divided randomly into two groups, one of which received the Pensacola first, and then the Closure Test, and the other of which received the Closure Test first, and then the Pensacola. It was thought that by not having all subjects take the tests in the same order, any effects of the two tests on each other could be neutralized. The tests were administered in group sessions; the completion of both took approximately fifty minutes, because of the time consumed by instructions, late-comers, and questions.

Subjects were not informed beforehand as to the purpose of the tests, on the theory that naive subjects would not be tempted to try to distort their answers, especially on the Pensacola where some of the questions are quite personal. They were also requested, after having been tested, that they tell no one the purpose of the session, in case someone scheduled to take the test later would be forewarned. Since the subjects were volunteers, and willing to give their time, and since they had been informed that the results would be anonymous, there is every reason to believe that motivation was high enough so that the questionnaire and test were answered honestly.

No particular care was taken to have an equal number of male and female subjects, nor to have a certain age range, because neither of these have been reported in the previous literature to have a significant effect, especially with regard to closure. As a result, the fifty subjects were comprised of twenty-two males and twenty-eight females, with an age spread of 17 to 48, the mean age being 27.7/.

CHAPTER IV

TREATMENT OF THE DATA

Because this study involved the relationship between results obtained on two tests, analysis of the data could be performed by correlations. However, before any coefficients could be computed, it was necessary to discover the differences, if any, between the two groups: A, which had received the Closure Test first, and B, which had received the Pensacola first. If no significant difference was found to exist between the groups, the results could be combined and treated as a single sample of fifty cases drawn from a common population, instead of two separate samples of twenty-five cases each.

TABLE I

This was accomplished by computing a Critical Ratio from the means of the two groups for both tests. Neither CR attained the value necessary for significance at even the 5% level of confidence. From this it was concluded that there was no significant difference between the groups, and consequently the data for purposes of further analysis could be regarded as based on a single sample representative of a common population. Therefore, a new mean and standard deviation were calculated for the total sample, and were the ones used in all further computations. See Table I.

TABLE II

Next, correlation coefficients were calculated between the closure scores, and each of the four subscale scores of the Pensacola, as well as between the Closure scores and the total Pensacola scores. The Pearson Product-Moment method was used, since the raw data fulfilled the necessary requirements; that is, the data were normally distributed, of interval form, and the regression equation approximately linear. Intercorrelations were also computed between the four Pensacola subscales to see if they were each measuring separate factors, as their names imply, or if each were measuring the same trait. This gives a total of eleven coefficients which are noted in Table II, Figures i and ii. Each coefficient was tested for significance, as is also noted in the Table. A multiple correlation coefficient was calculated between closure and the two Pensacola subscales which attained significance when correlated singly with Closure. The purpose of this was to discover whether they would predict closure ability better when combined than when used alone. The resulting coefficient is also recorded in Table II, and the method and computation in Appendix B. To calculate the significance of the difference between the multiple correlation coefficient ($R_{C,AD} = -.495$) and the closure-Pensacola coefficient ($r_{CP} = -.345$), the formula:

$$SE_{DIFF} = \sqrt{\frac{1}{N_1 - K - 3} + \frac{1}{N_2 - 3}} \quad \text{where } K = 2, \text{ was used.}$$

TABLE I

TEST	CLOSURE			PENSACOLA		
GROUP	A	B	COMBINED	A	B	COMBINED
MEAN	19.44	18.88	19.16	27.96	26.84	27.40
STANDARD DEVIATION	7.67	7.84	8.02	6.46	7.02	6.87
STANDARD ERROR	1.59	1.63	1.13	1.36	1.40	0.97
CRITICAL RATIO	0.24			0.57		

TABLE II
CORRELATIONS

A: INTERCORRELATIONS BETWEEN THE FOUR SUBSCALES
OF THE PENSACOLA Z SCALE.

	Anxiety	Dependency	Hostility	Rigidity
A		** .28	.13	.14
D			- .05	** .37
H				.14

B: CORRELATIONS OF THE FOUR SUBSCALES, THE PENSACOLA
SCALE, AND ANXIETY AND DEPENDENCY COMBINED, WITH
CLOSURE.

	Anxiety	Dependency	Hostility	Rigidity	Pensacola	R C. AD
$\bar{r}$	* -.32	** -.40	-.063	-.02	* -.345	** -.495
Se	.126	.118	.1408	.1413	.124	.106

KEY:

- * SIGNIFICANT AT 5% LEVEL
- ** SIGNIFICANT AT 1% LEVEL
- r CORRELATION COEFFICIENT
- Se STANDARD ERROR

CHAPTER V

DISCUSSION OF RESULTS

The results of this study are quite varied; some substantiate those obtained from prior research, and some show little relation to either previous results, or to what would be expected from logic. In the main, the results support the basic hypothesis, that is, the coefficient of $-.345$ between the Closure Test scores and the total Pensacola scores attains significance at the 5% level of confidence, but is not quite large enough to fulfil the requirements for the 1% test. That the direction of the correlation is negative is in keeping with the prediction that higher authoritarians do not achieve so high a score of closure as lower authoritarians. Why there is this significant correlation is better illustrated by considering the coefficients obtained from the correlating of the Closure Test scores with each of the four Pensacola subscale scores.

Of the four, only two, when correlated with closure, achieve significance; anxiety-closure ($-.32$) at the 5% level, and dependency-closure ($-.40$) at the 1% level. Hostility and rigidity, although being in the predicted direction, are too small to be considered anything but chance occurrences. The fact that the coefficient for rigidity does not achieve significance can perhaps be explained in terms of the sample. With relation to recent emphasis on the necessity of ego-involvement in the ambiguous situation before such relationships as that between rigidity and closure are strongly indicated, it must be pointed

out that the sample upon which this study is based was volunteer, naive, and knew that the results would not directly affect them. In short, the subjects were neither ego-involved, nor under stress. Had these conditions been fulfilled, the rigidity-closure coefficient might possibly have been higher.

Also, in the Authoritarian Personality, Adorno and his associates state that although they found that high scorers of their measure of authoritarianism tended to be more rigid than low scorers, it must be kept in mind that they were using extreme groups, and that it is possible that, regarding subjects who obtain scores in the middle range, rigidity might not be so all-pervasive throughout the whole personality, but may affect only certain areas, while other areas still retain an amount of flexibility.¹ Since few subjects in this study achieved extreme scores, as may be seen from the raw scores in Table III, and the means and standard deviations, Table I, Adorno's statement might throw some light on the reason behind the small coefficient for rigidity and closure. Also according to the California group, the high anxiety-closure coefficient may have some relation to the low rigidity-closure one, since they found the main difference between the anxiety of high and low scorers to be that low scorers did not develop rigid defenses. Again, since few subjects in this study could be regarded as highly authoritarian, perhaps anxiety factors can be noticed, but not rigidity ones.

1. See Chapter II, page 10, for quotation.

These assumptions are theoretical only, but they may help to explain the failure of this study to support the findings of previous research with regard to rigidity and closure.

The small correlation between hostility and closure cannot be explained by reference to the group of subjects, because there are not strong grounds for believing that this sample is any more or less hostile than the total population. Perhaps if this study, or a similar one, were conducted again, the results regarding this coefficient would be different. There is little indication from prior research that this result is either equivocal or unequivocal.

Again, previous studies give little help in explaining the large and significant coefficient obtained for closure-dependency. It is really because of the high correlation between closure and this factor that the overall correlation between closure and the Pensacola achieves significance. Obviously then, according to this study, it is dependency even more so than anxiety that is detrimental to a high closure facility. Why is this so? It can be expected that anxiety is deterrent to closure ability because of the results of past studies (Verville 1946; Smock 1957). But the reason why the dependency coefficient is so high in relation to the others cannot be logically and irrefutably explained; certainly there are few indications that this is the result to be expected. It is practically impossible to formulate an explanation without seeing whether the results of further research substantiate this finding.

However, it could be hypothesized that a high score of this measure of dependency indicates a lack of free and original thought processes necessary for seeing the obscured pictures in the Closure Test. But this seems the only possible explanation without more research.

The multiple correlation coefficient of $-.495$, significant at the 1% level of confidence, between closure, and anxiety and dependency, the two subscales of the Pensacola which covaried significantly with the Closure Test, indicates the value of the two combined as a prediction of closure success, over the value of each alone. Therefore, to obtain a predictive indication of how well subjects can be expected to perform on a measure of closure, it would be more worthwhile to combine the anxiety and dependency subscales, rather than to use them singly, or to use the other two, hostility and rigidity at all. Also, since the multiple coefficient is significantly higher even than the coefficient of $-.345$ obtained by correlating the total authoritarian scale and closure, use of the two subscales is indicated as being a better prediction of closure ability than the total scale. This is to be expected from an inspection of the coefficients for closure-hostility, and closure-rigidity; because they do not achieve significance, their inclusion in the total scale lowers its predictive validity as far as closure is concerned.

Of the six coefficients obtained by correlating the four subscales, one with the other, only two, dependency-anxiety, $(.28)$ and dependency-rigidity $(.37)$, achieve significance. The fact that the other four coefficients can be regarded as chance

occurrences, since they are not large enough to reach the level necessary for significance, implies that there is little over-lap in what they are measuring. That is, it would seem that each scale measures factors different from those measured by each other scale. For instance, hostility factors are not scorable as rigidity ones, nor dependency factors as hostility. This is a desirable characteristic to discover in any test supposedly measuring more than one trait, for it indicates that no scale is superfluous.

Since the correlation coefficients between dependency and rigidity, and dependency and anxiety achieve significance, there is obviously some definite relationship. It would seem that some of the items scorable as dependency are also related to both other variables, and, therefore, some items are unnecessary. If the dependency subscale were shortened or changed, that is, the items in it which caused the significant covariation were deleted or re-worded, there might not be such large coefficients. On the other hand, perhaps the omission or change might lower the reliability of either the subscale or the total scale.

It is interesting to note the differences between the mean scores and standard deviations obtained in this study, and those obtained from the normative populations of the two tests. The mean score for the naval cadets when given the Pensacola Scale was 35.51, and the standard deviation 6.33; for this sample the mean was 27.40 and the standard deviation 6.87. This difference between the means is significant at the 1% level of

confidence, but the only possible interpretation is that this sample was, on the whole, less authoritarian than the normative one. Such a difference in means is not noted for the two populations on the Closure Test, perhaps because the two groups consisted of Canadian college students, and consequently are more comparable than American naval cadets and Canadian university students. The mean score for Mooney's normative population was 17.21 and for this sample, 19.16. The standard deviations were 7.32 and 8.02 respectively.

With regard to the age and sex of the subjects, neither was found to be significant. This finding is in keeping with those reported earlier (Street 1931; Verville and Cameron 1946; Mooney 1951), and supports the theory that the factors operating to produce variations on a measure of closure will be more likely to be found in the field of personality characteristics rather than other individual differences, such as, age, sex, and intelligence.

CHAPTER VI

CONCLUSIONS

The results of this study support the hypothesis. It has been shown to the five per cent level of confidence that there is a negative relationship between authoritarianism as measured by the Pensacola Z Scale, and closure ability, as measured by Mooney's Closure Test. Although the covariation between closure and the rigidity component is not so high as the results from previous research leads one to expect, the fact that in this study it is no more than a chance occurrence, is possibly a characteristic of the sample. There is a definite difference between emotional rigidity and perceptual rigidity which has not yet been exploited. This difference could possibly have a bearing on the low coefficient manifest here, but it is hard to say without more data.

Some results of this study substantiate those of previous ones. Verville's experiment in 1946 with the emotional effect of anxiety on the perception of incomplete pictures showed that high anxiety interferes with closure ability. This finding was supported by Smock (1957). In this study anxiety was one of the two significant coefficients when correlated with closure. Obviously it has some detrimental effect on the facility necessary to complete a closure. The closure-hostility coefficient was not significant, but any indications from past experiments that it should affect closure one way or the other

have only been found in passing. There has not been a study specifically designed for the purpose of exploring this phenomenon, and until there is, and until it is proved conclusively that a certain effect is to be expected, no excuses nor explanations can be made for this result. Age and sex factors were not found to be significant; this is in keeping with much experimental evidence from past years.

The results of this study indicate new pathways to be explored by future research. Were it not for the high correlation between closure and dependency, the covariance between closure and authoritarianism would not achieve significance. No studies have indicated either a similar relationship as this one between closure and dependency, or a possible explanation for the phenomenon. If another study designed to exploit this relationship found as high a correlation, perhaps a new aspect to the closure field would be discovered, and a factor having a very real negative effect on closure could be integrated into a new theory regarding this phenomenon. At this point, before the stated finding has been substantiated, it is impossible to offer any valid reason to explain this coefficient. This task must be bequeathed to future researchers.

Throughout this thesis, the Pensacola Z Scale has been referred to as a measure of authoritarian personality in order to distinguish the results of the total scale from those of its component subscales. It must be kept in mind that the Pensacola is only measuring four traits, even though they be "core" to authoritarianism. It has been stated that the total picture of

the authoritarian personality is too broad and ill-defined to be measured wholly within the scope of a study like this.

Therefore, before it is concluded that high authoritarians are intolerant of perceptual ambiguity, it must be remembered that this conclusion is founded on a measure of partial authoritarianism.

Dauids, in "authoritarianism and intolerance of ambiguity" (1956)

when he found no significant relationship between the two,

summarizes the position of this paper:

...We would advocate...cautious skepticism until contradictory evidence has been reconciled. We do not yet know the conditions or variables that influence this relation, and until we have more unequivocal experimental evidence, it seems best to place qualifications on the general statement that authoritarians are...intolerant of ambiguity.

SUMMARY

This study was performed to investigate the relationship between closure and authoritarianism under the hypothesis that there will be an inverse covariation between the two, because of the relationship of closure to each of the four subscales: anxiety; dependency; hostility; and rigidity. The measure of closure used was Mooney's Closure Test; the measure of authoritarianism was the Pensacola Z Scale, consisting of the four aforementioned subscales. The subjects were fifty volunteer Psychology students attending the 1963 summer session at the University of British Columbia. They were divided into two groups, one of which received the Closure Test first, and the other of which received the Pensacola first. This reversal was to hopefully neutralize the effects of the two tests on each other.

Analysis of the data involved a Critical Ratio test to discover if there were any difference between the groups. When the CR did not achieve significance, the groups were combined and considered as a single sample drawn from a common population. New means and standard deviations were calculated for both tests, and were the ones used in all further computations. Correlations were computed between the closure scores and each of the four subscale scores, as well as between the closure scores and the total Pensacola scores. Six intercorrelation coefficients were calculated between each of the sub-scales by correlating one with the other, as well as a multiple correlation coefficient between closure and the two

sub-scale scores which were significant when correlated singly with closure. The results obtained from these calculations indicated two significant coefficients between closure and anxiety, and closure and dependency. Closure-hostility and closure-rigidity were not significant. The coefficient of the Closure Test and the total Pensacola ($-.345$) was significant at the 5% level. Only two intercorrelation coefficients attained significance: dependency-rigidity ($.37$) and dependency-anxiety ($.28$). The multiple correlation coefficient between closure and dependency and anxiety ($-.495$) was significantly larger than the coefficients obtained when each was correlated singly with closure and then the coefficient obtained when closure was correlated with the total Pensacola.

From this it was concluded:

- A. There is an inverse relationship between Closure and authoritarianism as measured by the Pensacola Z Scale.
- B. There should be an experiment specifically designed to note the effect of dependency on closure.
- C. The small rigidity coefficient is probably attributable to the fact that the sample consisted of university students.
- D. The combination of the dependency and anxiety subscales yields a better prediction of closure ability than the use of either of them singly, or than the use of the total scale.
- E. Age and sex, as indicated in previous studies, have little bearing on closure ability.

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APPENDIX A

RAW SCORES FOR ALL SUBJECTS (N=50) FOR CLOSURE TEST

PENSACOLA Z SCALE AND THE FOUR SUBSCALES.

KEY:		CLOSURE FIRST
C - CLOSURE		PENSACOLA SECOND
P - TOTAL PENSACOLA SCORE		
A - ANXIETY SCORE		
D - DEPENDENCY SCORE		
H - HOSTILITY SCORE		
R - RIGIDITY SCORE		

GROUP A

N	AGE	SEX	C	P	A	D	H	R
1	38	F	20	22	6	5	2	9
2	18	F	22	31	6	10	2	11
3	20	F	20	35	8	11	7	9
4	23	M	4	35	7	11	8	9
5	29	F	19	31	11	9	8	6
6	42	M	4	36	10	11	5	10
7	24	M	37	30	5	8	7	10
8	21	F	26	23	5	7	3	8
9	19	F	23	27	3	10	4	8
10	24	F	26	25	4	10	6	5
11	20	F	19	21	9	6	3	3
12	39	F	11	32	7	12	1	12
13	32	M	18	13	3	5	2	3
14	21	F	10	29	4	14	2	9
15	24	M	23	35	9	12	4	10
16	43	F	17	24	8	10	0	6
17	29	M	23	26	7	10	5	4
18	22	F	25	24	4	6	6	8
19	23	M	19	34	10	11	5	7
20	17	F	10	40	10	14	4	12
21	22	F	22	20	6	2	4	8
22	20	F	18	30	11	9	6	4
23	20	F	26	35	10	10	2	13
24	27	M	12	17	6	8	0	3
25	23	F	32	23	5	6	3	9

APPENDIX A

RAW SCORES FOR ALL SUBJECTS (N=50) FOR CLOSURE TEST,

PENSACOLA Z SCALE AND THE FOUR SUBSCALES.

GROUP B - PENSACOLA FIRST
CLOSURE SECOND

GROUP B

N	AGE	SEX	C	P	A	D	H	R
1	27	M	27	17	4	8	1	4
2	24	M	16	33	6	11	6	10
3	23	M	20	39	11	13	3	12
4	21	M	25	33	5	13	6	9
5	20	M	12	28	8	5	8	7
6	20	M	11	19	4	4	6	5
7	19	F	19	17	4	4	4	5
8	24	M	23	15	4	7	0	4
9		F	6	31	11	10	4	5
10	36	F	9	37	9	11	6	11
11	48	F	11	36	6	15	3	12
12	23	F	14	21	1	8	4	8
13	21	F	15	20	4	3	6	8
14	27	M	29	33	7	6	8	12
15	20	M	23	29	5	13	1	10
16	32	M	25	26	3	10	4	9
17	20	M	23	24	7	6	4	7
18	32	F	24	23	7	7	3	6
19	21	M	24	27	6	10	3	9
20	40	F	20	28	8	12	2	6
21	29	M	27	27	9	9	3	6
22	19	F	6	21	11	6	1	3
23	38	M	4	41	10	3	5	12
24	25	F	28	24	4	2	1	7
25	17	F	31	22	6	5	3	8

APPENDIX B

SIGNIFICANCE OF DIFFERENCE BETWEEN

- A) MULTIPLE CORRELATION COEFFICIENT ($R_{C.AD} = -.495$)
AND CLOSURE-PENSACOLA COEFFICIENT ($r_{CP} = -.345$)
- B) MULTIPLE CORRELATION COEFFICIENT AND BOTH CLOSURE-
ANXIETY COEFFICIENT ($r_{CA} = -.32$) AND CLOSURE-DEPENDENCY
COEFFICIENT ($r_{CD} = -.40$)

- A) 1. Transforming $R_{C.AD}$ to $Z_{RC.AD}$
 $R -.495 = Z .549$
2. Transforming r_{CP} to Z_{rCP} to Z_{rCP}
 $r -.345 = Z .365$

3. Calculating Standard Error of Difference for
 $R_{C.AD}$ and r_{CP}

$$SE_{DIFF} = \frac{1}{N_1 - K - 3} + \frac{1}{N_2 - 3} \quad \text{where } K = 2$$

$$= \frac{1}{45} + \frac{1}{47}$$

$$= \frac{2}{92}$$

$$= .0217$$

$$= .1475$$

4. Calculating Actual Difference of $R_{C.AD}$ and r_{CP}

$$AD = \frac{Z_1 - Z_2}{SE_{DIFF}}$$

$$AD = \frac{.549 - .365}{.1475}$$

$$AD = 1.24$$

5. Its actual Difference is $2.58 \times SE_{DIFF}$, it is significant
at the 1% level of confidence

$$2.58 \times .1475 = .379550$$

6. $R_{C.AD}$ is significantly larger than r_{CP}

By the same method:

$$r_{CA} = .32 \quad Z_{rCA} = .332$$

$$B) \quad \text{Actual Difference} = \frac{.217}{.1475}$$

$$= 1.47$$

$$2.58 \times .1475 = .379550$$

$\therefore R_{C,AD}$ is significantly larger than r_{CA}

2. By the same method:

$$r_{CD} = .40 \quad Z_{r_{CD}} = .424$$

$$\text{Actual Difference} = \frac{.125}{.1475}$$

$$= .820$$

$$2.58 \times .1475 = .376648$$

$\therefore R_{C,AD}$ is significantly larger than r_{CD}

APPENDIX C

PENSACOLA Z SCALE

NAME:

AGE:

SEX:

FACULTY & YEAR:

1. R a. You are too friendly for your own good.
 b. Your opinions are often incorrect.
2. a. Taking advantage of a person sexually makes you feel bad.
H b. You have no scruples in sex.
3. A a. You are anxious.
 b. You are conceited.
4. A a. To you life is a jungle.
 b. To you life is a bowl of cherries.
5. a. You daydream politically.
D b. You don't formulate opinions about issues over which you have no control.
6. D a. In political activities you confine your efforts to group action.
 b. In political activities you frequently indulge in individual endeavour.
7. D a. You like a tightly organized group.
 b. You like a loosely organized group.
8. a. You haven't made any mistakes in your life.
A b. You can't get the mistakes you have made out of your mind.
9. H a. There are some people you could never feel for.
 b. Sometimes you feel a real compassion for everyone.
10. D a. You like instructions to be specific.
 b. You like instructions to be general.
11. a. You are sexually appealing.
D b. You are faithful.
12. a. You are responsible for most of your troubles.
A b. You sometimes get confused without any reason.
13. a. You frequently laugh at yourself.
R b. You don't like your favourite habits ridiculed.
14. a. You frequently get away with murder.
A b. People often blame you for things you didn't do.
15. a. You are not attracted to prudish people.
R b. You are not attracted to unkempt people.

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16. D a. You want badly to "belong"
 ___ b. You don't care whether you "belong" or not.
17. R a. You like a clean, neat house.
 ___ b. You like good food.
18. R a. You can never forget that love is more than just sex.
 ___ b. You can take pleasure in sex as sex.
19. ___ a. You are always on the lookout for new ways of attacking a
 problem.
 R b. In general, you find the tried-and-true methods work best.
20. ___ a. You are rebellious.
 D b. You like discipline.
21. A a. You don't like to gamble on getting a good break.
 ___ b. You usually figure on getting a good break.
22. ___ a. You get more credit than you deserve.
 A b. You get less credit than you deserve.
23. A a. You get into scraps you didn't start.
 ___ b. When you get into trouble it is almost always your own fault.
24. ___ a. Most everybody lets you know directly what they think of you.
 H b. Some people are secretly trying to get the better of you.
25. ___ a. You positively like to be different from your immediate
 associates.
 D b. Being different from your immediate associates makes you
 uncomfortable.
26. R a. People are either your friends or your enemies.
 ___ b. People are rarely either real friends or real enemies.
27. H a. Your hardest battles are with other people rather than with
 yourself.
 ___ b. You are cocky.
28. ___ a. You could like anyone if you tried.
 H b. There are some people you know you could never like.
29. ___ a. You are forgetful.
 R b. You have a meticulous memory.
30. H a. There are some people you would like to tell off.
 ___ b. You are occasionally taken in.

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31. A a. People criticize you unjustly.
 ___ b. People give you more breaks than you deserve.
32. ___ a. You are charming.
 R b. You are firm and resolute.
33. ___ a. Disappointments affect you so little that you seldom think
 about them twice.
 A b. Your daydreams are often about things that can never come true.
34. ___ a. You would like to counsel a friend on his personal problem.
 D b. You would like to give first aid to a friend.
35. R a. You collect things.
 ___ b. You lose things.
36. ___ a. You like haphazard living.
 R b. You like routine.
37. ___ a. Stuffed-shirts amuse you.
 H b. Stuffed-shirts get under your skin.
38. ___ a. You keep calm in an emergency.
 D b. You can obey orders.
39. ___ a. You are difficult to please.
 D b. You like to do favours.
40. R a. You are aware of dripping water in the kitchen.
 ___ b. You are not observant.
41. ___ a. You don't mind a coward.
 H b. You can't stand a coward.
42. ___ a. You just can't stay mad even when you think you should.
 H b. There are some people you would like to take apart.
43. ___ a. You admire spontaneity in people.
 R b. You admire efficiency in people.
44. ___ a. You don't particularly like to march.
 D b. You like to march with a group you feel proud to belong to.
45. ___ a. You need someone in whom you can confide completely.
 D b. You are selfish.
46. D a. You play fair.
 ___ b. You are an individualist.
47. D a. There are some magazines to which you particularly turn for
 the substantiation of your political ideas.
 ___ b. Your political ideas tend to be peculiar to yourself.

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48. H a. You can't help feeling antagonistic to people who hold important opinions radically different from yours.
 ___ b. You like a lot of people who disagree with you violently on important issues.
49. ___ a. Your interest in general principles occasionally gets you up in the clouds.
 R b. You are a stickler for precision.
50. ___ a. You have felt so sorry for someone, you have cried.
 H b. You have gotten so mad you have cried.
51. ___ a. Yours is a quick and ready sympathy.
 H b. You are stern.
52. ___ a. You are independent.
 D b. You are loyal.
53. ___ a. You are talkative.
 A b. Often you are sure you have forgotten something important.
54. A a. You would be happier if you felt more secure.
 ___ b. You would be happier if you were less gullible.
55. R a. You never change your basic beliefs.
 ___ b. All your beliefs are open to debate.
56. ___ a. You follow your conscience.
 D b. You have ethical standards which you follow.
57. D a. You are very proud of your membership in some groups.
 ___ b. You don't go for groups.
58. ___ a. You are indifferent to most people.
 R b. You like or you dislike people.
59. ___ a. You don't worry about physical disorders.
 A b. Sometimes you figure you a sure thing for ulcers.
60. R a. You are dogmatic.
 ___ b. You are sloppy.
61. D a. There are some people you admire so much you would not question their opinion.
 ___ b. You don't admire anybody very much.
62. ___ a. Concerning your past actions you figure, "If I did it, it can't be too bad".
 A b. If you had your life to do differently there would be a lot of things you would do differently.

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63. R a. You admire careful, rigorous thinking.
 b. You admire brilliant, penetrating thinking.
64. R a. The details of life are important to you.
 b. You are often thoughtless.
65. R a. You are well coordinated.
 b. You seek new opinions.
66. a. You are self-confident.
 A b. You are a good Joe.