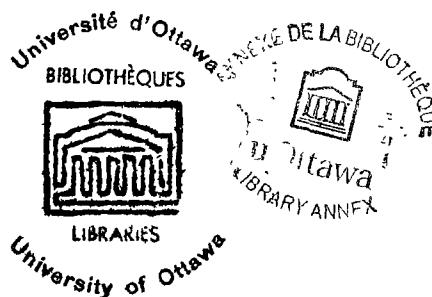


AN EXAMINATION OF THE INTERACTION
BETWEEN PERSONALITY AND COGNITIVE
FACTORS AS THEY RELATE TO ATTITUDES
TOWARDS SECOND-LANGUAGE LEARNING

by Grace M.H. Gayle

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CURRICULUM STUDIORUM

Grace Marguerite Hope Gayle was born in Kingston, Jamaica in 1944. She received the Bachelor of Arts Degree from the University of the West Indies in 1968 and the Degree of Master in Education from the University of Ottawa in 1974.

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INTRODUCTION

Each individual who succeeds in learning a second language is, strictly speaking, a case for study. The peculiar arrangement of attitudes, degree of motivation, aptitudes, personality characteristics and kind of intelligence which dominates in each person makes this possible and perhaps desirable. However, in order to be economical the scientist is forced at times to be satisfied with a treatise on interactive effects between categories on psychological variables and to overlook the finer details of these interactions as they occur within the individual. Swain and Naiman¹ adhere to this position in their discussion on getting a more global look at the language learner. Insofar as they promote the examination of the relative effects of the attitudes and personality characteristics summarized under the heading of "Initiating Factors" they retain the usual procedure used in research outside the field of language learning. In this as in other fields a study of the one-to-one relationship between different variables and success is no longer felt to be adequate. Interaction effects are increasingly sought.

¹ Merrill Swain and Neil Naiman, Discussion of Schumann's "Second Language Acquisition Research: Getting a More Global Look at the Learner", unpublished manuscript, Ontario Institute for Studies in Education, 1976, p. 1, p. 11.

The research procedure adopted in this study attempts to support the general move now being made to examine second-language learning from the point of view of a more comprehensive psychology of the person than from the vantage point of each particular attribute taken singly. The study presents an examination of the possible interaction between personality and cognitive factors as they relate to attitudes towards second-language learning. These factors have not been selected on an ad hoc basis; rather, a close inspection of the literature suggested that substantial links would be observed within the person's behavioural repertoire on the basis of the patterns outlined by each of these factors.

No attempt will be made to predict achievement in the present paper. The assumption is made, supported by past research, that many psychological factors influence achievement to varying degrees. Among the predictors of achievement are included aptitude, motivation, intelligence, teaching methods and immersion programmes. Emphasis has recently been placed on affective variables such as empathy (Guiora² 1971), personality variables and cognitive style - a concept which often subsumes that of personality - as well as on learning

2 L.L. Taylor, J.C. Catford, A.Z. Guiora and K.L. Lane, "Psychological Variables and Ability to Pronounce a Second Language", in Language and Speech, Vol. 14, 1971, p. 146-157.

strategies (Rubin³ 1972 and Stern⁴ 1974).

Research done relating personality factors to achievement has so far not been voluminous. Nonetheless it has been found that successful foreign language learners in an audio-lingual setting tended to be adaptable, outgoing, resourceful, imaginative, creative, warm and spontaneous (Brewster⁵ 1971). Gardner⁶ (1975) has reported negative correlations between authoritarianism and achievement particularly for students beginning the language. Pritchard⁷ (1952), using a fairly small sample, found a high correlation between his measures of "sociability" and the success of English grammar school boys in acquiring fluency in spoken French.

3 Joan Rubin, What the "Good Language Learner" Can Teach Us, unpublished manuscript, Stanford University, 1972.

4 H.H. Stern, What Can We Learn from the Good Language Learner?, paper presented at the Ontario Modern Language Teacher's Association 88th Annual Spring Conference 1974.

5 Elizabeth Brewster, Personality Factors Relevant to Intensive Audio-Lingual Foreign Language Learning, unpublished doctoral dissertation, University of Texas at Austin, 1971.

6 R.C. Gardner and P.C. Smythe, Second-Language Acquisition: A Social Psychological Approach, (Research Bulletin No. 232), London, Ontario, Department of Psychology, University of Western Ontario, 1975.

7 D.F. Pritchard, "An Investigation into the Relationship of Personality Traits and Ability in Modern Languages", in British Journal of Educational Psychology, Vol. 22, 1952, p. 157-158.

Some research has been done regarding the influence of cognitive style on second-language achievement. An outline of this research is included in section five of chapter one.

Lambert and Gardner (1972) and Gardner and Smythe (1975) have established empirically the significant relationship existing between attitudes, motivation and second-language learning. They have demonstrated that motivation is at least as important as aptitude in the language-learning enterprise and that motivation itself is backed by a variety of attitudes which when utilized in prediction formulae facilitates a more accurate foreknowledge of the specific oral/aural language skills which will be mastered. The cardinal attitude appears to be the integrative orientation to second-language learning.

An attempt will be made to elucidate further the question of second-language learning by examining the relationship between the personality disposition of authoritarianism and the cognitive style of field dependence versus field independence inferred by psychological differentiation as they interact on the affective variable known as the integrative orientation.

These variables will be more clearly defined in the review of literature included in chapter one. Also included in chapter one will be a statement of the hypotheses to be tested. Chapter two will describe the design to be used in

testing the hypotheses. Chapter three will present the results of the empirical study carried out and these results will be interpreted and discussed in chapter four. This will be followed by a summary of the study and conclusions.

CHAPTER I

REVIEW OF THE LITERATURE

In the review of the literature an outline of the integrative orientation towards second-language learning, authoritarianism and psychological differentiation will be presented in the first three sections of the chapter. Significant criticisms made of these concepts and the instruments used to measure them will be included in the presentation. The fourth section will formulate comparisons which will give rise to theoretical expectations. Section five will describe previous empirical research which suggests the validity of these expectations. In the sixth and last section of the review the hypotheses to be tested, which were derived from the theory and research previously described, will be stated.

1. The Integrative Orientation Towards Learning a Second Language.

In the introductory remarks of his Research Bulletin Second-Language Acquisition: A Social Psychological Approach¹ Gardner makes it indubitably clear that the focal point of

¹ R.C. Gardner and P.C. Smythe, Second-Language Acquisition: A Social Psychological Approach, (Research Bulletin No. 232), London, Ontario, Department of Psychology, University of Western Ontario, 1975.

interest will be the student person and the characteristics which he displays within the attitudinal/motivational domain. Although Lambert and Gardner² had pointed in earlier research to the independent nature of the aptitudinal/intellectual and the attitudinal/motivational factors as they each contributed to achievement and although Gardner in his more recent work acknowledges the importance of factors such as teaching methods and teacher characteristics in second-language acquisition, it is the integrative orientation and the complex of attitudes associated with it which are emphasized in his current literature. The inference made is that much research has already been done on the periphery of the problem including research relating motivation to achievement, but that little is known about the effects of the core of the person's motivation - his attitudes.

Additional interest has been stimulated in the integrative orientation because of Gardner's finding in studies done across Canada, in the U.S.A., the Philippines, England and India that this orientation is almost consistently related positively to aspects of achievement in second-language

2 Robert C. Gardner and Wallace E. Lambert, Attitudes and Motivation in Second-Language Learning, Massachusetts, Newbury House, 1972, p. 215.

learning^{3,4}. This is particularly true of Anglophone students in North America studying French as a second language.

Basically the integrative orientation describes a positive attitude towards learning a second language. Specifically the term refers to a desire to identify with the members of the second-language group and its culture and possibly to become a member of the group. It includes a wish to be at ease with members of the second-language group, to communicate with them, to participate in their activities and to understand their art and culture. It is also

[...] reflected in such reasons for studying the language as "to learn more about the group", "to meet more and varied people", (presumably from that group) or "to be able to think and act like members of the group".⁵

The integrative orientation implies commitment, for the learner

[...] must be willing to identify with members of another ethnolinguistic group and to take on very subtle aspects of their behaviour, including their distinctive style of speech and their language.⁶

3 R.C. Gardner, Social Factors in Second-Language Acquisition and Bilinguality (Research Bulletin No. 342), Department of Psychology, University of Western Ontario, 1975, p. 27.

4 Gardner and Smythe, op. cit., p. 7:10-7:13.

5 Gardner, op. cit., p. 25.

6 Robert C. Gardner and Wallace E. Lambert, Attitudes and Motivation in Second-Language Learning, Massachusetts, Newbury House, 1972, p. 135.

Since it summarizes a willingness to adopt appropriate features of behaviour which characterize members of the other community it also suggests adjustment. As proficiency increases, words, grammatical patterns, modes of pronunciation and even sounds are felt to acquire a significance for the learner that goes beyond mere translations and equivalent forms⁷.

The foregoing suggests that the integrative orientation is strongly related to attitudes. In fact it is presented as an important aspect of an attitudinal complex which supports and includes motivational intensity and desire to learn the language. Other components of this attitudinal complex, according to theory as well as empirical research, are positive attitudes towards members of the other language group and positive attitudes towards learning the language. The total construct has been described as the Integrative Motive. In a 1976 publication⁸ a clear distinction is made between the integrative orientation and the integrative motive. The former is quoted as referring solely to the student's reasons for studying the second language while the latter

7 Ibid., p. 7.

8 R. Clément, R.C. Gardner and P.C. Smythe, Motivational Variables in Second-Language Acquisition: A Study of Francophones Learning English (Research Bulletin No. 351), Department of Psychology, University of Western Ontario, 1976, p. 4.

includes attitudinal and motivational properties. For the purposes of this study, however, it must be pointed out that in spite of theoretical and descriptive lines of demarcation the data reported throughout the literature shows a strong tendency for acceptance of the second-language group to be positively correlated to the integrative orientation.

Other variables are associated with the integrative orientation but are not currently viewed by Gardner as an integral part of the integrative motive since they do not necessarily reflect the positive affect towards the second-language group which is essential to the integrative motive. These variables are attitudes towards the language course and the teacher, feelings of ease in the language class, a general interest in foreign languages and a lack of ethnocentrism, authoritarianism and machiavellianism or the desire to manipulate others.

The counterpart of the integrative orientation is the instrumental orientation or the desire to learn a second language for purely utilitarian reasons.

To summarize, the integrative orientation refers to one of many affective variables which have previously been omitted from research but are now being recognized as cardinal to success in second-language learning.

2. Authoritarianism.

Whether this personality variable is viewed in the theoretical contexts of Adorno⁹ or Rokeach¹⁰ there seem to be basic components which remain fairly identical. On the other hand there are areas in which the two models vary significantly. The following discussion of authoritarianism will present first Adorno's model then Rokeach's elaboration of the concept.

a) Adorno's view of authoritarianism.- Authoritarianism has been described by Adorno¹¹ as an antidemocratic potential within the personality. As an aspect of personality it is mainly a predisposition to behaviour or to expressions of prejudice rather than the manifestation of the behaviour itself¹².

Authoritarianism implies a strict adherence to conventional attitudes and beliefs, an unquestioning submission to the authority of the ingroup and the transformation of resentments built up against this same authority into feelings of aggression towards and prejudice against outgroups.

9 T.W. Adorno et al., The Authoritarian Personality, New York, Harper and Row, 1950.

10 Milton Rokeach, The Open and Closed Mind. Investigations into the Nature of Belief Systems and Personality Systems, New York, Basic Books, 1960.

11 Adorno et al., op. cit., p. 223.

12 Ibid., p. 7.

Authoritarianism, therefore, covers the social, emotional and defensive dimensions of psychological functioning and allegedly measures the deeper dynamics of the individual's behaviour.

These dispositions as well as the other sub-categories of the authoritarian syndrome are all explained by the presence of a weak ego within the individual's psychological frame. Adorno's interpretation of the Freudian concept of the "ego" is that it represents the various self-controlling and self-expressing functions of the individual. It maintains a balance between the individual's impulses and deep personal feelings (the id) and the requirements of the outside world (the superego). It regulates impulses in a way that will satisfy the demands of reality or it integrates the id and the superego into a workable fusion of impulses and conscience. When the ego is weak, however, and the synthesis between emotional impulses and the conscience is not achieved the superego assumes the role of a dominating foreign body within the personality and expresses itself in rigid and automatic responses. Since the weak ego is unable to create its own frames of reference or set of consistent moral values the individual constantly seeks an organizing agency outside of himself. His conscience becomes externalized¹³.

13 Ibid., p. 234.

The psychological dilemma outlined above becomes evident in the tendency already mentioned to submit to the authority within the in-group. The individual's overburdened conscience represses feelings of antagonism and resentment which escape in the form of aggression towards the outgroup. Normally the evil and uncomplimentary qualities of the in-group are transferred to the outgroup.

Authoritarian submission and authoritarian aggression as two sub-categories in the authoritarian syndrome are felt by the theorist to be accompanied by an opposition to either introspection, fantasy feelings, or an imaginative, subjective outlook (anti-intracception), by superstition and stereotypy, by an overemphasis on the ego and its supposed strength (power and toughness), by destructiveness and cynicism, by the projection on others of impulses suppressed in the self (projectivity), by a strong tendency to punish violators of sex mores and by rigid adherence to conventional, middle-class values (conventionalism)¹⁴.

Some of these sub-categories require further clarification. Anti-intracception arises from a general fear of looking too closely at the self and the inner life since the impulses may become uncontrolled. Genuine feeling is therefore ignored and thought is discouraged. Superstition

¹⁴ Ibid., p. 229-240.

is an understandable outcome of weak ego development as it implies a belief in external determinants of one's fate. "Power and toughness" includes the idea that the individual needs to ally himself with power figures since he is basically unable to cope. However, there is no humility involved as he sees himself as superior to the "little people". The reasoning offered by the theorist for the inclusion of the categories "Projectivity" and "Sex" is that the individual's deepest impulses, when repressed by the superego, will become evident through the qualities that he attributes, often unrealistically, to others and for which he despises them.

The question may be asked whether authoritarianism, including as it does so many facets, may satisfactorily be measured by a single index, that is, the total score on the F Scale. It is unlikely that the sub-categories of the authoritarian syndrome will be displayed in the same proportions within the personalities of two given individuals. An identical total score for two such individuals will therefore reflect disparate tendencies within the personality although these individuals are both classified as authoritarian. The width of the authoritarian syndrome may therefore invalidate to some extent predictions which are made using the total score as a basis for classification. However, the F Scale shows a correlation of .77 with Adorno's Ethnocentrism Scale which purports to measure a more overt form of prejudice. It would appear then

that the validity of the F Scale as a measure of authoritarianism is not totally to be questioned. In regard to the accuracy of predictions made using authoritarianism as a means of classification the unifying principle of weak ego development may counteract to some extent any errors that may be brought about by the variety of sub-categories within the syndrome. To some degree at least all types of authoritarians are similar.

A number of studies referred to by Christie and Cook¹⁵ are concerned with the possibility of a response set variable operating in the Likert type F Scale and assess the F Scale as a measure of acquiescence. Christie et al. have, however, re-examined this claim. They feel that some of the studies were inadequate tests of response set. In their own study they conclude that "authoritarianism" and acquiescence as reflected in response set are not identical.

Maddi¹⁶ recognizes the potential of the F Scale for measuring the tendency to agree or disagree in answering questions regardless of their content as well as the tendency to give the socially desirable response. He reacts favourably to this possibility by the following:

15 Richard Christie and Peggy Cook, "A Guide to Published Literature Relating to the Authoritarian Personality through 1956", in Journal of Psychology, Vol. 45, 1958, p. 174.

16 Salvatore R. Maddi, Personality Theories, A Comparative Analysis, Illinois, Dorsey Press, 1968, p. 411-412.

[...] it has never been clear to me that an authoritarian value orientation can be measured accurately if the tendencies to acquiesce and to respond in socially desirable fashion are excluded. After all, the authoritarian person deeply believes in the importance of acquiescence and conformity.¹⁷

His comment relating to the social desirability of the response is meaningful if the society is also basically authoritarian. In this case the truly authoritarian person will be more likely to receive a high score on the F Scale. However, the present North American society is for the most part neither "conventional" nor "superstitious", qualities which contribute significantly to the authoritarian syndrome measured by the F Scale.

Since values within the American societies appear to have shifted so drastically in recent years, the F Scale, in its present form, may no longer be a competent measure of conventionalism which has been described as one aspect of the authoritarian syndrome.

Christie and Cook¹⁸ suggest that the F Scale is a more accurate indicator of social sophistication than was originally thought by Adorno et al.¹⁹. They suspect that it is most meaningful when used with middle-class samples.

17 Ibid., p. 411-412.

18 Christie and Cook, op. cit., p. 176.

19 Adorno et al., op. cit., p. 267-268.

In addition to these possible limitations of the F Scale, Rokeach²⁰ concludes that the F Scale, originally constructed to measure "Fascist authoritarianism", in effect measures a "rightist authoritarianism" and is therefore not an adequate measure of general authoritarianism. For this reason the Dogmatism Scale, presented by Rokeach as a measure of general authoritarianism will also be used to test the hypotheses contained in this study. Rokeach has found correlations ranging from .54 to .77 between the F and the Dogmatism Scales although both scales load on different factors.

b) Rokeach's view of authoritarianism.- Rokeach's²¹ interpretation of authoritarianism is closer to that of Maslow²². As in the case of the "world view" or "Weltanschauung" of Maslow's authoritarian, in Rokeach's theory authoritarianism arises from the basic or "primitive" belief that the world is an unfriendly, hostile and lonely place in which to live. To protect himself the individual identifies with a cause and adopts a rigid and closed belief system or a closed mind which encourages prejudice.

20 Rokeach, op. cit., p. 122.

21 Ibid.

22 A.H. Maslow, "The Authoritarian Character Structure", in Journal of Social Psychology, S.P.S.S.I. Bulletin, Vol. 18, 1943, p. 401-411.

Beliefs are described by Rokeach with reference to three different yet interrelated dimensions. These are the belief-disbelief dimension, the central-peripheral dimension and a time-perspective dimension. Within the belief-disbelief dimension the closed mind tends to generate isolation within and between belief and disbelief systems or to generate a lack of intercommunication between neighbouring regions or sub-regions. One result of this is a tendency to interpret reality in terms of extreme opposites. On the other hand because new information is not easily integrated within the closed system²³ the coexistence of blatant contradictions within the belief system is acceptable. Another aspect of the belief-disbelief dimension is that disbelief systems are organized along a continuum of degree of similarity to the belief system. There is, however, less differentiation between the disbelief subsystems of the closed mind so that different disbelief subsystems relevant to one type of subject are regarded as nearly the same. For the closed-minded or authoritarian person, therefore, there will be little differentiation or distinction made between various outgroups²⁴. Theoretically the opposite is true in the case of the open-minded person for whom people are organized not merely in terms of ingroups and outgroups but in terms of the ingroup

23 Rokeach, op. cit., p. 50.

24 Ibid., p. 74.

and a continuum of outgroups each more distant than the preceding²⁵.

Within the central-peripheral dimension, central beliefs refer to those "primitive" or basic ideas about the nature of the world which may be either positive or negative. The relatively negative world view of the closed-minded person is usually accompanied by thoughts of self-inadequacy, the unworthiness of the self and the need to overcome such feelings by encouraging a self-aggrandizing and self-righteous identification with a cause. The intermediate region of the central-peripheral dimension contains those ideas which relate to authority figures and their own beliefs. For the closed-minded person the authority of the ingroup is seen as absolute and people are accepted or rejected because they agree or disagree with one's ideology or because they accept one's belief-disbelief system. Ideas generated in the intermediate region and which are subject to the authority figure exercise a severe control over the acceptance or non-acceptance of the less important ideas in the peripheral region. Peripheral beliefs about facts and events which are incongruous with intermediate beliefs are either completely avoided or are changed to a form more expressive of the intermediate belief. Such an irrational assimilation and distortion of new information is referred to by Rokeach as a "party-line"

25 Ibid., p. 46.

change. This process may be contrasted with that of the "open-minded" system in which new information is received intact and "communicates" with other peripheral and intermediate beliefs in such a way that any change tends to involve the entire system.

Within the time-perspective dimension are found those ideas which refer to the past, present or future. The person who possesses a relatively closed belief system tends to reject the present as important and to encourage a past or future orientation.

The Dogmatism Scale intended by Rokeach as a measure of general authoritarianism or of the closed belief system received early criticism from Rokeach himself. After statistical comparison of the D Scale with two measures of liberalism-conservatism he reports

[...] even though correlations between dogmatism and conservatism are quite negligible, they are consistently positive. The chances are somewhat better than even that a closed-minded person will be conservative rather than liberal in his politics.²⁶

This condition no doubt accounts for a part of the correlation which exists between the F Scale and the Dogmatism Scale.

Other more serious criticisms have been made of the Dogmatism Scale. All items on the D Scale are positively

26 Ibid., p. 122.

scored statements. Vacchiano²⁷ reports studies in which significant relationships were found between the Dogmatism Scale, agreement response set and acquiescence. Of interest is his reference to a study by Katz and Katz who attributed changes in the dogmatism scores of college students over a period of eighteen months to the development of a "disagreement" response set - that is, students became more "disagreeable" as their education progressed. Peabody, also referred to by Vacchiano, explains the phenomenon of response bias by referring to the varying degrees of ambiguity within the scale items.

Although attempts have been made to construct a dogmatism scale which includes negative items, Vacchiano quotes Rokeach's dissatisfaction with such a procedure since theoretically both authoritarians and antiauthoritarians can be expected to agree with item reversals worded in a democratic direction.

In the same article Becker is reported by Vacchiano to have suggested that the Dogmatism Scale is a curvilinear rather than a rectilinear predictor of open-mindedness. He found that both high dogmatics and low dogmatics assessed humorous messages less on the basis of content and more on the basis of source.

²⁷ Ralph B. Vacchiano, Paul S. Strauss and Leonard Hochman, "The Open and Closed Mind: A Review of Dogmatism", in Psychological Bulletin, Vol. 71, 1969, p. 262-263.

In spite of these criticisms the Dogmatism Scale continues to be widely used since it has found extensive support as a measure of general authoritarianism in studies which have been undertaken since Rokeach's original treatise on the subject. Vacchiano²⁸ performed a factor analysis on the items of the Dogmatism Scale and found that although the scale was expansive and internally complex, factors tended to group themselves according to Rokeach's conceptualizations. There is no doubt that the Dogmatism Scale, like the F Scale, contains both flaws and valid content.

3. Psychological Differentiation.

In Witkin's²⁹ terminology differentiation refers to the complexity of any system's structure. Psychological differentiation therefore indicates the extent of the complexity within the psychological field. Synonyms for differentiation are heterogeneity and articulation. A psychological field that is well differentiated is therefore described as structured and articulated as opposed to being global.

Differentiation is also explained by the term "specialization". This is an appropriate expression for

²⁸ Ibid., p. 262.

²⁹ Herman A. Witkin et al., Psychological Differentiation: Studies of Development, New York, Wiley, 1962, p. 8-14.

describing the degree to which subsystems are capable of specific functions so that specific stimuli receive specific reactions. If the psychological field is characterized by specialization then each psychological area is capable of separation from the others. For example feelings are distinct from perceptions and thought is not necessarily fused with action. Impulses are channelized so that there is little or no "spilling over" characteristic of undifferentiated states. Feelings and needs tend to be discrete.

The co-concept of differentiation is integration or the creation of functional relationships within the system. While complexity of integration or the complexity of patterns of subsystems within the larger system is directly related to degree of differentiation this is not necessarily true of effectiveness of integration - hence the possible appearance of mal-adjusted persons among those who possess a well-differentiated psychological field.

Degree of differentiation is a pervasive characteristic that is repeated in many aspects of psychological functioning. It occurs in perceptual, intellectual and emotional functions as well as defensive operations and may also be an underlying factor in social relationships. In each of these functions or areas differentiation presupposes the presence of an analytical ability.

If this analytical ability is perceptual Witkin refers to a "perceptual style" which indicates

[...] the extent to which a person is able to deal with a part of a field separately from the field as a whole, or the extent to which he is able to disembed items from organized context [...]³⁰

The reference here is simply to the ease with which a person separates visually an item from its context irrespective of the nature of the context. When the differentiation construct is transferred to the level of intellect where perceptions and cognitions are no longer regarded as distinguishable, Witkin speaks of "cognitive style" and supports Wertheimer's statement that

[...] intellectual problems that call for a high degree of creative activity, but do not involve perception directly, often also require that "parts" be separated from the context in which they are embedded and brought into new relationships.³¹

Cognitive styles are defined as "characteristic modes of functioning that we show throughout our perceptual and intellectual activities in a highly consistent and pervasive way"³². Irrespective of the pervasive nature of psychological differentiation and the analytical cognitive style identified

³⁰ H.A. Witkin, The Role of Cognitive Style in Academic Performance and in Teacher-Student Relations, Research Publication, Princeton, N.J., Educational Testing Service, 1973, p. 5.

³¹ Witkin et al., op. cit., p. 59.

³² Ibid., p. 2.

by Witkin the tests used by him to measure these psychological characteristics have been for the most part perceptual tests in which the subject is required to separate an item from its context or field. The terminology "field dependent/field independent cognitive style" has therefore been used by Witkin to indicate the opposite extremes of the differentiation continuum. Field independence or facility in separating an item from a field indicates a high degree of psychological differentiation.

Although Witkin admits that the term "cognitive style" should refer strictly to cognitions, he insists that differentiation extends into other psychological areas beyond cognition and expresses itself in the personality. This claim is supported by extensive research done with perceptual and personality tests as well as Thurstone's Flexibility of Closure Test and certain subtests of the WISC which measure intellectual ability. Personality traits predicted by extent of differentiation are arranged within the three sub-classifications of the "Differentiation Hypothesis"³³. This hypothesis states an association between:

1. the degree of articulation of experience of the world
2. the degree of articulation of experience of the self, reflected particularly in nature of the body concept and extent of development of a sense of separate identity
3. the extent of development of specialized, structured controls and defenses.

33 Ibid., p. 16.

With reference to (1) since the relatively field dependent person possesses less cognitive clarity and little specificity of function in psychological areas he tends to experience the world and himself in a blurred, confused and unassimilated way. He has little understanding of the real reasons behind human behaviour and how these behaviours interrelate. Nor is he aware of people in their separate roles and fails to understand relationships between people. He assesses others more in terms of physical characteristics than in terms of deeper attributes. His view is limited to the immediate present and he has no clear idea of his hopes and expectations.

In respect to (2) the same independent style of life which generates greater cognitive clarity and affects the individual's view of the world is also partially responsible for the quality of his understanding of and appreciation of the self as these are reflected in his self concept. The individual who is relatively field dependent therefore often demonstrates a poor and undifferentiated self concept inclusive of the body concept. This person tends to be unsure of himself, to be reliant on others and to express his need for guidance and support. He experiences difficulty in maintaining his own direction in the face of contradictory attitudes, opinions and beliefs. Further, his view of himself is unstable, varying significantly as he moves from

context to context. These latter characteristics are summarized by Witkin as failure to acquire a sense of separate identity³⁴.

The third aspect of the differentiation hypothesis outlined in (3) contains similarity with freudian theory. The individual who has less differentiation in perceptions, cognitions, and personal functioning also appears not to have outgrown the "earlier" and therefore more primitive defenses of denial and repression. These are practised almost to the exclusion of rationalization or other more sophisticated forms of intellectualization. Further, he is less able to modulate and mediate ideas and feelings of aggression. This is illustrated in his reaction to TAT pictures³⁵.

In addition to the above the field dependent person is generally more sociable, talkative, more person-oriented and gregarious.

The relatively field independent person, on the other hand, has from childhood been aware of a high degree of separation from the human environment on the physical, emotional and attitudinal levels. The necessity to react independently to different situations encourages cognitive complexity and reflection or introspection which in turn lead

34 Ibid., p. 135.

35 Ibid., p. 165.

to "internal frames of reference" or well defined value systems. This individual tends to have a more accurate knowledge of the physical and emotional self, is self reliant, and is capable of a stable self view. His emotions are less diffuse and do not spill over into the area of intellectual function.

The relatively field independent person is more capable of warm, meaningful, empathic relationships than the field dependent person. The extremely field independent person, however, is described as cold, distant and socially detached³⁶.

When the description of psychological differentiation given by Witkin is examined it is difficult to reconcile the derived concepts of field dependence and field independence with all aspects of cognitive function. It is therefore even more difficult to accept the possibility of predicting comprehensive personality patterns from scores on the perceptual continuum alone. It seems clear that complexity of analytical function or analytical ability is a relatively small part of the total psychological process and that the relationship with many personality variables will be indirect rather than direct. One area of unpredictability already acknowledged by Witkin is the presence or absence of pathological personality traits for either the field-dependent or field-independent person³⁷.

36 Ibid., p. 261, 266.

37 Ibid., p. 19, 204.

It is felt that Witkin's differentiation hypothesis when applied to personality theory does not in any way cover the complete scope of personality factors or their myriad patterns.

Mischel, in the report by Pottinger³⁸, reflects a similar point of view regarding the limitations of prediction from perceptual constructs. He avoids the cross-situational generalities with respect to behaviour to which Witkin is accustomed. He gives more importance to environmental determinants and instead of viewing perception as representing personality in the totality of its psychological organization, he emphasizes the specific events on which generalized behaviour depends so that perception is thought of as continuous with other aspects of personality to the extent that reinforcing consequences in the environment are similar.

On the other hand, Gardner³⁹ feels that the generality and all-inclusiveness of the term "psychological differentiation", as he understands it, cannot be equated with Witkin's "cognitive style" or predicted by scores from perceptual tests. He notes the remarkable correlations between Witkin's EFT and

³⁸ Paul Stephen Pottinger, The Relationship of Perceptual Field Dependence-Independence to a Measure of the Active-Passive Dimension in Personality, unpublished Ph.D. dissertation, University of North Carolina, 1971.

³⁹ Riley W. Gardner, "A Review of 'Psychological Differentiation: Studies of Development'", by H.A. Witkin, et al., New York, Wiley, 1962, v-418 p., in American Journal of Psychology, Vol. 76, 1963, p. 709-711

Thurstone's test for Flexibility of Closure which has long been known to be only one of many intellectual ability variables. This criticism appears valid but almost unwarranted as Witkin himself has pointed out the existence of many kinds of cognitive styles, and thus the existence of a more extensive psychological structure than that which may be predicted by field dependence.

Wachtel makes a similar point when he refers to the work of Gardner, Klein et al. (1959) in which "cognitive style" indicates "a particular meaningful ordering or patterning of cognitive controls, of which field articulation is just one"⁴⁰. The second part of the quotation reveals that cognitive style is being viewed as a higher-order construct which includes the individual's choice of behaviour patterns or general life-style. He argues that because the EFT and the RFT

[...] require the individual to perform in a particular way and assess how able he is to perform, the individual who does not disembed is demonstrating that he cannot and not that he chooses not to.⁴¹

The implication is that cognitive style as used by Gardner et al. is much more than extent of ability and involves individual preferences which may be restricted by ability -

⁴⁰ Paul L. Wachtel, "Field Dependence and Psychological Differentiation: Reexamination", in Perceptual and Motor Skills, Vol. 35, 1972, p. 179-189.

⁴¹ Ibid., p. 181.

aspects of personality which Witkin's tests ignore. It should be remembered, however, that Witkin proposed an examination of psychological differentiation and cognitive style as defined in his own terms - a description that appears more specialized than that referred to by Wachtel.

Whether "differentiation" is too narrow a concept to accommodate all of psychological organization or whether it encompasses much more than field articulation, Witkin has presented a realistic point of view by acknowledging that his perceptual measures are not likely to have very strong correlations with any one personality or psychological factor. He elucidates

[...] because any segment of behaviour is the product of many determinants, inevitably, the segment we may consider in seeking concrete evidence of differentiation reflects the influence of other determinants as well. "Pure" manifestations of differentiation are inconceivable [...] we consider the differentiation hypothesis a supportable one, although we would not expect the relations predicted by the hypothesis to be of a very high order.⁴²

Gruen⁴³, too, questions the utility of the perceptual tests. He sees the need to focus attention on what the perceptual response means in regard to the person making the response. He claims that perceptual end results may reflect

⁴² Witkin et al., op. cit., p. 16, 17.

⁴³ A. Gruen, "A Critique and Re-evaluation of Witkin's Perception and Perception-Personality Work", in Journal of General Psychology, Vol. 56, 1957, p. 73-93.

more than one kind of mediating process and that, for example, in the case of the RFT test, it is an error to label the mediating response as necessarily one's location in space or repression of bodily sensation - an assumption used as the basis of predictions of personality traits. This criticism seems especially valid to results obtained in using some of the perceptual tests where the element of timing is introduced.

Postman⁴⁴ seeks a theoretical rationale for the choice of personality tests used to validate the theory. It is well to remember that Witkin had previously alluded to this shortcoming in selecting the personality traits to be measured. He refers to the use of a specific and clearly defined external standard (the requirements of the perceptual tasks) as the basis of the selections made. This no doubt accounted for a part of the correlations obtained. The question remains as to whether the perceptual tests might not in fact correlate more highly with other personality variables that are not as obviously related.

It is certain that none of Witkin's perceptual tests will be a faultless predictor of personality variables - that there are areas of personality which were not investigated by Witkin and that the unique interrelationship of personality

⁴⁴ Leo Postman, "A Review of Personality Through Perception", by H.A. Witkin et al., New York, Harper, 1954, in Psychological Bulletin, Vol. 52, 1955, p. 79-83.

elements for each individual would prevent the total success of any such effort at prediction. However, as Witkin demonstrates, trends in personality have been detected by perceptual measures even though the areas of lack of correspondence remain vague and correlations are often fairly low.

Given the high reliability (usually in the vicinity of .80) of Witkin's perceptual tests it may be safely concluded that if fairly substantial correlations do not appear between the perceptual construct and certain personality or other psychological traits, this is most probably due to the fact that, dynamically, these relationships are non-existent. Those personality factors summarized by the Differentiation Hypothesis and found to be related to scores on the perceptual tests may therefore be accepted as relevant to cognitive and perceptual analytical ability.

4. Theoretical Comparisons and Expectations.

The integrative orientation, described basically as a psychological outreach towards the members of the second-language group, expresses the converse of the attitudes which contribute to authoritarianism. The conventional, ethnocentric person who is reliant on the authority of the ingroup is prone to express prejudice and aggression towards members of outgroups and in general to dislike people. In Adorno's

construct, cynicism, superstitiousness and an unimaginative outlook will militate against the openness to others and the positive affect towards a new group and its culture which are inherent in the integrative orientation. It is unlikely that where prejudice and suspicion are felt towards a group the desire to participate in this group's activities, to assimilate behaviour patterns and to establish voluntary and regular communication as a mark of membership will exist to any high degree. Similarly, in Rokeach's construct, the closed-minded person is also given to submission towards the authority and to a rejection of those whose ideologies differ. New information is distorted as it is integrated so that ultimately "party-line" changes are effected and reality is interpreted solely in accordance with the reaction of the authority. Further, the basic view of the world as an unfriendly hostile place is not expected to generate feelings of confidence, trust and affinity with groups who are to some extent unknown.

The above statements lead to the prediction that authoritarianism, to the degree that it may be adequately measured by a single score, will relate negatively to an integrative orientation towards second-language learning. This prediction is supported by Gardner's theory⁴⁵ and has

⁴⁵ Robert C. Gardner and Wallace E. Lambert, op. cit., p. 16.

been partially substantiated by research findings with the use of an abridged form of the F Scale. In Montreal, London (Ontario), Louisiana, Maine and Connecticut as well as at McGill University in Quebec correlations between authoritarianism and the integrative orientation were low but consistently negative. In the Philippines a positive correlation of .26 was found for students studying English as a second language. However, even this finding supports theoretical expectation. The authors of the study point out that the strong americanization of the entire Filipino society made authoritarianism compatible with the integrative orientation to the study of English. The effect of authoritarianism on the integrative orientation is therefore expected to be restricted by the proximity of the two cultures defined as ingroup and outgroup.

The relationship of psychological differentiation to the integrative orientation is thought to be dependent on whether authoritarianism is minimal or is present to a high degree within the personality.

For individuals scoring low on authoritarianism, prejudice toward the second-language group should likewise be almost non-existent. Those individuals are therefore free to establish a strong rapport with the second group. If the second group, its language and culture are regarded as a "field" in keeping with Witkin's terminology then among the low authoritarians the field dependent or less psychologically

differentiated individual, being more gregarious, talkative and therefore more person-oriented, is expected to be more integratively motivated to the study of the second language. It should be remembered that this individual has little sense of separate identity and is therefore less consistent in his view of the self and more adaptable to the attitudes, beliefs and habits of the new group. At the same time, the extremely field independent person tends to be more intellectual, distant and socially detached. It is not likely that if he wishes to learn the second language this will be for integrative reasons.

Among individuals scoring high on authoritarianism on the other hand, the field independent scorers are felt to be the subgroup whose integrative orientation will be most outstanding. Although authoritarian, their cognitive clarity and greater psychological differentiation will enable them to distinguish between the attitudes of the authority and rational realistic attitudes concerning the outgroup. Their own reactions to the outgroup will be "specific" such that the intellectual response may counterbalance and not become fused with the emotional response. On the basis of theory it is expected that the field independent person who is very authoritarian will acknowledge the opinion of the authority and perhaps even go as far as agreeing with this opinion but that he will not necessarily rely on this opinion as a formula for action. His sense of separate identity establishes certain

boundaries between himself and the outgroup but at the same time it prevents him from being completely immersed in the attitudes of the ingroup. Further, any aggression felt toward the outgroup will possibly emerge in subtler and less obvious forms than the field dependent person is capable of exhibiting.

In the case of the field dependent person who is high authoritarian his tendency to be sociable is expected to be largely confined to the limits of the ingroup from which he has taken much of his identity. His lack of understanding of the reasons behind behaviour leaves him vulnerable to the often prejudiced interpretations of the ingroup authority and his superficial assessment of people gives him no basis for making an independent appraisal of members of the outgroup. Gardner's theory, it must be remembered, presupposes that the integrative orientation is generally accompanied by positive affect towards the outgroup in question.

The above statements may be summarized in the research hypotheses which will be stated in section 6 of this chapter.

5. Empirical Research Relevant to the
Theoretical Expectations.

Schumann⁴⁶ refers to the need for a more global appraisal of the language learner when he advocates that relationships between measures of acculturation, attitude, motivation, personality, ego-permeability, and cognitive processes be examined. This thought is an indication of the practice being established in second-language research to examine the less obvious and more intricate ramifications of the learning process. Brown's⁴⁷ interest is similar. He not only recommends research and experimentation on the relatively unobservable facets of second-language learning such as affective variables but also he stresses the need to discover the possible interactions between the cognitive and affective domains - a general plan not unlike the one being explored in this study.

Research studies already exist which point to the strong possibility that the type of design suggested by Brown is now required and would be rewarding. In the area of

⁴⁶ John H. Schumann, Second-Language Acquisition Research: Getting a More Global Look at the Learner, unpublished manuscript, Harvard University, 1975, p. 13, 14.

⁴⁷ H.D. Brown, "Affective Variables in Second-Language Acquisition", in Language Learning, Vol. 23(2), 1973, p. 231-244.

cognitive style Lee⁴⁸ (1974) found that no significant direct relationship existed between achievement and field dependence. On the other hand Haggard⁴⁹ found that field dependence is a fair predictor of grammatical accuracy in the study of the first language and DeFazio⁵⁰ shows some association between field independence, verbal comprehension and verbal fluency. Brewster's⁵¹ examination of personality factors relative to intensive audio-lingual foreign language learning disclosed that an analytical ability and other characteristics associated with field independence were particularly predictive of success. These positive results, however, provide only slight intimations of an association between the particular cognitive style and second-language achievement, since in some cases the real topic of discussion was first-language learning and in others the variables found to be connected to foreign language achievement were merely haphazard correlates of the larger

48 Hon-Wing Lee, Field Dependence-Independence and Second-Language Achievement in Grade 8, unpublished masters thesis, University of Ottawa, 1974, p. 42.

49 E.A. Haggard, "Socialization, Personality and Academic Achievement in Gifted Children", in The School Review, Winter issue, 1957, p. 388-414.

50 V.J. DeFazio, The Relationship Between Field Articulation, Language Abilities and Speech Perception in Male and Female College Students, unpublished doctoral dissertation, St. John's University, 1971.

51 Elizabeth Brewster, Personality Factors Relevant to Intensive Audio-Lingual Foreign Language Learning, unpublished doctoral dissertation, University of Texas at Austin, 1971.

construct of cognitive style.

Research by Naiman⁵² et al. at O.I.S.E. has yielded results which are more promising but which indicate inconsistent links between cognitive style and achievement. Among the three grades involved in the study, field independence was the most significant predictor of success for the grade 12 students although it was not significant in any of the other grades. In a regression analysis by Tucker⁵³ et al. in Montreal using grade 7 students, motivation, attitude and cognitive style were more important than aptitude, IQ or personality factors in differentiating successful from unsuccessful pupils. Motivation, attitude and cognitive style did assume general and significant prominence at the .05 level.

It would appear that although the research reported so far attributes a somewhat indeterminate role to the direct influence of cognitive style on second-language achievement, an examination of interactions within the psychological framework may reveal effects for cognitive style that are much more significant and universal.

52 N. Naiman, M. Fröhlich and A. Todesco, The Good Second-Language Learner, paper presented at the Eighth Annual Conference for teachers of English as a second language, Modern Language Center, O.I.S.E., October 1974.

53 G.R. Tucker, E. Hamayan and F.H. Genesee, Affective, Cognitive and Social Factors in Second-Language Acquisition, unpublished manuscript, McGill University, 1975, p. 18.

This hypothesis may be equally applicable to the effect of personality factors on second-language achievement. Wesche⁵⁴ reports a study on this topic and states that several personality traits are more characteristic of better students although no personality trait in itself is essential for successful language learning. She concludes that

What emerges is a fluid concept of the "good language learner" as a collection of positive attributes, not necessarily the same in each case. Adult language learning is a very personal affair with many both internal and external factors affecting the outcome in each case.⁵⁵

It may be, however, that when personality factors and cognitive style are examined as underlying factors interacting with other factors which contribute to achievement such as attitudes and motivation, the effect of the personality and cognitive factors will prove to be more consistent and apparent. "Consistency" should be interpreted as a relative term, however, since the multiplicity of other psychological factors which impinge simultaneously on any one personality trait must be recognized.

If interaction designs succeed in yielding more consistent results a more accurate and global understanding of

54 Marjorie Bingham Wesche, The Good Adult Language Learner: A Study of Learning Strategies and Personality Factors in an Intensive Course, unpublished doctoral dissertation, University of Toronto, 1975, p. 252.

55 Ibid., p. 252-253.

the language learner will be forthcoming.

6. Hypotheses.

On the basis of the theoretical expectations outlined above and the suggestive nature of past research the present study will examine the research hypotheses that -

1. Students who have extremely low scores on authoritarianism are significantly more integratively oriented than students who have extremely high scores on authoritarianism.
2. There is significant interaction of authoritarianism and psychological differentiation on the integrative orientation towards second-language learning. Among persons who are relatively non-authoritarian those who are extremely field dependent are significantly more integratively oriented than those who are extremely field independent. However, among persons who score high on authoritarianism those who are extremely field independent are significantly more integratively oriented than those who are extremely field dependent.

The design of the study will be repeated so that the above hypotheses may be tested when authoritarianism is measured by the F Scale as well as by Rokeach's Dogmatism Scale. The main purpose of the repetition is twofold. First, this will accommodate all claims made by Rokeach regarding discrepancies between the two scales. Secondly, in the event that the two scales do in fact measure different aspects of authoritarianism this should be reflected in the way in which they each relate to aspects of second-language learning.

CHAPTER II

DESIGN OF THE STUDY

In this chapter a description will be presented of the procedures followed for the collection and analysis of data. This will include an account of the sample used, the method by which data were gathered, the instruments used in collecting the data and the particular statistical techniques adopted for the analysis of the data. Both the F Scale and the Dogmatism Scale as measures of authoritarianism will be described since the statistical analyses referred to were repeated in order to utilize both scales.

1. The Sample.

The sample in this study was not randomly selected but was considered as identical to the population. The total number of persons tested was 442 undergraduates at the University of Ottawa who were in their first or second year of learning French as a second language. However, several cases were excluded from the final analysis. Among these were students who, on the basis of their own statements on their competence in the French language as well as on the use of the language at home, were considered to be French Canadian. Further, students who omitted large sections of the questionnaires (over 25% of the items) either because they

were unwilling to complete or they found difficulty in doing so, were excluded. The final sample for which data were analyzed therefore totalled 414 non-French undergraduates residing in Canada. Both males and females were included in the sample and the ages of individuals ranged from seventeen to sixty-six with eighty-five per cent of the students being between the ages of eighteen and twenty-six. Less than ten per cent of these students were registered on a part-time basis and attended evening classes together with full-time students. Classes were small with an average of ten students each and the course content had, throughout the year, been seventy per cent oral work.

2. Method of Data Collection.

Subsequent to the approval of the Head of the Language Division at the Center for Second-Language Learning, University of Ottawa and that of the Dean of the Faculty of Arts, the teachers of the French language were contacted and appointments were made for visits to each of the classes during the months of March and April 1976. Data were collected by the author and one research assistant from a total of forty-five classes. Among the teachers two volunteered to administer the instruments to certain of their classes which would otherwise have been omitted due to time-table overlaps. On each occasion students were told in both French and English that

the questionnaires and test to be administered formed part of a research study being done at the graduate level on the possible relationship between personality and attitudes towards second-language learning. It appeared that this brief explanation satisfied most of the students and assured them that their end-of-year achievement scores would not be affected by the results of the study. Students were scheduled to write their examinations two weeks after the completion of the data-collection program.

After these brief introductory remarks the standard instructions for the Thurstone Closure Flexibility Test were read aloud by the test administrator. Subjects were asked to indicate their student number, age and sex and allowed the assigned ten minutes in which to answer the items. Test booklets were collected immediately after the allotted time then the students were asked to complete the questionnaires.

The Closure Flexibility Test and the two scales for authoritarianism were scored by hand. The Attitudinal Scale, however, was scored by a computer program constructed by Gardner et al. which provides item-analyses and Kuder-Richardson₂₀ statistics. In addition this program adjusts for omissions by prorating the total scores on the number of items attempted.

3. The Instruments.

The four instruments used in the collection of the data were the attitudinal scale referred to as Ratings of Integrative Orientation, Thurstone's Closure Flexibility Test as a measure of psychological differentiation and two indices of authoritarianism - the F Scale and the Dogmatism Scale. They will be presented in the above order.

a) Ratings of Integrative Orientation Scale.- The integrative orientation described by Gardner and previously outlined in this study was measured by a six-point Likert type scale which operated in the form of an eight-item questionnaire¹. Responses are indicated in the margin beside each question and are selected from the six alternatives corresponding to the six different points of the scale. These points range from strongly disagree (-3) through agree (+1) to strongly agree (+3). A constant of 4 is added to each of these numerical positions as they occur so that an individual's highest possible score on the eight items measuring the integrative orientation is fifty-six. Omissions are recorded as blanks and when the questionnaire is computer-scored total scores are prorated on the number

¹ R.C. Gardner and P.C. Smythe, Second-Language Acquisition: A Social Psychological Approach (Research bulletin No. 232), London, Ontario, Department of Psychology, University of Western Ontario, 1975, Appendix A, p. A-18.

of items completed.

The version of the integrative orientation measure used in this study was first administered by Gardner et al. to high school students resident in London, Ontario. No changes were made in the content and form of the questions, however, as they were considered relevant to the present sample of students. The decision was made to use the version which contained all eight items of the integrative measure since these items formed a more complete representation of the theory to be tested. The eight items were presented in a random order with items from other attitudinal scales which measure the integrative motive (see Appendix 2).

The Kuder Richardson₂₀ reliability coefficient derived from the present sample was .79. Item-total correlations were computed as a measure of construct validity. Adjustments were made to eliminate the effect of the contribution of each item to the total score. The item-total correlations for the eight items indicated by asterisks in Appendix 2 were .48, .34, .54, .55, .48, .61, .45, .59 respectively.

b) Thurstone's Closure Flexibility Test.- This test otherwise known as the Concealed Figures Test (Form A) was

used as a measure of psychological differentiation. It has contributed to research which led to the formulation of Witkin's theory. It may be administered either to individuals or in groups. The test includes forty-nine items which present different degrees of difficulty. Each item consists of a figure, shown on the left side of the page and followed by a row of four, more complex drawings on the right, some of which contain the less complex figure in its original size and orientation. The respondent is required to look for the original figure in each of the complex drawings and to put a check (✓) under each drawing which contains it and a zero (0) under each which does not. A total of ten minutes is allowed.

The raw score is the number of correct answers minus the number of wrong answers. The maximum raw score is the total number of pages (seven) times the total possible score for each page (twenty-eight) which equals one hundred and ninety-six.

The mental ability measured by this test has been defined by Thurstone as the ability to hold a configuration in mind despite distraction. The test has been found by Podell and Phillips² to have a .77 correlation with Witkin's Embedded Figures Test which measures field dependence/

2 Jerome E. Podell and Leslie Phillips, "A Developmental Analysis of Cognition as Observed in Dimensions of Rorschach and Objective Test Performance", in Journal of Personality, Vol. 27, No. 4, 1959, p. 439-463.

independence. For the Closure Flexibility Test Thurstone reports a split-half reliability coefficient of .78. Pemberton reports a corrected split-half reliability of .94. These findings are stated in the test manual.

c) The California F Scale.- This questionnaire³ is an instrument originally designed by Adorno et al. to measure an antidemocratic potential within the personality as well as personality predispositions towards fascism. It is structured as a Likert type six-point scale with twenty-nine items. Instructions are to mark each item in the left margin according to the degree of agreement. This may vary from "very much agreement" through "little agreement" to "very much disagreement". Each selection is indicated by a whole number ranging from +3 to -3 but there is no choice corresponding to 0. A constant of 4 is added to each number and four is allotted to any item which has been omitted. The total score is 203.

The validity of the F Scale is indicated by correlations in the region of .77 with Adorno's Ethnocentrism Scale. The average of the reliability coefficients for all of the fourteen groups originally tested (total N = 1,518) is .90. The coefficients range from .81 to .97. Adorno reports that all of the items discriminate significantly between the high and

³ Milton Rokeach, The Open and Closed Mind. Investigations into the Nature of Belief Systems and Personality Systems, New York, Basic Books, 1960, p. 416-417.

low quartiles. The mean for item-total correlation is .33 the range being .15 to .44. Valade⁴, using stability as a measure of reliability obtained a score of .791 for the F Scale.

The majority of the subjects originally tested lived within the San Francisco Bay area and save for a few key groups were drawn almost exclusively from the middle socio-economic class.

Before administration of the questionnaire in this study item fifty-nine was adjusted to omit the use of the term "prewar" to qualify "authorities". Items were randomly arranged with the items of the Dogmatism Scale following the general procedure used by Adorno of randomizing items with those from other scales.

d) The Dogmatism Scale.- This questionnaire⁵ was designed by Rokeach to measure general authoritarianism. It contains forty items each scored on a six-point Likert type scale precisely like that used by Adorno with the F Scale. It is scored in the same manner. The total score is 280.

As an index of validity Rokeach reports a significant difference of 56.1 ($p = .01$) on the Dogmatism Scale between subjects known to be very open and closed-minded. Corrected

⁴ Jeannette Valade, L'autoritarisme général, l'autoritarisme fasciste et l'anxiété, unpublished doctoral dissertation, Ottawa University, 1964.

⁵ Rokeach, op. cit., p. 72-80.

reliability measures for various British and American samples range from .68 to .93.

4. Statistical Techniques Used in the Analysis of the Data.

Data were analyzed using the analysis of variance technique described by Keith⁶. The variance in the distribution for the integrative orientation measures was analyzed twice, once with Psychological Differentiation and F Scale measures as the independent variables of the design and once with Dogmatism measures replacing the F Scale. Main effects and interaction effects relevant to the hypotheses were tested in the null form at the .05 level of significance.

Previous to this, selection was made of the individuals to be included in the four groups of the design, that is, those subjects who scored; 1) low on psychological differentiation and low on authoritarianism; 2) high on psychological differentiation and low on authoritarianism; 3) low on psychological differentiation and high on authoritarianism; 4) high on psychological differentiation and high on authoritarianism. Each group consisted of persons who were among either the lowest or highest thirty per cent of the distribution for

⁶ Dr. V. Keith, Design and Analysis in Experimentation, Ottawa, University of Ottawa Press, 1972, p. 98-128.

both independent variables at the same time. Cooper⁷ has demonstrated that the thirty per cent cut-off point used to establish extreme groups on a normal distribution is not expected to allow for overlap of scores in group membership. A cumulative percentage frequency count of the scores in both independent variables showed that there was indeed no overlap.

Homogeneity of variance was tested by the Cochran C statistic described by Winer⁸.

Simple one-way analyses of variance were conducted to test the statistical significance of sections two and three of the second hypothesis.

The intention in chapter two was to present the design of the study in sufficient detail so that useful replication could be carried out in other locations. This has been done by reference to the kind of sample, the instruments used, the administration of the instruments and the method of analyzing the data collected.

7 Martin Cooper, Cattell's Personality Factors as Predictors of High School Performance, unpublished doctoral dissertation, University of Ottawa, 1972, p. 81-87.

8 Ben James Winer, Statistical Principles in Experimental Design, New York, McGraw-Hill, 1962, p. 94.

CHAPTER III

PRESENTATION OF THE RESULTS

The tabled results of the statistical analyses of data will be presented in the following order - the outcomes for the two-way analyses of variance, the simple one-way analyses of variance used to test the details of the interaction hypothesis, the N, mean and standard deviation for each group of the ANOVA and the Cochran C Test for homogeneity of variance. Where relevant each statistical procedure will produce two sets of results, that is, one for each version of the design according to whether authoritarianism is measured by the F Scale or by the Dogmatism Scale to be referred to henceforth as the D Scale. It must be remembered that these results are not intended to be used in making inferences to any population which may be different from or larger than the sample described. A statement of the results will accompany the presentation of the tabled results.

The research hypotheses which were outlined at the end of Chapter I stated that:

1. Students who have extremely low scores on authoritarianism are significantly more integratively oriented than students who have extremely high scores on authoritarianism.
2. There is significant interaction of authoritarianism and psychological differentiation on the integrative orientation towards second-language learning. Among persons who are relatively

non-authoritarian those who are extremely field dependent are significantly more integratively oriented than those who are extremely field independent. However, among persons who score high on authoritarianism those who are extremely field independent are significantly more integratively oriented than those who are extremely field dependent.

These hypotheses were tested in their null form ($p < .05$) using the method of analysis based on variance.

The basic results are presented in Tables I-IV.

An examination of Tables I and II shows that neither main effect for authoritarianism is significant at the .05 level although Dogmatism does approach this level of significance ($p < .06$). Neither interaction effect is significant at the .05 level and in fact both interactions appear to be infinitesimal ($p < .99$). Since variance ratios are not large enough to occur with less than 5% chance the null hypotheses relevant to the two main research hypotheses of this study cannot be rejected. The research hypotheses one and two stated above must therefore be rejected at the .05 level of significance. Tables IV and III indicate that although for each level of authoritarianism the means on the integrative orientation are consistently higher for field dependent persons than for field independent persons none of the relevant F ratios in the one-way analyses is significant at the .05 level.

It is important to note, however, that when selection is made of persons who have extremely low and high scores on dogmatism the main effect for psychological differentiation reaches a very high level of significance ($p < .012$) (See Table II). Perhaps it is an even more important finding that similar results do not occur when the integrative orientation is measured for groups who are extremely low and high on the F Scale (See Table I).

The application of Cochran's C Test showed that homogeneity of variance existed among the various cells of the design (See Table V).

These results will be discussed in the following chapter.

Table I.-

Two-Way Analysis of Variance Showing the Significance of
F Ratios for Both Main Effects and Interaction Effect When
Authoritarianism Is Measured by the F Scale.

Source of Variation	SS	df	MS	F	Signif. of F
F.D./F.I.	152.321	1	152.321	2.151	0.141
F Scale	0.383	1	0.383	0.005	0.999
Interaction	47.208	1	47.208	0.667	0.999
Residual	9206.109	130	70.816		

Table II.-

Two-Way Analysis of Variance Showing the Significance of
F Ratios for Both Main Effects and Interaction Effect When
Authoritarianism Is Measured by the D Scale.

Source of Variation	SS	df	MS	F	Signif. of F
F.D./F.I.	486.958	1	486.958	6.442	0.012
D Scale	261.232	1	261.232	3.456	0.062
Interaction	0.001	1	0.001	0.000	0.999
Residual	10733.129	142	75.585		

Table III.-

One-Way Analyses of Variance Showing the Significance of
F Ratios for the Psychological Differentiation (F.D./F.I.)
Effect When Authoritarianism, Measured by the F or D Scales,
Is High or Low.

Source of Variation	SS	df	MS	F	F PROB
F.D./F.I. for Low Auth. (F Scale)	10.6875	1	10.6875	0.130	0.719
Within groups	4942.7500	60	82.3792		
F.D./F.I. for High Auth. (F Scale)	188.8125	1	188.8125	3.100	0.079
Within groups	4263.6875	70	60.9098		
F.D./F.I. for Low Auth. (D Scale)	272.1875	1	272.1875	3.325	0.069
Within groups	6467.3125	79	81.8647		
F.D./F.I. for High Auth. (D Scale)	214.8125	1	214.8125	3.172	0.076
Within groups	4266.1250	63	67.7163		

Table IV.-

Number of Cases, Means and Standard Deviations for Each
Group Involved in the Analyses of Variance.

Group Classification	N	Mean	S.D.
F.D., Low Auth. (F Scale)	36	38.1111	8.2038
F.I., Low Auth. (F Scale)	26	37.2692	10.1727
F.D., High Auth. (F Scale)	37	39.2973	8.7872
F.I., High Auth. (F Scale)	35	36.0571	6.6064
F.D., Low Auth. (D Scale)	39	38.6923	8.4235
F.I., Low Auth. (D Scale)	42	35.0238	9.5904
F.D., High Auth. (D Scale)	29	41.3793	8.8173
F.I., High Auth. (D Scale)	36	37.7222	7.7261

Table V.-

Results of Cochran's C Test for Homogeneity of Variance When
Different Sets of Independent Variables Are Involved.

Dependent Variable	Independent Variables	C	Crit. C	Sig level of Crit. C
Integrative Orientation	Psychological Differentiation, D Scale	.3062*	.401	C .01 (4,41)
Integrative Orientation	Psychological Differentiation, F Scale	.3548*	.4057	C .01 (4,36)

* values indicate the presence
of homogeneity of variance.

CHAPTER IV

DISCUSSION OF THE RESULTS

The results of the analyses of data outlined in the preceding chapter lead to the general conclusion that the hypotheses stated earlier were not supported empirically. This situation does not necessarily contradict or invalidate the theoretical expectations, however. What it perhaps indicates is that there are special circumstances which disturb the logical and therefore expected relationships between an integrative orientation to the study of a second language, psychological differentiation and authoritarianism. Several such circumstances may be pointed out which would be relevant to the sample tested in this study.

Hypothesis one predicted that persons scoring low on authoritarianism would be more integratively oriented. Not only did authoritarianism fail to produce a significant main effect, but in the case of dogmatism in which significance was approached, it was the high authoritarians who were generally more integratively oriented (see Figure 2). The explanations to be proffered are felt to contain definite relevance. Over and above the fact that many similarities exist between the French and English cultures in Ontario and Quebec - a condition which must have diminished the projected effect of high authoritarianism and prejudice - in recent years

one sector of the "authority", the Government, has been favourably disposed towards the French element in the society. The Official Languages Act in operation since 1973 has initiated many schemes within the social system including a wholesale drive to produce a bilingual Civil Service. The social and political climate in eastern Canada has therefore experienced a volte-face in respect to the learning of French. Canadians have been impressed over the recent years with the necessity of learning French. Moreover, the data in the present study were collected during the weeks when the results of the Spicer Report sponsored by the Government Treasury Board and the Public Service Commission were being broadcast over the air and on television. The urgency conveyed in these broadcasts regarding the necessity of improving strategies for producing bilinguals may have impressed the general public. This Report, backed by Government finance and personnel could reasonably be expected to assume the weight of the "authority". It seems again not unreasonable to suggest that the above factor may have contributed to the lack of difference in integrative orientation between low and high authoritarians, since at the time the present study was carried out, the "authority" in the nation's capital expressed favourable attitudes to the learning of French. This tentative explanation also appears to be supported by the finding that high scorers on dogmatism tended to be more integratively oriented than low scorers although not significantly so. The absence of this tendency for individuals

measured by the F Scale is possibly additional evidence that the F Scale describes a less general form of authoritarianism.

There is equal likelihood, however, that the F Scale results do not show exactly the same tendency as the results for dogmatism because of the nature of the design. In a previous study by the writer¹ using a sample of undergraduate students at Carleton University, Ottawa, a fairly low curvilinear relationship was found between psychological differentiation and scores on the F Scale with both extremely field dependent and field independent persons emerging as the highest scorers on authoritarianism. It is possible that this curvilinear relationship helped to subdue differences between low and high authoritarians as measured by the F Scale by blending the different cells of the present design. Since persons classified as low authoritarians on the F Scale were also either extremely field dependent or field independent, in some respects at least, some of these persons would have developed a susceptibility to certain authoritarian attitudes and may for this reason have scored almost as high as the high authoritarians on integrative orientation. A comparison of figures 1 and 2 will reveal the discrepancies referred to. Although a slight incline appears on the graph relevant to

1 Grace M.H. Gayle, Psychological Differentiation and Authoritarianism - the Nature and Strength of the Relationship, Interim Report presented to the Faculty of Education of the University of Ottawa as partial fulfillment of the requirements for the Ph.D. Degree, 1975.

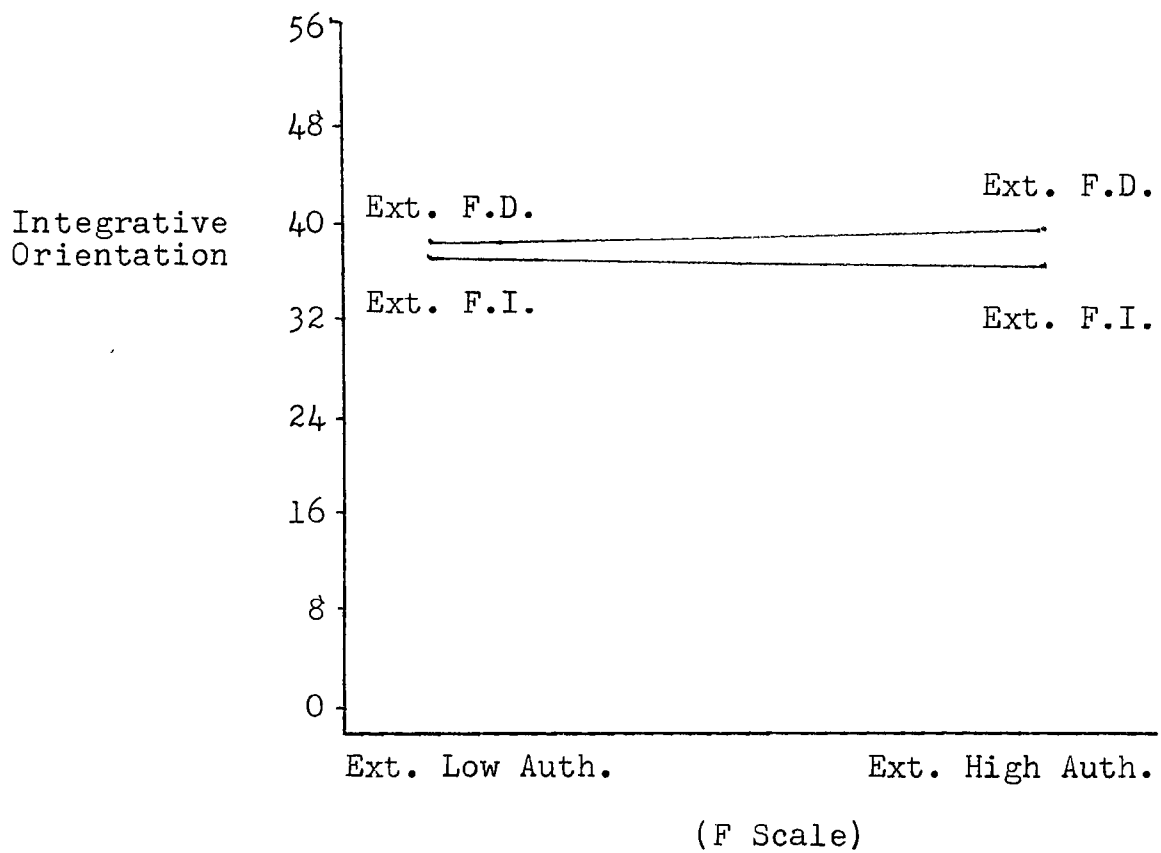


Figure 1.- The Relationship Found Between the Integrative Orientation and Extreme Scores on the Scales for Psychological Differentiation (F.D./F.I.) and Authoritarianism (F Scale).

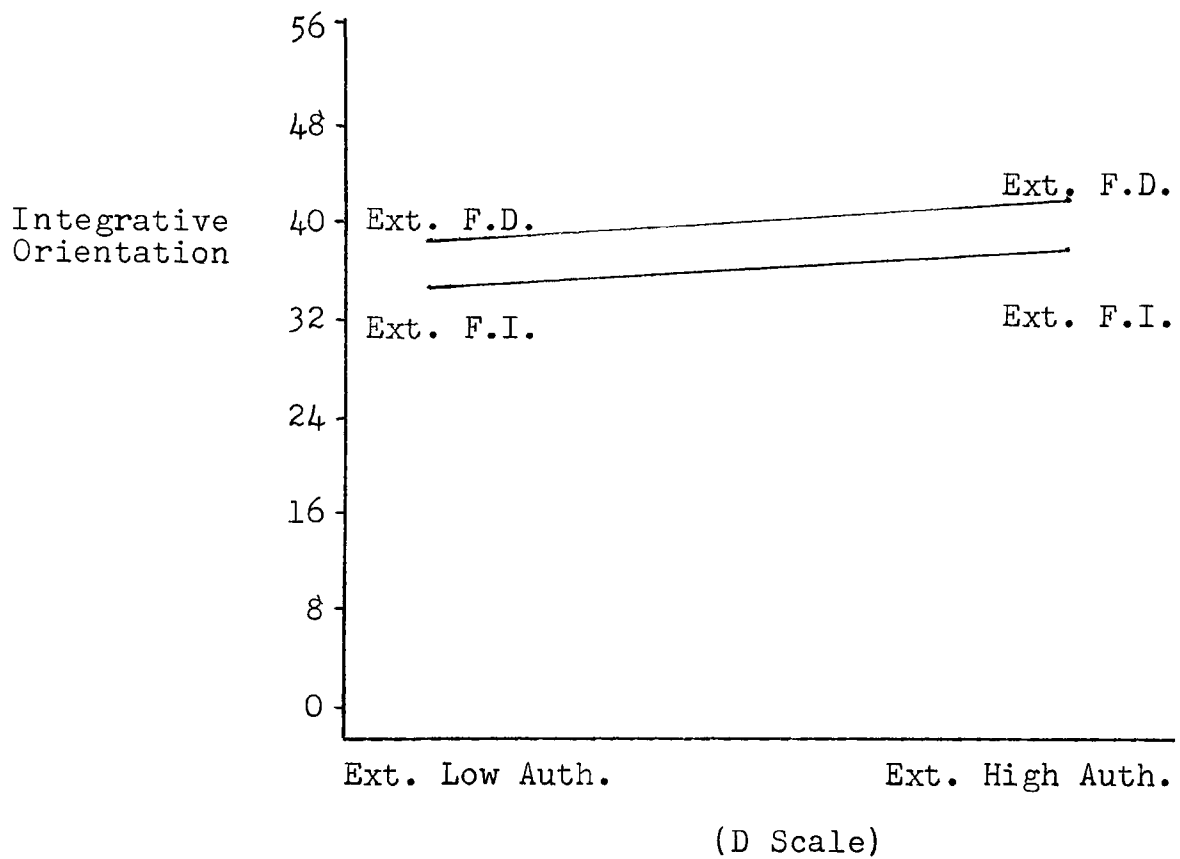


Figure 2.- The Relationship Found Between the Integrative Orientation and Extreme Scores on the Scales for Psychological Differentiation (F.D./F.I.) and Authoritarianism (D Scale).

Dogmatism, where the F Scale is involved, both low and high authoritarians have approximately the same means for integrative orientation. If it is remembered that low authoritarians were originally predicted to be more integratively oriented it will be seen that the rationale behind this explanation once more assumes that when the authority is favourably disposed towards the learning of the second language then the effect of high authoritarianism far outweighs that of low authoritarianism.

This explanation can stand only if there is no similar curvilinear relationship between dogmatism and psychological differentiation. Rokeach himself as well as Hellkamp and Marr are reported by Vacchiano² to have come to the conclusion, subsequent to research, that there is no important relationship between the two variables.

Another important factor in the way in which high and low authoritarians were differentiated on integrative orientation according to whether they were measured by the F or D Scale is the possible irrelevance of sections of the F Scale. It has been stated that the F Scale may no longer include an accurate measure of conventionalism because of changes in the structure, customs and values of society. This thought is supported by the correlation found within the

² Ralph B. Vacchiano, Paul S. Strauss and Leonard Hochman, "The Open and Closed Mind: A Review of Dogmatism", in Psychological Bulletin, Vol. 71, No. 4, 1969, p. 261-273.

present sample between F Scale measures and dogmatism. The correlation of .29 ($p < .001$) is significantly less than those previously reported in earlier years and referred to above.

There are, however, other possible reasons why the predicted difference between low and high authoritarians stated in hypothesis one was not supported. In the case of dogmatism some of the hypothesized shortcomings of the scale referred to in chapter one may have been operable. If in fact the scale is sensitive to an agreement response set and is basically a curvilinear measure of open-mindedness then there is little doubt that the results of the analyses would have been distorted. Additional evidence of the ambiguity of the items contained in both the F and D Scales was unfortunately provided by the students themselves who participated in this study. Some expressed difficulty in responding to the questionnaire since questions could be interpreted in many ways and could therefore produce a variety of answers.

Finally, the failure of the analysis to indicate significant main effects for authoritarianism may be accounted for by the age range of the sample tested. Students' ages ranged from seventeen to sixty-six with by far the greater percentage in the twenty to thirty age group. There is a very slight possibility that among high authoritarians some sector or sectors of this wide age range were not aware of the acuteness of the social conditions referred to above.

There is a greater possibility that if they were these conditions affected them differently. Such a situation could possibly have created differences on integrative scores for subjects who were all basically high authoritarian and therefore could have reduced average differences between high and low authoritarians.

On the basis of the theoretical rationale outlined in chapter one, once the authority governing the first-language group is prejudiced towards the second-language group the type of interaction predicted in hypothesis two is felt to be inevitable. In the event that the authority is in favour of the use of the second language, however, and shows a general disposition to acceptance of and tolerance for the second group then two main outcomes appear to be possible - either there will be no significant difference between high and low authoritarians on the integrative orientation as occurred with the present sample, or high authoritarians will be significantly more integratively oriented than low authoritarians. In either case if the second language and its culture is viewed as a psychological "field" then there is every theoretical justification for believing that field dependent persons, who rely on the authority, will be more integratively oriented than their opposites even when they are high authoritarian. It has already been stated that field dependent low authoritarians were expected to be more

integratively oriented than field independent low authoritarians.

This was exactly the outcome found in the study. Table IV indicates that field dependent persons were on the average consistently more integratively oriented than their opposites. None of these differences were significant at the .05 level (see Table III), however, the cumulative effect led to a significant main effect ($p < .012$) for psychological differentiation in the design relevant to dogmatism (see Table II). Interaction effects, as it has previously been said, were almost non-existent.

There is the question of why the main effect for psychological differentiation is significant only at the .141 level when selection was made of persons high and low on authoritarianism as measured by the F Scale. The correlations found previously between the F and D Scales, and reported above, range between .5 and .7. The correlation in this study is .29. It is therefore possible, moreso when the breadth of both scales is considered, that there is an unidentified factor within either the F or D Scale which is irrelevant to the other scale and which interacts with psychological differentiation in such a way that field dependent and field independent persons selected on the basis of the F or D Scales show disparate tendencies on integrative orientation. Further research would be necessary to establish the validity of this view.

The above possibility, if indeed it did occur, appears not to have any serious or consistent effect on language learning, however. The absence of significant main effects for psychological differentiation in the F Scale design could be a chance occurrence. Information collected and analyses conducted during the course of this study which were in excess of procedures required for testing the hypotheses stated, showed that non-significant main effects for psychological differentiation on other attitudinal and affective variables relevant to second-language learning were the exception rather than the rule even when the F Scale was involved.

To be more specific, in similar analyses of variance which used a shorter version of the Integrative Orientation Scale and the more extensive integrative motive as the dependent variables, psychological differentiation produced significant main effects in each case. The short Integrative Orientation Scale includes those items which had been found by Gardner³ through a specific process of item-total correlations to be the strongest of the eight items which comprised the original scale. The integrative motive as a single index is a composite of standardized scores relating to the following: 1) extent of integrative orientation; 2) the intensity of positive attitudes towards the learning of a second language; 3) the intensity of

³ Robert C. Gardner and Padric C. Smythe, Second-Language Acquisition: A Social Psychological Approach, (Research Bulletin No. 232), London, Ontario, Department of Psychology, University of Western Ontario, 1975, p. 3:17, 18.

positive attitudes towards the second-language group; 4) desire to learn the language; 5) motivational drive. For subjects selected on the basis of the F Scale for authoritarianism, psychological differentiation had F ratios significant at the .039 and the .015 levels on the dependent variables of integrative orientation (subscale) and integrative motive respectively. The significance levels for subjects selected on the basis of the D Scale were .015 and .001 respectively.

Although the various cells of the design showed homogeneity of variance as explained in Table V, the Kolmogorov-Smirnoff Test for normality or "goodness-of-fit"⁴, when applied to the data, showed that the sample distribution for the dependent variable was skewed in spite of the size of N and regardless of a variance of 73.81. It is felt, however, that this characteristic of the sample does not question the validity of the use of the analysis of variance technique in analyzing the data. Hays⁵ indicates that a sample size of 414 is more than adequate to ensure the normality of the sampling distribution of the means of the population - the condition set out as a prerequisite for the use of the analysis of variance technique.

The above discussion and examination of the results suggest certain conclusions which are stated in the following pages.

⁴ D.A. Darling, "The Kolmogorov-Smirnov Cramer-Von Mises Tests", in Annals of Mathematical Statistics, Vol. 28, 1957, p. 823-838.

⁵ William L. Hays, Statistics for the Social Sciences, New York, Holt, Rinehart, Winston, 1973, p. 316-320, 481-483.

SUMMARY AND CONCLUSIONS

The purpose of this research was to explore the possibility of relationships and interaction between personality, cognitive variables and affective variables which influence second-language learning in order to obtain a better understanding of the language learner. The hypotheses which were tested by an analysis of variance stated that:

1. Students who have extremely low scores on authoritarianism are significantly more integratively oriented than students who have extremely high scores on authoritarianism.
2. There is significant interaction of authoritarianism and psychological differentiation on the integrative orientation towards second-language learning. Among persons who are relatively non-authoritarian those who are extremely field dependent are significantly more integratively oriented than those who are extremely field independent. However, among persons who score high on authoritarianism those who are extremely field independent are significantly more integratively oriented than those who are extremely field dependent.

The sample was not randomly selected and was comprised of non-French students registered at the University of Ottawa in the first or second year French courses.

For the particular sample measured the results of the analysis of variance could not support the hypotheses stated above at the .05 level of significance.

These non-significant findings, however, if viewed in proper perspective, do not necessarily invalidate the theoretical expectations behind the hypotheses. What they

certainly do is to contribute to an understanding of the relationships between these variables under certain conditions. It was suggested that significant effects for interaction and authoritarianism may well have failed to occur partly because of what is held to be the present "tone" of the "authority" in Ottawa. Perhaps in the present context the authoritarian personality syndrome had a more positive influence on attitudes to second-language learning than would normally be expected.

In spite of the non-significant findings for the research hypotheses a significant relationship emerged between psychological differentiation or the field dependent/independent cognitive style and the integrative orientation classified as an affective variable relevant to second-language learning. It was concluded that this finding was not a chance occurrence for although it was not repeated in one instance when the design was adjusted to include extreme scorers on the F Scale version of authoritarianism, in similar circumstances psychological differentiation was found to relate significantly to a shorter measure of the integrative orientation as well as to the more comprehensive "integrative motive".

It would appear then that irrespective of the fact that psychological differentiation in the sample tested did not significantly contribute to interaction effects it

exhibited a considerable relationship to an affective variable that influences second-language learning by producing a significant main effect. The design utilized in this study therefore provided some contribution to general theory by illustrating a link, at least for one sample, between Gardner's second-language learning theory and the phenomenon of psychological differentiation as it is described by Witkin. Repetition of this finding with other samples would be ideal.

Further, a clearer understanding of conditions favourable to second-language learning has been offered. As outlined in section five of chapter one field independence appears to relate positively to achievement in second-language learning. It now appears that field dependence relates positively to the integrative orientation which itself is a contributory factor to high achievement. The logical conclusion is that psychological differentiation may contribute to second-language learning in more than one way.

This conclusion does not dispense with the importance of the field dependent/independent dichotomy as a variable relevant to language achievement although on the surface it may seem to do so. In fact it indicates the need for a revision of educational policy. In the past whenever the relationship between a psychological variable and achievement has been recognized there has been the tendency to capitalize on that trait where it existed and to promote it where it was

deficient. For example, the highly motivated student is encouraged and responded to positively. At the same time attempts are made to motivate students who are not enthusiastic. Now that both extremes of the differentiation continuum appear to be significant to language learning, whether directly or indirectly, what is needed is not a frantic effort to increase the student's cognitive differentiation. Supposedly teachers help individuals, not variables. What is needed is a more complete acceptance of the field dependent person as a potential second-language learner in his own right. Emphasis should be placed on exploiting his attitudinal readiness to second-language learning and creating situations in which favourable attitudes already possessed may be exercised to facilitate the pursuit of knowledge and skills.

The data collected in the study have provided some support for Rokeach's belief that the F and D Scales measure different kinds of authoritarianism. As pointed out above in the discussion of the main effects, a fairly sizeable difference occurs in the importance of the F and D Scales to the integrative orientation although neither affects the attitudinal scale above the .05 level. However, this difference may not be totally due to the type of authoritarianism measured. It may also be due to differences in subsample selection as each anova was necessarily conducted with data derived from different subgroupings of the total sample of

414 students. Other personality variables may also have interacted with and affected the display of integrative orientation.

The positive results obtained in regard to the main effect of psychological differentiation suggest that second-language learning involves a variety of variables and interactions among variables. Further research using interaction designs will lead to a more global view of the language learner without which he cannot be adequately helped.

A repetition of the present design in a location where the authority is at least indifferent if not hostile to the second-language group may produce completely different results and may support the first hypothesis stated in this thesis.

It is also likely that support may be found for the hypotheses stated in this study if French-speaking students in Ottawa learning English as a second language were tested.

The restrictions of the design used in this study suggest that there are other areas in which further research may be useful. For example, research purporting to measure the relationship of psychological differentiation to other affective variables relevant to second-language learning may lead to the complete revision of Witkin's original belief that psychological differentiation plays little part in language skills.

Also, it would be interesting to see whether or not psychological differentiation is at all related to the integrative orientation at the high school level and at other age levels.

The writer considers that investigation of the interactions which exist between personality, cognitive and affective variables has by no means been exhausted and that statements contained in this study may therefore be subject to modification. An even more imperative need for further research is felt in view of the limitations of the present sample used, its non-random selection and the impossibility of making inferences to the total real population.

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With the aid of case studies, clinical observations, attitude questionnaires, interviews and projective techniques this work has attempted to define the many facets of the antidemocratic disposition within the personality and the tendency towards prejudice. The F Scale is presented as the purest measure of this antidemocratic potential.

Christie, Richard and Peggy Cook, "A Guide to Published Literature Relating to the Authoritarian Personality Through 1956", in Journal of Psychology, 45, 1958, p. 171-199.

The discussion of studies relevant to the F Scale and published in scientific journals is usefully organized under broad sub-headings.

Gardner, R.C., Social Factors in Second-Language Acquisition and Bilinguality, (Research Bulletin No. 342), Department of Psychology, University of Western Ontario, 1975, 63 p.

A comprehensive summary of Gardner's socio-psychological theory of second-language learning including the most recent theoretical developments which have emerged largely from empirical research.

Gardner, Robert C. and Wallace E. Lambert, Attitudes and Motivation in Second-Language Learning, Rowley, Massachusetts, Newbury House, 1972, 315 p.

The authors indicate some of the factors which determine the successful learning of a second language and attempt a cross-cultural validation of their findings. The theory of the integrative versus the instrumental orientation in second-language learning is well supported.

Gardner, R.C. and P.C. Smythe, Second-Language Acquisition: A Social Psychological Approach, (Research Bulletin No. 232), London, Ontario, Department of Psychology, University of Western Ontario, 1975.

A detailed description of a large-scale study done in the grades 7-11 of high schools in London, Ontario. The bulletin presents a validation study quoting test-retest reliabilities for all subtests used, and reports the results of the factorial analyses carried out for each grade.

Goodenough, Ronald R. and Stephen A. Karp, "Field Dependence and Intellectual Functioning", in Journal of Abnormal and Social Psychology, Vol. 63, No. 2, 1961, p. 241.

The authors suggest that intelligence is not synonymous with the field independent cognitive style. The clarification offered is that the relationship found between the two variables is carried mainly by particular subtests of intelligence tests which require the separation of an item from the field.

Lambert, Wallace E., "A Social Psychology of Bilingualism", in Journal of Social Issues, Vol. XXIII, Number 2, 1967, p. 91-109.

This article revises and elaborates the social aspects of Lambert's theory and states the specific nature of the relationship between the integrative motivation and second-language learning.

Lambert, Wallace E. et al., "Attitudinal and Cognitive Aspects of Intensive Study of a Second Language", in Journal of Abnormal and Social Psychology, Vol. 66, 1963, p. 358-368.

This study examines the psychological effects on adult American students at McGill University of a 6-week intensive course in French. Among other results the authors find a distinct relationship between achievement and attitudinal-motivational variables for a subsection of the students.

Rokeach, Milton, The Open and Closed Mind. Investigations Into the Nature of Belief Systems and Personality Systems, New York, Basic Books, 1960, xv-433 p.

The description of the closed belief system or the closed mind purports to offer an overview of general authoritarianism. The theory is supported by research carried out with the Dogmatism Scale.

Vacchiano, Ralph B., Paul S. Strauss and Leonard Hochman, "The Open and Closed Mind: A Review of Dogmatism", in Psychological Bulletin, Vol. 71, 1969, p. 262-263.

Studies which re-examine the nature of Dogmatism as well as the relationship of this variable to other psychological factors are described. An assessment of the contribution of the Dogmatism Scale to psychological research leads to positive conclusions.

Witkin, Herman A., The Role of Cognitive Style in Academic Performance and in Teacher-Student Relations, Research Bulletin, New Jersey, Educational Testing Service, 1973, 58 p.

A synthesis of reports of studies which relate to perceptual style and particularly to Field Dependence/Independence. Perception is shown as a co-variant with many personality and attitudinal variables. The term "cognitive style" which covers perceptual as well as intellectual functioning is introduced and the suggestion is made to substitute this concept in educational assessment for the often abused and now misused concept of "intelligence".

Witkin, H.A., R.B. Dyk, H.F. Faterson, D.R. Goodenough, and S.A. Karp, Psychological Differentiation, Studies of Development, Potomac M.D., Lawrence Erlbaum Associates, 1972 (Originally published: New York, John Wiley and Sons, 1962, 418 p.).

The presentation of a theory of psychological differentiation is fully supported by empirical research. The proposed link between various psychological functions includes a discussion of personality, perception, and intellect, and relates these levels of function to environmental factors. The distinction made between "content" and "formal" features of personality in relating personality to perceptual style is an important contribution to the theory. The discussion of the development and origins of psychological differentiation is supported by research.

Witkin, H.A., H.B. Lewis, M. Hertzman, K. Machover, P.B. Meissner, and S. Wapner, Personality Through Perception: An Experimental and Clinical Study, Westport, Conn., Greenwood Press, 1972 (Originally published: New York, Harper, 1954, 571 p.).

An extensive description of testing procedures and results aimed at establishing the concept of degree of field dependence-independence as a consistent characteristic of the individual's perceptual functioning. The authors succeed in demonstrating a fairly high level of self-consistency and stability in the individual's perceptual style and establish relationships between perceptual construct and certain personality qualities.

APPENDIX 1

THURSTONE'S CLOSURE FLEXIBILITY TEST (FORM A)

CLOSURE FLEXIBILITY

(Concealed Figures)

(Form A)

Please fill in:

Name _____

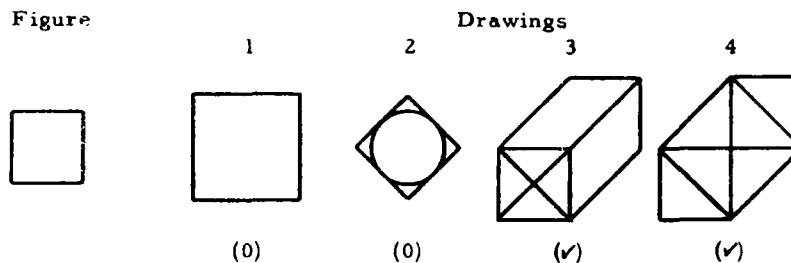
Age _____ Sex _____ Date _____

Occupation _____

Developed by: L.L. Thurstone, Ph.D. and T.E. Jeffrey, Ph.D. - The Psychometric Laboratory - The University of North Carolina

Directions:

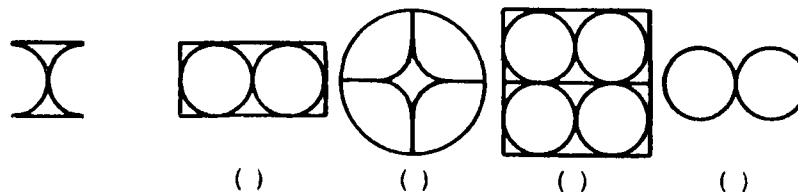
The row of designs below is a sample item of this test. The parts have been labeled to make description easier. These labels do not appear in the test items. The left hand design in each row is the figure. You are to decide whether or not the figure is concealed in each of the four drawings to the right. Put a check mark (✓) in the parentheses under a drawing, if it contains the figure. Put a zero (0) in the parentheses under a drawing, if it does not contain the figure. Look at the row of designs below.



In the row above a zero (0) has been written in the parentheses under drawing 1. The first drawing is a square but it is larger than the figure. A zero (0) has been written under drawing 2. Although the second drawing contains a square of exactly the same size as the figure, it has been turned. Check marks (✓) have been written under the third and fourth drawings since they each contain a square of exactly the same size as the figure and have not been turned. It does not matter that the figure contained in drawings three and four is on a different level from the figure at the left.

Sample:

Here is another example for practice. Try it.



You should have placed check marks (✓) in the parentheses under the first and third drawings and zeros (0) in the parentheses under the second and fourth drawings.

WHEN YOU GET THE SIGNAL TO BEGIN, turn the page and mark more problems of the same kind. Work as fast and as accurately as you can, but do not guess. Wrong answers will count against you. You are not expected to finish in the time allowed. You will have exactly ten minutes to do as much as you can.

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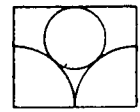
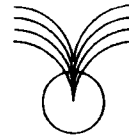
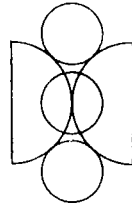
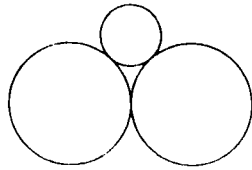
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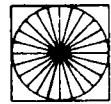
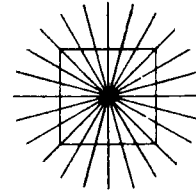
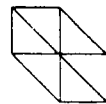
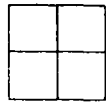
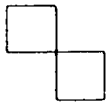


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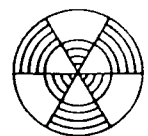
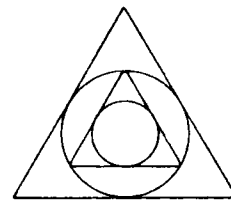
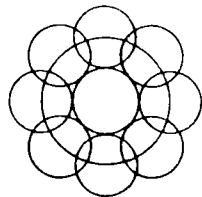
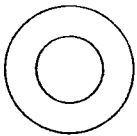


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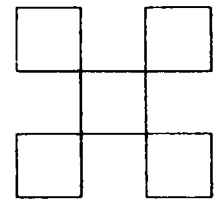
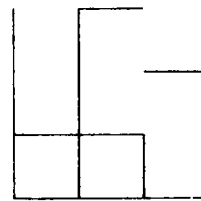
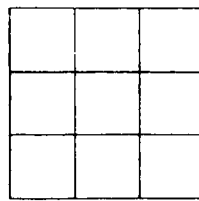
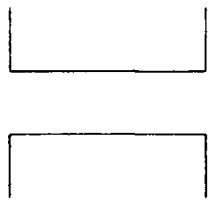
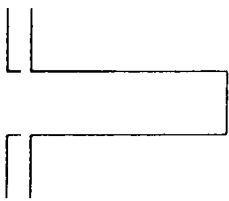


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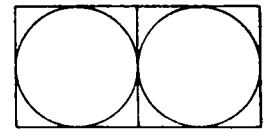
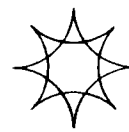
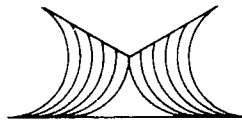
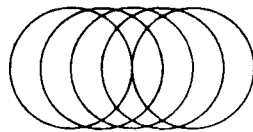


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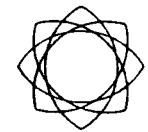
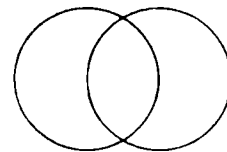
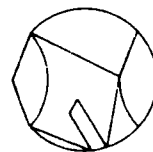
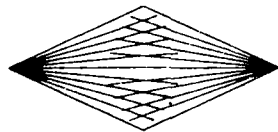
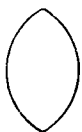


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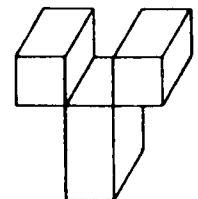
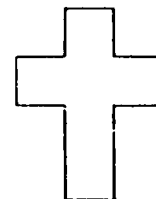
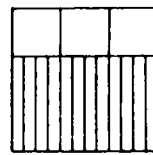
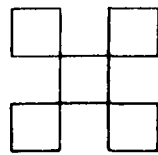
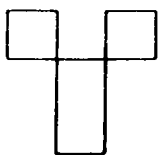


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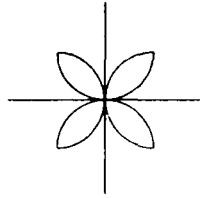
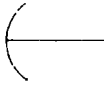
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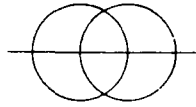
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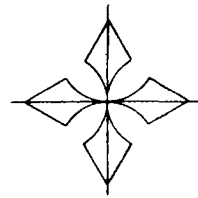
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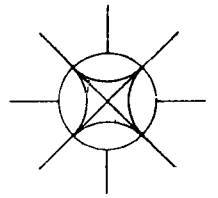
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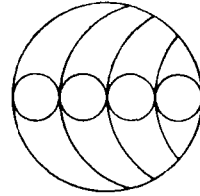
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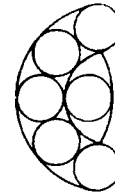
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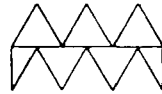
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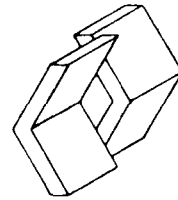
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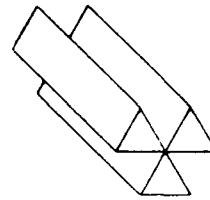
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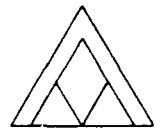
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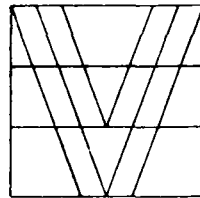
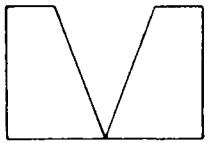
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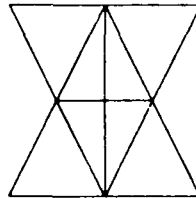
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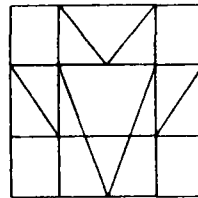
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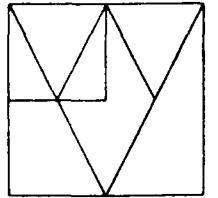
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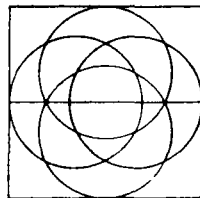
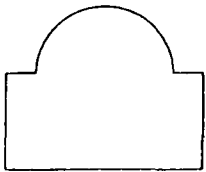
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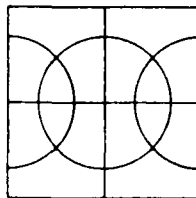
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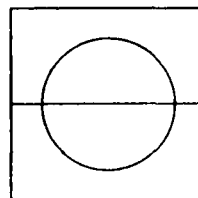
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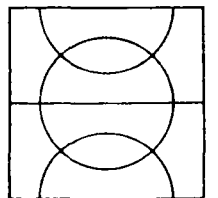
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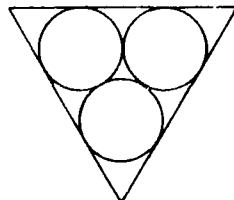
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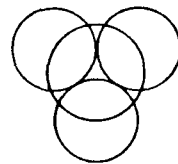
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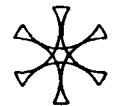
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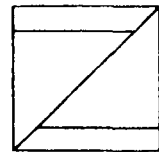
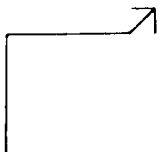
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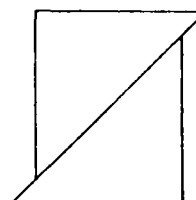
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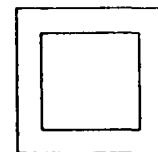
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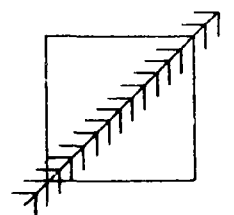
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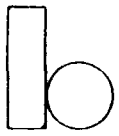
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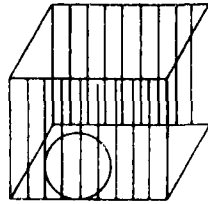
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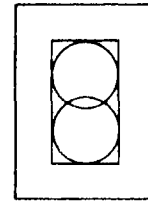
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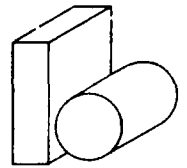
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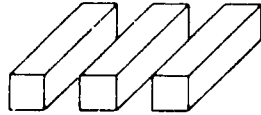
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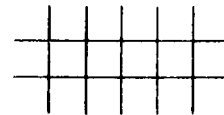
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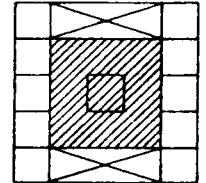
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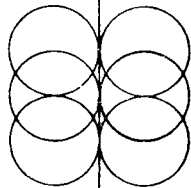
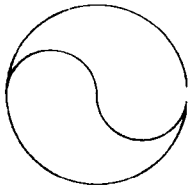
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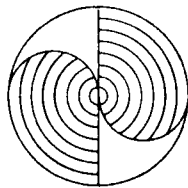
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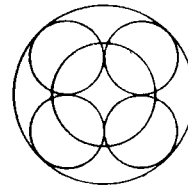
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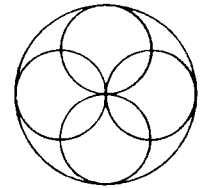
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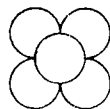
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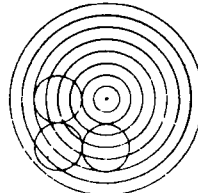
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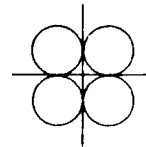
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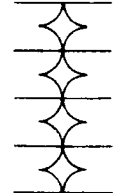
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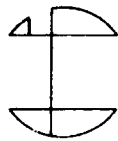
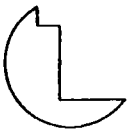
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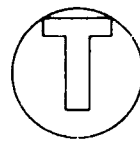
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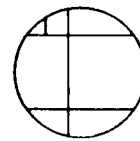
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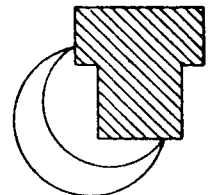
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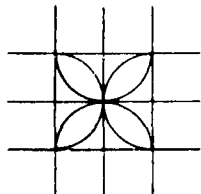
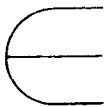
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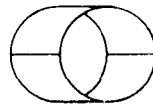
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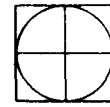
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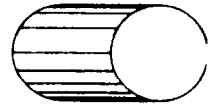
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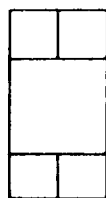
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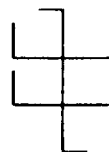
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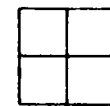
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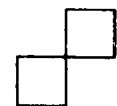
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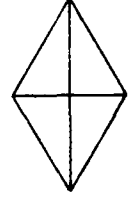
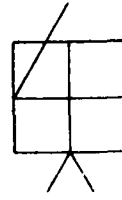
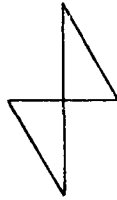
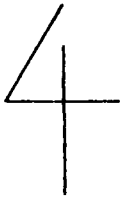


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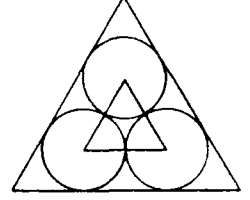
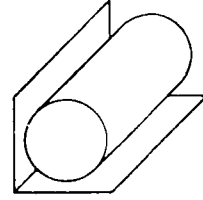
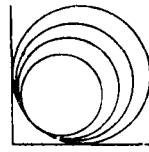
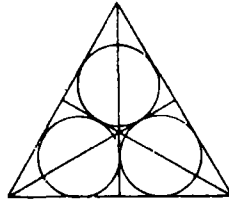
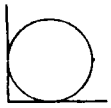


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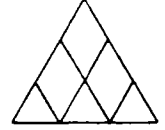
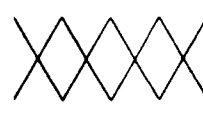


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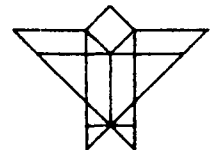
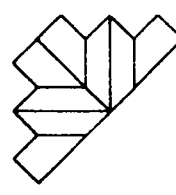
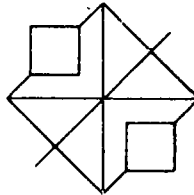
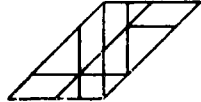


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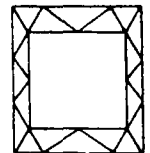
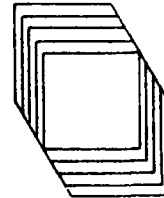
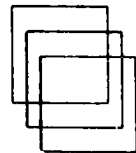
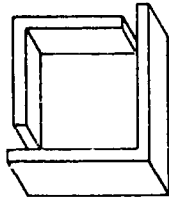
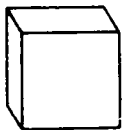


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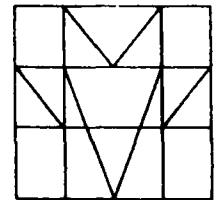
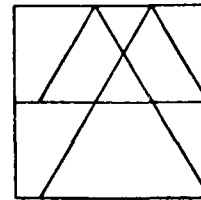
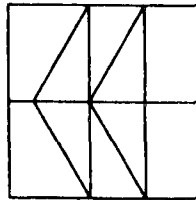
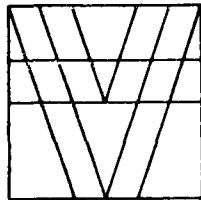
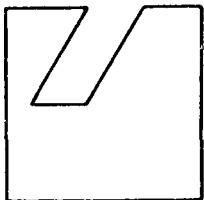


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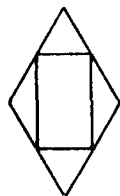


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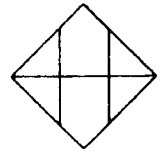
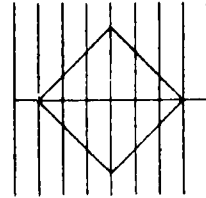
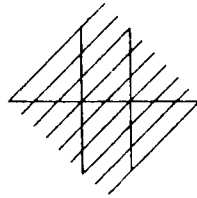
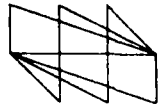
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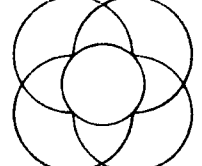
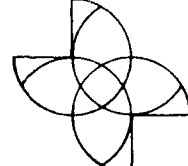
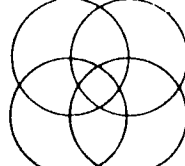
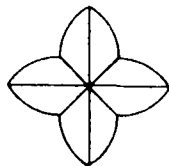
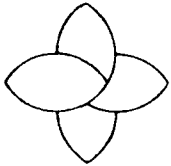


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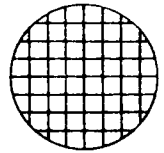
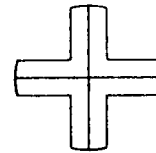
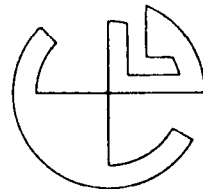
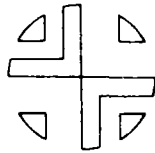


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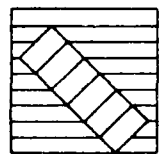
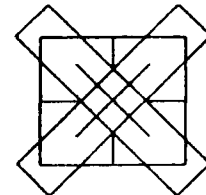
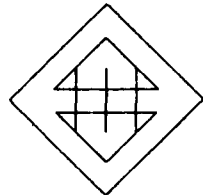
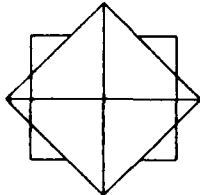


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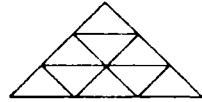
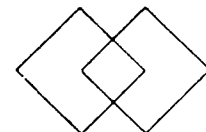
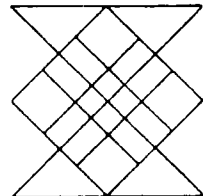
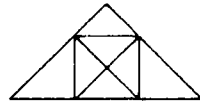


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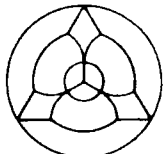
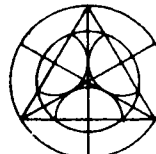
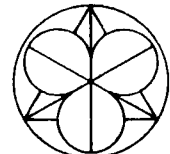
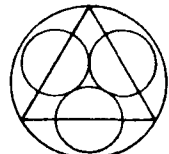
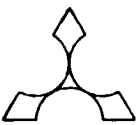


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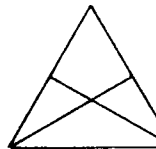
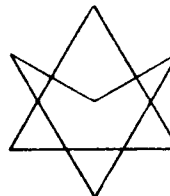
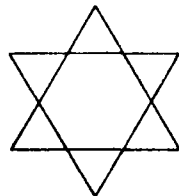
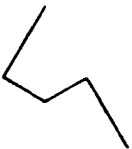


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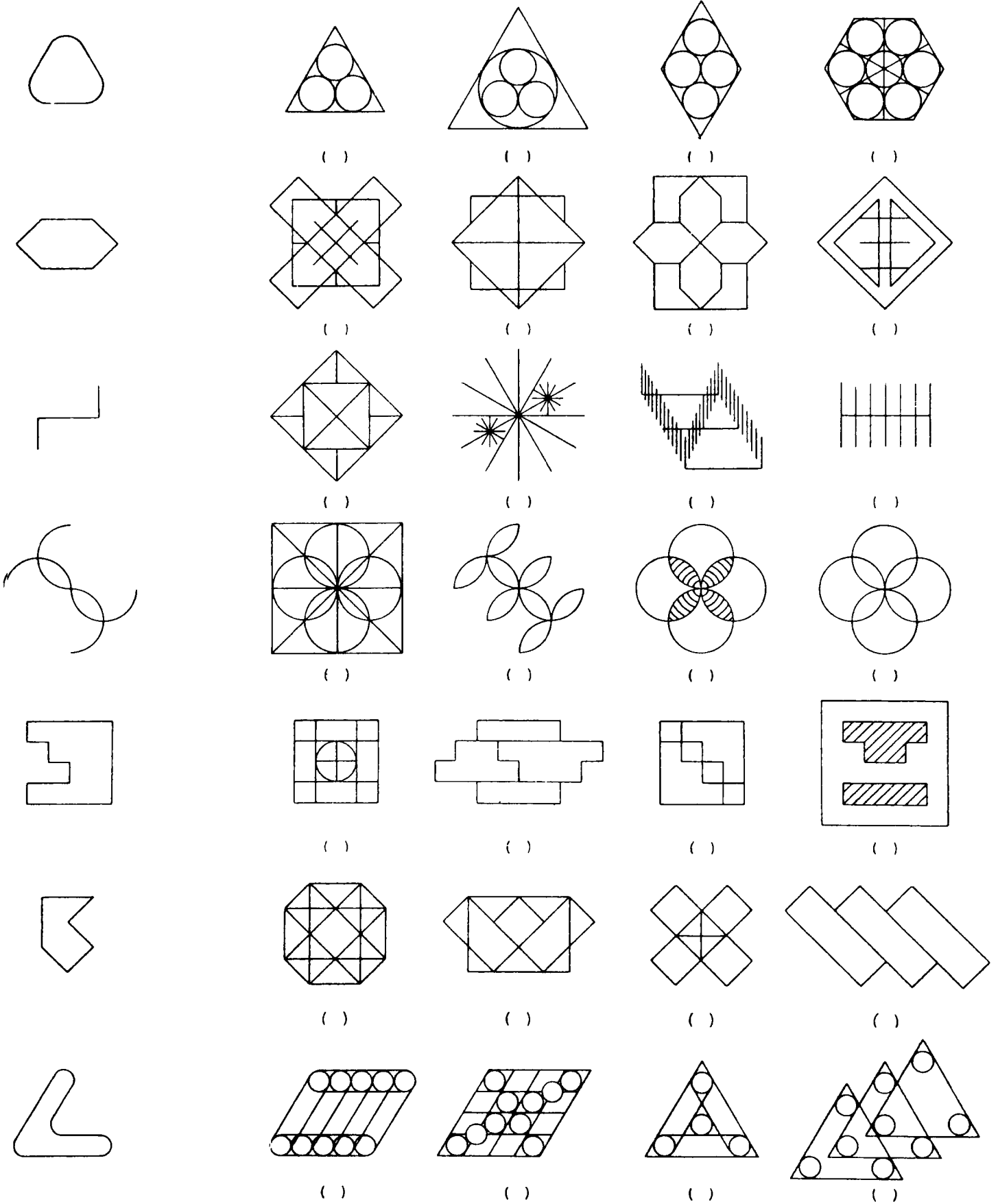
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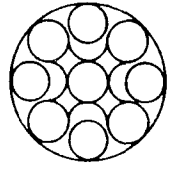
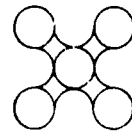
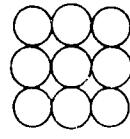
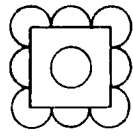
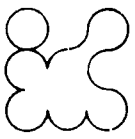
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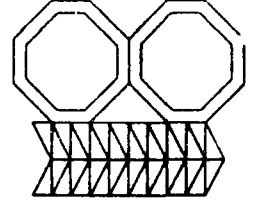
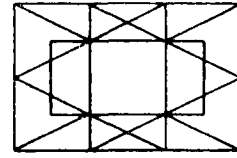
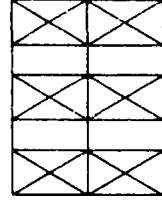
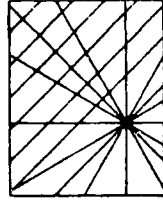


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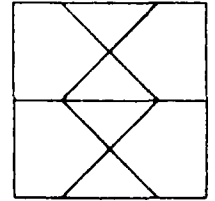
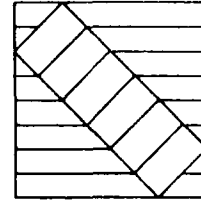
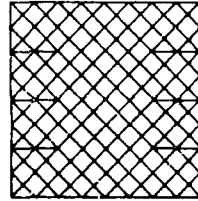
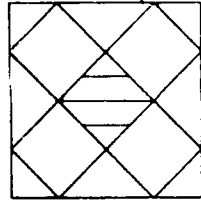
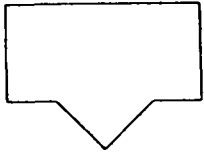


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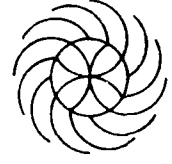
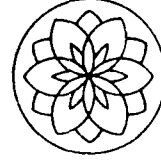
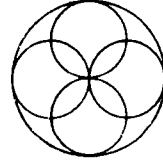


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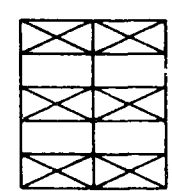
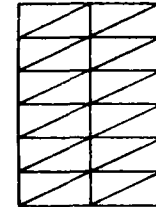
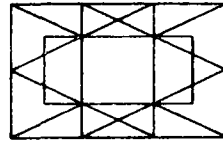
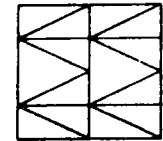
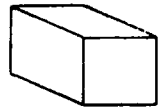


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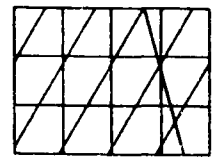
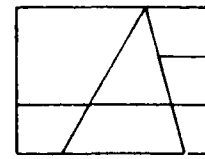
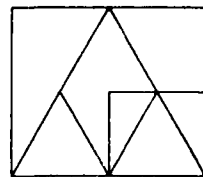
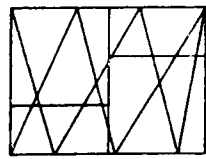
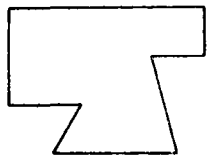


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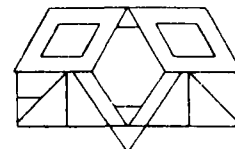
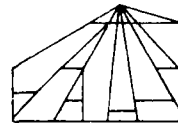
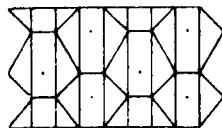
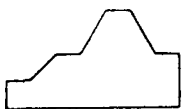


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STOP HERE -- WAIT FOR FURTHER INSTRUCTIONS.

APPENDIX 2

BATTERY OF QUESTIONNAIRES
used to collect data relevant to the
F Scale, the Dogmatism Scale, and the
Integrative Orientation among other measures

STUDENT NUMBER: _____

SEX: FEMALE _____ MALE _____

AGE: _____

QUESTIONNAIRES

Please fill in the following section and proceed immediately to answer the questionnaires. For the results of this project to be meaningful, it is important that you now answer all questions and that you be as accurate and as frank as possible.

GENERAL INFORMATION SHEET

1. (a) During the last 12 months have you had the opportunity to use French outside of classes? Yes _____ No _____

(b) If yes, in what ways and where _____

2. Please indicate all languages that are spoken in your home:

English _____

French _____

German _____

Italian _____

Spanish _____

Others (please specify) _____

3. Please indicate which language you speak well:

French _____

German _____

Italian _____

Spanish _____

Others (please specify) _____

INSTRUCTIONS

The following statements are ones with which many people agree, and many people disagree. There are no right or wrong answers since many people have different opinions. Please indicate your agreement or disagreement by writing on the line preceding each statement the number from the following scale which best describes your feelings:

- | | |
|--------------------------------|--------------------------------------|
| +1 slight support, agreement | -1 slight opposition, disagreement |
| +2 moderate support, agreement | -2 moderate opposition, disagreement |
| +3 strong support, agreement | -3 strong opposition, disagreement |

- _____ (1) French Canadians have preserved much of the beauty of the old Canadian folkways.
- _____ (2) I would rather spend my time on subjects other than French.
- _____ (3) French Canadians are a very sociable, warm-hearted and creative people.
- _____ *(4) Studying French can be important for me because it will allow me to be more at ease with fellow Canadians who speak French.
- _____ (5) Studying French can be important for me because I need it in order to complete university credits.
- _____ (6) Some of our best citizens are of French-Canadian descent.
- _____ (7) Studying French can be important for me because it will make me appear more cultured.
- _____ (8) I plan to learn as much French as possible.
- _____ (9) The French Canadian has every reason to be proud of his culture.
- _____ (10) French is an important part of the university programme.
- _____ (11) English Canadians should make a greater effort to learn the French language.
- _____ (12) Studying French can be important for me because it will help me if I should ever travel.
- _____ (13) I hate French.
- _____ *(14) Studying French can be important for me because it will enable me to think and behave like French Canadians.
- _____ (15) I love learning French.
- _____ *(16) Studying French can be important for me because it will allow me to meet and converse with more and varied people.
- _____ (17) Most French Canadians are so friendly and easy to get along with that Canada is fortunate to have them.
- _____ (18) I would like to know more French Canadians.
- _____ (19) French Canadians add a distinctive flavor to the Canadian culture.

- ___ (20) I really enjoy learning French.
- ___ (21) When I complete this course I shall give up the study of French entirely because I am not interested in it.
- ___ (22) The French-Canadian heritage is an important part of our Canadian identity.
- ___ (23) Studying French can be important for me because other people will respect me more if I have a knowledge of a foreign language.
- ___ (24) Studying French can be important for me because I think it will someday be useful in getting a good job.
- ___ *(25) Studying French can be important for me because I will be able to participate more freely in the activities of other cultural groups.
- ___ (26) Learning French is a waste of time.
- ___ (27) If Canada should lose the French culture of Quebec, it would indeed be a great loss.
- ___ (28) Studying French can be important for me because I feel that no one is really educated unless he is fluent in the French language.
- ___ *(29) Studying French can be important for me because it will help me to appreciate the problems that French people have in a predominantly English-speaking country.
- ___ (30) Learning French is really great.
- ___ *(31) Studying French can be important for me because it will help me to understand French Canadians and their way of life.
- ___ (32) Studying French can be important for me because it will make me a more knowledgeable person.
- ___ (33) I think that learning French is dull.
- ___ (34) Studying French can be important for me only because I'll need it for my future career.
- ___ *(35) Studying French can be important for me because it will enable me to gain good friends more easily among French-speaking Canadians
- ___ (36) The more I get to know the French Canadians the more I want to be fluent in their language.
- ___ *(37) Studying French can be important for me because it will enable me to better understand and appreciate French Canadian art and literature.

* Items which were used to measure the dependent variable (integrative orientation).

INSTRUCTIONS

Please answer each of the following items by circling the letter of the alternative which appears to be most applicable to you.

1. If I had the opportunity and knew enough French, I would read French magazines and newspapers:
 - (a) as often as I could.
 - (b) not very often.
 - (c) never.
2. If there were French-speaking families in my neighbourhood, I would:
 - (a) speak French with them as much as possible.
 - (b) speak French with them sometimes.
 - (c) speak French with them only if I had to.
 - (d) never speak French with them.
3. When it comes to French assignments I:
 - (a) just skim over them.
 - (b) put some effort into them, but not as much as I could.
 - (c) work very carefully, making sure I understand everything.
4. Compared to my other courses, I like French:
 - (a) the most.
 - (b) least of all.
 - (c) the same as all the others.
5. During French class, I would like:
 - (a) to have only French spoken.
 - (b) to have a combination of French and English spoken.
 - (c) to have as much English as possible spoken.
6. When I hear a French song on the radio I:
 - (a) change the station.
 - (b) listen to the music, paying attention only to the easy words.
 - (c) listen carefully and try to understand all the words.
7. If French were not taught at university I would:
 - (a) not bother learning French at all.
 - (b) try to obtain lessons in French somewhere else.
 - (c) pick up French in everyday situations (i.e. read French books and newspapers, try to speak it whenever possible, etc...).
 - (d) none of these (explain) _____
8. If it were up to me whether or not to take French I:
 - (a) don't know whether I would take it or not.
 - (b) would definitely take it.
 - (c) would drop it.
9. If I had the opportunity to speak French outside of classes, I would:
 - (a) never speak it.
 - (b) speak it occasionally, using English whenever possible.
 - (c) speak French most of the time, using English only if really necessary.
10. I find studying French:
 - (a) very interesting.
 - (b) no more interesting than most subjects.
 - (c) not interesting at all.

11. When I have a problem understanding something we are learning in French class I:
 - (a) just forget about it.
 - (b) immediately ask the teacher for help.
 - (c) only seek help just before the exam.
12. Considering how I study French, I can honestly say that I:
 - (a) will pass on the basis of sheer luck or intelligence, because I do very little work.
 - (b) really try to learn French.
 - (c) do just enough work to get along.
13. After I get my French assignments back I:
 - (a) just forget about them.
 - (b) always rewrite them, correcting my mistakes.
 - (c) look them over, but don't bother correcting mistakes.
14. If I had the opportunity to see a French play, I would:
 - (a) definitely go.
 - (b) go only if I had nothing else to do.
 - (c) not go.
 - (d) none of these (explain) _____
15. If my professor wanted someone to do an extra French assignment I would:
 - (a) definitely not volunteer.
 - (b) only do it if the professor asked me directly.
 - (c) definitely volunteer.
16. If there were a French Club at my university I would:
 - (a) definitely not join.
 - (b) be most interested in joining.
 - (c) attend meetings once in a while.
17. I actively think about what I have learned in my French classes:
 - (a) hardly ever.
 - (b) once in a while.
 - (c) very frequently.
18. If the opportunity arose and I knew enough French, I would watch French T.V. programmes:
 - (a) never.
 - (b) sometimes.
 - (c) as often as possible.
19. When I am in French class I:
 - (a) never say anything.
 - (b) answer only the easier questions.
 - (c) volunteer answers as much as possible.
20. I am studying French because:
 - (a) I think it will some day be useful in getting a good job.
 - (b) I think it will help me to better understand French people and their way of life.
 - (c) It will allow me to meet and converse with more and varied people.
 - (d) A knowledge of two languages will make me a better educated person.

INSTRUCTIONS

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +1, +2, +3, or -1, -2, -3, depending on how you feel in each case.

+1: I agree a little
+2: I agree on the whole
+3: I agree very much

-1: I disagree a little
-2: I disagree on the whole
-3: I disagree very much

- _____ (1) Obedience and respect for authority are the most important virtues children should learn.
- _____ (2) The United States and Russia have just about nothing in common.
- _____ (3) A person who has bad manners, habits, and breeding can hardly expect to get along with decent people.
- _____ (4) The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.
- _____ (5) If people would talk less and work more, everybody would be better off.
- _____ (6) Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
- _____ (7) The businessman and the manufacturer are much more important to society than the artist and the professor.
- _____ (8) It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.
- _____ (9) Science has its place, but there are many important things that can never possibly be understood by the human mind.
- _____ (10) Man on his own is a helpless and miserable creature.
- _____ (11) Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.
- _____ (12) Fundamentally, the world we live in is a pretty lonesome place.
- _____ (13) What this country needs most, more than laws and political programs, is a few courageous, tireless, devoted leaders in whom the people can put their faith.
- _____ (14) Most people just don't give a "damn" for others.

- _____ (15) No sane, normal, decent person could ever think of hurting a close friend or relative.
- _____ (16) I'd like it if I could find someone who would tell me how to solve my personal problems.
- _____ (17) It is only natural for a person to be rather fearful of the future.
- _____ (18) There is so much to be done and so little time to do it in.
- _____ (19) Nobody ever learned anything really important except through suffering.
- _____ (20) Once I get wound up in a heated discussion I just can't stop.
- _____ (21) In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.
- _____ (22) What the youth needs is strict discipline, rugged determination, and the will to work and fight for family and country.
- _____ (23) In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what others are saying.
- _____ (24) It is better to be a dead hero than to be a live coward.
- _____ (25) An insult to our honor should always be punished.
- _____ (26) While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.
- _____ (27) The main thing in life is for a person to want to do something important.
- _____ (28) If given the chance I would do something of great benefit to the world.
- _____ (29) Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped, or worse.
- _____ (30) In the history of mankind there have probably been just a handful of really great thinkers.
- _____ (31) There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.
- _____ (32) There are a number of people I have come to hate because of the things they stand for.
- _____ (33) A man who does not believe in some great cause has not really lived
- _____ (34) It is only when a person devotes himself to an ideal or cause that life becomes meaningful.
- _____ (35) Of all the different philosophies which exist in this world there is probably only one which is correct.

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- (36) A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.
- (37) To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.
- (38) When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.
- (39) Most of our social problems would be solved if we could somehow get rid of the immoral, crooked, and feeble-minded people.
- (40) In times like these, a person must be pretty selfish if he considers primarily his own happiness.
- (41) Homosexuals are hardly better than criminals and ought to be severely punished.
- (42) When a person has a problem or worry, it is best for him not to think about it, but to keep busy with more cheerful things.
- (43) Every person should have complete faith in some supernatural power whose decisions he obeys without question.
- (44) The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.
- (45) In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.
- (46) A group which tolerates too much differences of opinion among its own members cannot exist for long.
- (47) There are two kinds of people in this world: those who are for the truth and those who are against the truth.
- (48) Some people are born with an urge to jump from high places.
- (49) My blood boils whenever a person stubbornly refuses to admit he's wrong.
- (50) People can be divided into two distinct classes: the weak and the strong.
- (51) A person who thinks primarily of his own happiness is beneath contempt.
- (52) Most of the ideas which get printed nowadays aren't worth the paper they are printed on.
- (53) Some day it will probably be shown that astrology can explain a lot of things.
- (54) In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

- _____ (55) Wars and social troubles may someday be ended by an earthquake or flood that will destroy the whole world.
- _____ (56) It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.
- _____ (57) No weakness or difficulty can hold us back if we have enough will power.
- _____ (58) In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.
- _____ (59) It is best to use authorities to keep order and prevent chaos.
- _____ (60) The present is all too often full of unhappiness. It is only the future that counts.
- _____ (61) Most people don't realize how much our lives are controlled by plots hatched in secret places.
- _____ (62) If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all".
- _____ (63) Human nature being what it is, there will always be war and conflict.
- _____ (64) Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.
- _____ (65) Familiarity breeds contempt.
- _____ (66) Most people just don't know what's good for them.
- _____ (67) Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them.
- _____ (68) Nowadays more and more people are prying into matters that should remain personal and private.
- _____ (69) The wild sex life of the old Greeks and Romans was tame compared to some of the goings-on in this country, even in places where people might least expect it.

APPENDIX 3

RAW DATA
derived from the above measures

ID	AGE	SEX	INT-DR1	TOT-INT	INT-MOT	FD/FI	DOG	FSCALE	ACH-SCORE
40	20	2	11	27	-7.5830479	100	127	70	
169	25	2	19	32	-6.4589138	83	147	102	
269	28	1	24	39	5.2635870	31	111	131	
275	34	2	26	47	0.0215032	56	164	92	
277	45	1	24	43	1.9452782	76	183	135	
279	36	2	26	41	3.7079821	55	115	106	
2082	46	2	27	47	5.1968451	82	150	94	
2637	35	2	22	35	3.5364323	81	138	80	
11738	34	1	18	26	2.5034056	23	130	95	
15720	34	1	23	32	1.2364769	14	133	99	
22506	42	1	17	35	4.9388189	77	146	97	
31124	42	1	26	38	-0.3663967	65	158	110	
31350	50	1	20	29	-1.1658106	73	125	98	
37713	37	2	27	46	1.9529476	42	97	44	
37727	25	2	22	37	-1.8403072	88	184	137	
39078	24	1	27	45	2.2687120	103	150	82	
39282	27	2	26	45	4.0406008	94	159	129	
39314	20	2	26	48	6.5611019	80	179	153	
72315	28	2	18	34	-0.8904124	60	165	128	
120619	29	1	22	39	-3.1419353	97	161	119	
124691	37	1	24	40	5.1347857	58	112	105	1.106
144944	23	1	16	28	-1.5504265	90	118	86	0.542
151336	26	1	25	43	0.5881616	43	146	72	0.652
152095	24	2	17	30	-4.9959831	24	115	85	
153491	21	2	22	43	2.9165382	-80	155	101	
156958	22	2	19	37	-1.9401302	59	182	102	-1.051
158997	22	2	26	48	-0.5384030	54	124	117	
160902	30	2	28	52	4.7999821	24	191	142	
162353	21	1	24	43	1.7912760	86	131	88	0.195
162391	21	2	28	56	2.9446535	118	119	71	
162549	22	1	22	36	3.8104372	74	115	68	
163458	40	2	28	49	5.0925865	22	0	169	0.0
163798	23	2	11	24	-5.1650763	67	169	127	1.796
165892	25	2	14	22	-2.9421501	95	151	112	0.352
168422	21	1	21	26	-2.1888123	100	117	102	0.400
168525	35	1	26	45	4.9100304	55	188	111	0.400
169283	25	2	25	39	1.8519878	59	142	112	
169456	21	1	28	50	6.9786415	59	189	108	0.319
169492	21	2	18	33	-3.1725035	70	159	106	0.875
169496	33	1	24	45	3.8337526	76	77	42	-1.355
170746	21	1	22	32	0.5898724	60	115	68	0.495
171396	23	2	21	36	0.9947526	105	164	119	1.379
171583	21	1	24	33	-1.8320408	70	0	96	0.939
171912	23	1	21	28	1.3657360	75	116	96	-1.133
172719	21	1	27	46	5.1890793	52	138	103	1.348
172803	20	1	22	33	-4.5247545	102	145	106	0.914
173247	23	2	20	33	-4.8657389	38	175	140	
173386	21	1	21	34	-0.8540680	86	150	103	1.406
173521	21	1	22	40	-2.3073301	52	128	82	1.133
174159	22	2	27	53	3.9545679	80	190	127	-1.116
174904	22	1	24	42	4.1398277	89	132	91	-0.481
175314	21	2	20	34	-4.6138535	58	159	117	-0.852
175617	23	2	9	17	-7.3622847	86	169	134	
175736	21	2	25	43	2.8921604	76	0	95	-0.440
175972	21	2	22	39	-0.9863229	61	186	144	-1.580
176361	25	2	10	14	-4.0118790	30	105	71	-0.217
176406	20	1	26	48	2.1487379	67	132	84	-0.161
180123	23	2	22	37	0.1521501	44	183	151	
180410	29	1	25	49	2.3662634	62	102	63	
180754	31	1	24	44	1.2812824	62	112	56	0.0
181037	19	1	21	32	-1.4627314	31	157	86	-0.225
182229	22	1	12	17	-5.1943293	124	123	87	
183116	20	2	19	31	-1.5740595	50	145	76	-0.185
183359	21	1	21	35	-4.7949753	33	109	77	
183455	20	1	24	40	1.9260683	86	171	139	0.751
183588	20	2	27	43	2.1230049	66	134	75	0.432
183598	20	2	22	33	-4.6426640	67	185	107	-0.117
183825	20	2	22	32	-0.8869326	68	132	120	0.710
183836	20	1	26	44	3.9485626	84	146	130	0.068
183839	20	1	20	37	2.8922157	123	134	107	
183855	21	1	25	43	2.8340187	62	157	110	
183997	19	2	22	39	-2.1550760	94	162	122	-0.964
184156	22	1	24	41	2.8156309	46	108	85	-1.230
184177	21	1	13	28	-1.5540133	74	163	107	-1.590
184207	21	1	28	50	6.5705376	54	120	84	0.546
184266	21	2	12	26	-10.6480885	64	146	122	
184433	20	1	22	38	-2.7777920	88	130	79	-0.400
184467	20	1	20	36	-6.0571203	82	140	97	0.232
184480	21	1	17	37	-1.1509657	42	158	116	-1.137
184576	20	2	26	40	1.4449034	50	116	104	-0.666
184668	20	2	23	40	-0.8800367	92	152	91	
184780	21	1	26	43	3.4226093	88	120	78	0.434
184923	20	2	27	45	0.0615800	71	165	100	0.674
185378	20	1	19	40	-1.2764015	85	159	94	-0.394
185445	20	1	26	44	5.1776352	73	141	112	1.519

185479	20	1	16	26	-5.0702372	70	133	119	97
185628	21	2	24	45	2.7160673	65	153	113	0.0
185793	20	2	18	26	-6.6654539	44	155	113	1.341
185926	20	1	27	49	3.9417906	67	159	129	0.979
185928	19	1	13	22	-7.2117434	82	109	103	0.939
186005	20	1	16	24	0.9124241	112	125	102	0.542
186063	21	1	18	32	2.2967758	84	161	92	0.103
186179	20	2	17	25	-1.6204014	40	184	156	0.922
186193	21	1	25	47	4.2593937	104	158	93	1.090
186316	20	1	22	41	-0.3575218	44	178	114	-1.416
186343	20	1	25	48	2.2285757	29	149	94	
186470	20	2	20	38	-2.6291580	117	132	77	1.287
186569	19	1	19	26	-4.7771349	90	138	100	0.008
186578	20	2	28	49	5.5656757	65	100	55	1.828
186665	19	2	27	49	4.0331125	46	184	129	
186702	20	2	20	38	-2.9938707	78	129	107	0.041
187210	20	1	25	39	-0.6535651	90	121	79	-1.433
187266	20	1	25	41	0.1471717	127	174	107	-1.590
187324	19	1	28	50	3.8186302	48	122	91	-0.203
187375	20	1	22	30	-1.3579702	77	152	88	-1.351
187524	19	2	15	23	-8.0533924	52	126	94	
187570	20	2	25	42	2.0029755	97	100	81	
187622	20	1	13	32	-4.1540899	86	139	65	-0.007
187806	21	2	23	31	-6.4412966	68	151	96	0.280
187968	20	1	25	36	1.8134413	99	160	64	0.849
188193	21	2	28	56	-2.6278543	66	41	28	
188232	18	1	26	51	0.9557079	70	181	136	0.103
188359	18	2	12	26	-3.9688034	116	179	116	1.519
188755	20	2	22	37	2.5708952	110	178	126	0.797
188943	21	2	27	47	4.9339886	86	132	97	0.915
189049	21	2	14	25	-3.9169750	71	118	118	
189469	20	1	26	46	1.0636549	68	159	118	-1.962
189540	18	1	26	42	-0.3147416	82	117	62	-0.053
189570	21	2	23	45	4.0532427	78	188	113	-0.791
189697	30	2	26	43	-0.6383547	116	118	94	
189765	22	2	17	28	-6.3134251	53	169	115	-1.755
190026	21	1	28	48	2.6028700	64	160	73	-0.519
190221	21	2	20	31	-5.5724173	106	0	140	
190309	24	1	16	26	-4.9808960	81	190	143	
190366	25	2	25	45	4.8498592	84	126	86	0.856
190422	20	1	24	41	-0.2228569	78	138	86	0.294
190528	22	2	28	50	3.3640747	100	111	70	-1.978
190539	19	1	15	22	-6.5395555	86	142	89	0.419
190760	22	2	16	33	-0.4768832	50	150	102	0.915
190808	33	1	28	56	7.0978699	58	173	112	
191017	20	1	23	35	-0.0839985	81	111	87	0.570
191347	49	2	23	40	1.4567165	72	127	80	0.617
191439	21	1	13	25	-1.0329657	75	128	73	0.397
191506	21	1	28	52	6.0341215	98	162	88	1.758
191782	21	2	12	24	-5.7785969	102	135	101	
191914	21	1	16	30	-3.1052313	65	198	152	
192501	26	2	26	45	4.5889854	62	103	71	
192766	21	2	24	42	3.3818111	72	196	120	-0.359
193025	25	1	20	33	-1.4336948	38	118	69	-0.668
193465	26	1	26	41	4.4393873	48	138	85	
193665	26	1	26	47	3.1727552	76	129	118	0.946
193717	24	1	23	44	5.1552629	56	141	96	1.095
193855	46	1	21	36	0.6750613	34	96	87	-0.161
194118	30	2	22	36	2.7235022	84	155	99	0.972
194144	24	1	24	33	-1.1699877	93	127	92	0.445
195216	26	2	23	39	-0.7439318	90	152	90	1.487
195320	22	2	16	34	-4.4856625	59	144	112	-1.653
195401	23	1	24	44	5.9754333	76	189	113	1.870
195846	21	2	6	10	-7.1427526	118	94	63	-1.623
195904	24	1	24	29	-0.8733842	60	119	114	-0.467
195975	33	1	25	43	3.5970793	58	137	84	
195982	21	1	27	38	3.5166388	52	151	127	-0.399
196279	28	1	25	41	1.1343832	41	126	100	0.079
196339	33	1	23	34	2.3176756	20	96	74	-0.399
196463	20	2	24	31	-0.5105723	59	102	65	0.024
198096	20	2	26	41	0.9986661	109	167	105	
198316	20	1	25	41	1.1248512	64	132	73	1.051
201028	19	1	25	43	-5.1676416	66	161	118	
201043	19	2	24	45	0.9531054	31	164	118	
201100	18	1	27	48	4.6095247	52	198	141	-0.909
201413	18	1	20	31	-4.2903461	71	151	86	
201431	18	2	13	27	-4.5653019	105	137	100	
201465	18	2	12	26	-4.1482134	72	140	104	
201489	18	2	10	14	-6.8560591	63	111	97	
201502	20	2	26	47	-1.4040327	60	131	84	
201550	18	1	26	45	4.1629009	43	151	95	1.583
201626	19	1	16	28	-2.5046558	99	178	122	1.828
201640	19	1	21	30	-4.1798038	96	146	110	-0.619
201650	19	1	24	44	6.2287560	106	169	113	0.570
201652	19	1	14	31	-6.0129538	108	128	91	
201712	20	2	19	33	-4.0007238	98	126	91	
201733	19	1	14	27	-4.8525381	54	131	92	
201737	19	1	24	46	4.0909567	46	118	86	

201747	18	1	28	55	5.9905262	88	160	112	0.278	9
201763	19	2	18	27	-1.0730648	57	151	96	1.438	
201780	20	2	19	38	-2.1087141	36	189	142	0.211	
201855	19	2	20	32	-0.8800091	108	181	133	0.823	
201929	20	2	19	36	-4.2250557	134	126	114	-0.104	
201960	19	1	16	28	-4.7173824	57	130	92	0.522	
202022	26	2	24	50	4.6489086	44	127	91		
202072	19	2	20	30	-1.7724705	104	122	90		
202112	19	1	16	32	-3.1752539	88	178	124		
202163	17	1	23	38	-0.3783603	86	146	104	0.559	
202172	19	1	24	39	1.0673342	45	142	95		
202207	19	1	10	22	-9.8425312	50	136	112		
202240	20	1	21	37	2.2344265	59	76	76		
202256	19	1	24	33	-2.6185503	80	119	89		
202273	21	2	10	28	-7.7138338	106	190	124		
202291	20	2	17	32	-8.1000042	85	183	140		
202319	20	2	14	30	-5.0463982	48	149	130	-1.135	
202350	18	1	23	39	2.0467196	14	174	146	0.278	
202466	20	2	24	43	2.5817986	60	133	97		
202518	21	2	19	33	-1.7026701	82	160	123		
202525	19	2	15	21	-3.3770552	134	156	109	1.243	
202553	20	1	22	44	1.0055084	94	132	79	-0.389	
202602	19	1	26	42	-2.3150511	77	133	103		
202616	19	1	23	31	-2.8807344	96	116	87		
202781	19	1	14	24	-3.4175901	100	144	113	0.377	
202943	19	2	24	40	-0.1808369	65	133	96		
203048	19	1	18	33	-1.4255438	80	155	108		
203056	18	1	23	42	1.3837852	79	150	103	-0.066	
203083	19	2	28	56	5.8528194	86	149	96		
203123	19	1	14	24	-4.9428282	40	157	117		
203185	19	2	22	39	-3.2594919	72	153	94		
203252	19	1	26	37	0.8096403	79	137	112	-0.159	
203265	19	1	8	15	-8.6223669	85	138	103		
203285	20	1	25	38	0.1081236	-3	143	122		
203395	19	1	17	28	-2.9987383	91	126	83		
203410	19	1	22	38	-2.2048264	42	133	109	0.546	
203491	20	1	19	30	-4.4404020	105	138	102		
203500	19	1	28	55	5.7920570	66	128	65		
203599	19	2	23	36	-2.2312698	102	122	87		
203670	19	2	26	47	-1.2974091	67	128	93		
203688	19	1	20	35	-2.0358496	38	193	125		
203722	18	1	21	33	-1.8394918	20	136	78	0.153	
203829	19	1	14	18	-12.2689896	87	138	76		
203838	18	2	20	34	-0.9301683	106	120	92	1.497	
203842	19	2	27	54	4.8510790	99	148	109		
203843	19	2	24	45	-0.2163234	100	124	79	1.688	
203887	19	1	16	32	-1.3706303	120	159	105		
203924	19	1	22	39	-0.4531131	102	132	91		
203940	20	1	28	54	7.0361147	46	154	98	-1.039	
204038	20	1	26	41	3.0755997	41	97	83	-0.192	
204114	19	1	16	22	-5.8617010	95	105	111	0.564	
204131	20	2	27	46	1.8095570	103	188	126		
204147	19	1	24	38	4.3592052	49	163	100	1.408	
204242	18	2	19	25	1.0445423	71	123	79	0.278	
204278	19	2	25	41	0.8293415	121	142	106		
204283	19	1	12	22	-9.7947502	74	175	109		
204297	21	2	11	18	-14.7796106	46	177	135		
204301	19	1	27	47	5.0456543	58	158	103	0.008	
204303	19	1	28	46	4.5424509	79	98	74	1.408	
204381	18	1	26	46	3.8823776	91	181	111	0.643	
204393	18	1	24	40	-3.3511009	58	123	109	1.089	
204405	18	1	18	30	-4.3701229	98	160	113		
204411	18	1	28	49	6.8325481	110	151	102		
204463	26	2	17	28	-3.6895370	97	199	126		
204491	20	2	19	32	-6.8459997	92	0	153		
204498	22	2	19	33	-4.7531729	24	131	65		
204509	21	2	23	39	-1.2593336	82	0	137		
204517	23	2	24	39	2.3205118	72	199	137		
204523	20	2	23	38	-0.4595253	92	193	136		
204534	19	2	24	39	-2.0013504	55	125	85		
204570	20	2	13	25	-7.4584246	70	147	95		
204580	18	2	16	22	-7.2628603	120	185	124		
204615	20	2	16	30	-10.4736099	82	190	148		
204643	20	1	19	36	-0.0518534	95	155	89	0.499	
204647	20	1	23	43	3.4274006	74	133	85	0.378	
204651	18	1	20	31	0.8401474	82	167	97	0.397	
204699	19	2	19	38	-2.1146841	96	194	133		
204700	19	1	24	40	1.0101881	111	99	77	0.067	
204809	19	1	21	33	3.3640661	59	105	75	0.979	
204835	19	2	13	23	-8.5766191	58	133	87	0.794	
204955	17	1	25	48	3.9992638	119	123	89	2.150	
204969	18	1	28	47	1.4823074	47	188	122	1.180	
204992	18	2	28	47	6.3145323	80	167	91		
204994	18	1	28	47	4.0152998	48	94	78	-0.185	
205118	23	1	25	39	4.1492367	47	129	69		
205131	22	2	14	30	-0.4772546	37	0	152	0.879	
205183	20	2	17	35	-7.1719112	107	181	85		
205219	21	1	21	37	-1.7697525	79	122	77	-0.241	

205450	19	2	18	30	-1.2725182	60	118	90	
205483	19	1	27	44	2.6819143	81	191	138	99
205488	19	1	26	41	2.9370728	44	131	71	
205507	18	1	26	40	-0.6992503	51	168	135	
205548	18	1	21	39	1.7903852	60	0	169	1.574
205595	19	2	28	52	6.5782442	51	185	147	
205607	23	2	14	27	-4.3690901	78	152	96	
205616	22	1	26	44	6.0140562	86	153	85	
205657	19	1	20	39	-1.2595863	86	154	111	-0.852
205687	19	1	28	52	4.5972710	57	133	84	-1.570
205720	19	1	20	32	2.6279554	119	146	86	1.095
205803	19	1	19	27	-3.3588533	68	130	89	0.378
205848	24	1	27	43	3.3177185	73	149	97	
205999	18	2	22	34	-1.9283152	102	166	91	-0.399
206158	18	2	22	40	-2.9808226	84	156	106	
206229	19	1	27	51	5.1079178	80	146	113	1.035
206252	19	2	26	40	-2.7645197	60	142	95	0.204
206291	18	1	18	30	-2.3561182	60	194	161	
206421	20	1	24	40	-1.0343132	88	152	89	
206464	22	2	23	35	-0.2491611	88	104	87	
206499	19	2	20	38	-1.5221071	93	155	110	
206508	19	2	18	30	-4.9185057	104	146	124	
206515	18	1	19	29	-4.5553389	97	144	61	0.250
206551	19	1	21	32	3.1228390	117	139	90	0.570
206578	19	1	26	46	0.5203367	51	92	70	
206584	20	2	19	37	-1.8116884	78	133	91	-0.735
206639	22	2	14	32	-10.0236387	109	0	162	
206645	19	1	23	43	0.2718593	87	127	75	
206691	28	2	28	40	-0.0682446	41	144	85	
206752	34	1	28	51	5.1969557	69	142	109	
206955	19	1	20	34	-2.8624792	70	199	144	
207120	21	1	16	27	-3.9864445	89	108	89	-2.286
207160	20	1	27	47	4.1432152	122	154	92	-0.939
207201	17	1	25	47	-2.2805109	25	141	107	-1.483
207288	19	1	23	45	4.2413054	54	177	133	0.588
207356	21	2	23	40	-0.2765478	73	136	99	-0.400
207391	20	2	17	32	-8.9336147	81	167	121	-0.743
207399	18	1	23	34	-2.1121864	104	161	119	-0.412
207400	19	1	18	28	-3.1705732	97	144	102	
207422	23	2	21	35	-4.6332264	104	175	147	
207477	24	2	24	42	-0.7897877	50	148	104	-0.192
207486	28	2	18	33	-3.2872524	93	129	86	-2.318
207687	25	2	28	54	7.4195843	116	197	82	
207721	20	1	13	21	-3.6368761	88	150	111	-0.053
207794	18	1	24	42	2.1238422	60	127	94	0.972
208016	22	1	21	39	-0.5665070	108	155	116	
208067	19	1	27	41	-2.0711203	95	106	88	
208106	20	1	27	47	4.7951612	68	145	111	
208214	21	1	25	45	1.5885477	51	149	112	0.636
208258	25	2	18	34	-4.2891960	22	115	113	
208262	18	1	22	39	-0.0405960	80	146	126	-0.524
208294	20	2	19	40	-4.5875254	94	170	130	
208301	20	2	18	38	-4.7632036	90	167	124	
208476	21	2	20	38	-0.4286983	43	182	119	0.352
208511	36	2	20	34	2.1346560	70	149	104	
208603	19	2	14	24	-10.1431007	108	167	124	0.232
208731	18	2	25	42	-2.0085011	91	172	113	
208830	17	1	28	48	3.9172688	40	175	127	
208835	19	1	26	41	-0.3953683	55	175	129	
208937	19	1	25	47	1.4856663	44	155	118	-2.208
208961	25	2	25	43	3.5035238	35	128	103	
208964	23	1	21	35	2.8089142	112	132	95	0.103
208983	19	1	23	39	-0.5220628	112	175	151	
209003	31	1	20	38	-0.5108155	20	172	123	
209103	20	2	18	30	-2.8255711	92	146	97	0.153
209122	25	1	26	45	-0.5799830	70	134	99	
209315	24	2	23	37	-0.9800586	40	131	74	0.278
209333	18	1	20	34	-3.8790092	62	102	86	0.534
209368	21	2	27	46	4.0257435	59	139	90	0.067
209449	22	1	22	37	3.3051090	62	127	86	
209486	19	1	20	38	0.0799309	102	92	60	
209614	19	1	22	37	-2.4656420	85	185	130	
209692	24	1	25	44	5.5194473	97	140	93	
209701	30	1	28	50	7.4189482	68	141	77	0.593
209734	24	1	27	55	4.5865068	41	147	112	-2.950
209746	25	1	22	31	0.2498510	61	135	82	0.487
209747	22	2	27	55	3.9245043	111	188	108	-1.190
209763	23	1	27	43	-1.7583475	62	0	135	
209933	24	1	16	28	-5.5777559	84	132	95	0.0
209935	21	2	26	45	3.5191050	74	126	66	-2.198
209941	22	2	18	35	-7.6994286	111	0	142	
209944	19	1	24	44	2.4677935	99	134	72	1.408
209958	21	2	28	38	2.6755753	37	147	86	1.242
209976	20	2	20	34	-5.3444328	66	160	120	
210041	26	1	25	35	2.6311874	86	76	85	
212178	20	2	18	26	0.3046763	56	145	125	-0.250
212565	66	1	25	44	5.1012392	41	125	77	0.797
213189	22	1	26	45	2.8673840	95	124	123	0.082

213273	30	1	25	36	2.8360949	79	76	39	100
213595	23	1	28	54	5.2908592	88	164	108	0.979
213945	47	1	26	49	3.4917765	4	189	141	1.980
214236	54	2	22	35	3.9089956	71	110	69	0.946
214258	25	1	27	51	7.9319811	18	162	126	
214362	47	2	23	24	2.5149870	118	100	67	1.230
214393	32	1	24	43	3.2344980	96	98	102	1.911
214804	23	1	20	36	3.9895477	83	164	129	0.033
214817	29	1	26	46	6.4181547	63	76	68	
214839	52	1	21	37	1.8137836	42	131	98	0.197
214880	33	1	22	43	4.9367628	43	109	67	0.434
215134	23	2	25	44	1.8629265	110	144	78	
215168	20	2	27	47	0.9479421	77	166	100	-0.786
215742	20	1	20	35	-5.9204884	32	109	76	
216751	21	2	28	47	4.0508394	46	181	125	
217012	20	1	17	27	-1.4597464	116	123	75	0.652
217020	22	2	26	46	-0.0814447	69	155	89	
217526	30	2	25	43	4.3164186	52	144	108	
217561	37	1	15	19	-11.1986885	76	155	88	
217655	21	1	25	44	3.7198925	38	124	93	0.434
217700	22	1	27	48	2.6747532	51	139	88	
217781	21	2	19	32	-1.3241558	80	180	88	1.804
217838	25	2	26	42	3.1330280	67	135	80	
218051	19	2	25	47	1.9058590	109	165	109	0.420
218064	21	2	27	50	2.5492239	142	126	93	
218522	20	2	25	39	1.6099758	54	124	93	
218529	20	2	27	50	2.2228374	102	110	98	0.822
218547	20	1	26	45	4.6791019	86	125	95	2.266
218694	28	2	22	35	0.2921508	119	113	78	
218774	22	1	19	34	-0.9982141	102	159	108	0.197
219015	21	2	22	42	1.8223600	92	0	149	0.872
219304	22	1	14	26	1.2421026	48	75	60	0.118
219313	28	1	22	39	-1.8110313	98	178	126	
219428	21	1	20	36	-1.1590052	42	142	81	
219545	21	2	20	38	2.5299530	76	119	79	
219546	21	2	20	38	2.3452024	76	118	79	
219562	20	1	24	45	0.6648170	74	128	83	0.779
219614	19	2	25	40	3.7841911	104	154	119	-0.519
219992	35	1	28	47	6.2168369	60	110	68	0.494
219999	50	1	28	49	6.7673359	58	141	94	-0.524
220015	18	1	25	45	3.6114788	91	130	88	0.352
220041	26	1	24	39	2.1931477	94	148	96	
220058	24	1	19	30	0.5258336	-1	178	148	
220072	35	1	24	39	3.8421640	106	169	128	
220086	21	1	23	33	-0.2992052	68	143	79	
220101	21	2	25	45	-0.9438919	84	186	142	
220132	21	1	13	27	-6.2688951	56	117	70	-1.112
220216	25	1	20	38	2.7149563	85	152	103	
220260	38	1	25	36	1.8042870	70	137	83	0.689
220302	26	1	20	31	-3.0919962	91	117	92	0.436
220320	42	1	28	47	4.9588699	79	126	95	
220389	23	2	27	47	5.9313087	70	186	147	
220407	26	2	26	42	2.6691675	42	151	92	1.266
220428	33	1	28	45	5.0211678	35	90	62	0.008
220504	41	1	13	21	-6.1902342	22	114	85	
220567	25	1	23	36	-0.3424239	92	183	149	
220597	26	1	26	43	0.4748939	80	0	150	
220604	25	1	25	43	3.5438299	66	145	129	0.033
220683	19	2	27	46	4.7713966	104	125	78	-0.909
220707	20	1	27	54	4.8574724	138	138	118	
220728	28	1	28	50	5.4298496	58	158	62	1.408
220760	18	1	21	36	0.7727302	86	147	75	0.282
220799	20	2	21	40	-0.9099844	131	185	129	
220869	24	1	27	49	6.6774960	79	145	94	
328306	20	1	23	36	-1.1255732	81	132	91	

APPENDIX 4

ABSTRACT OF

An Examination of the Interaction Between Personality and Cognitive Factors as they Relate to Attitudes Towards Second-Language Learning¹

An examination was made of the relationships and interaction between the personality traits summarized by authoritarianism, the cognitive variable described as psychological differentiation and the affective variable of the integrative orientation towards the learning of French as a second language. The prediction was made that extremely low scorers on authoritarianism would demonstrate a significantly higher integrative orientation than extremely high scorers. It was also predicted that there would be significant interaction between the independent variables of psychological differentiation and authoritarianism on the integrative orientation as the dependent variable. The interaction would be of such a type that among low authoritarians the field dependent or less psychologically differentiated person would be significantly more integratively oriented than his counterpart: however, the reverse would be true among high authoritarians.

¹ Grace M.H. Gayle, doctoral thesis presented to the School of Graduate Studies of the University of Ottawa, Ottawa, June 1976, xi-102 p.

A non-random sample of 414 non-French students registered in first and second year French courses at the University of Ottawa was tested. Measuring instruments included Gardner's Likert-type Scale for the integrative orientation, both the F Scale and Dogmatism Scale as measures of authoritarianism and Thurstone's Test for Closure-Flexibility (Form A) as a means of assessing psychological differentiation. Data were analyzed by a two-way analysis of variance technique.

For this particular sample significant results supporting the hypotheses stated were not found at the .05 level. However, it is possible that this was due to the social and political climate in Ottawa at the time that the data were collected.

A significant main effect for psychological differentiation emerged indicating that field dependent persons tended to be more integratively oriented towards the learning of French as a second language.