

MOTIVATIONAL VARIABLES IN SECOND-LANGUAGE ACQUISITION

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During the summer of 2005, I discovered that there was not a copy of my dissertation available from the library at McGill University. I was, however, able to obtain a copy of it on microfilm from another university that had initially obtained it on interlibrary loan. I am most grateful to Vicki Galbraith who typed this version from that copy, which except for some minor variations due to differences in type size and margins (plus this footnote, of course) is identical to that on the microfilm.

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INTRODUCTION

Outline of the Problem

Most previous research on second-language acquisition has been guided by the belief that the acquisition of skill in a second language depended almost completely upon linguistic aptitude and since substantial validity coefficients have been obtained with most aptitude tests (5, 9, 11, 26, 50, 56), the postulation of a concept of linguistic aptitude seems warranted. On the other hand, many researchers have argued that other variables such as motivation, interest, personality, etc., are probably of equal value in determining second-language achievement (15, 17, 18, 24, 28, 41, 42, 46, 50, 52, 54), however much of the research concerned with these variables has failed to adequately justify this position (15, 17, 18, 46). One reason for this seems to be an inherent difficulty in conceptualizing and measuring those motivational and personality variables which would determine success in second-language learning. Thus, although it seems logical that motivation, for example, is an important variable in the learning of any skill, the antecedent variables leading to a high or low level of motivation may be many in number and exceedingly difficult to conceptualize (cf., Travers (53)). What appears necessary, and what has been lacking in most previous studies of the non-intellectual variables in second-language acquisition, is a theoretical model which will dictate the important motivational and personality variables involved.

The present thesis is that two concepts, aptitude and motivation, must be postulated

to understand the second-language learning process. However, just as the complex of variables which comprise “aptitude” were determined by analyses of the important intellectual variables associated with second-language achievement, the complex of variables relating to motivation must be similarly investigated. It is not sufficient to consider motivation merely as some vague urge to work diligently in a foreign-language course. Recent investigations indicate that motivation to acquire a second language is a highly specific drive which can be clearly conceptualized and operationally defined (23, 24, 54).

In the following sections, emphasis is placed on the theoretical formulations aptitude theorists have advanced in an attempt to arrive at accurate prediction equations, and on recent theories of first-language acquisition which emphasize the motivational variables involved in learning a language. Data are then introduced which provide evidence for the conclusion that a similar model can profitably be used in understanding second-language acquisition, and a number of hypotheses generated from this model are enumerated which are subsequently put to empirical test.

The Concept of Aptitude

In his 1929 review article on prognosis testing in the modern foreign languages, Henmon (26) concluded that with future advances in testing techniques, it would eventually be found that aptitude tests would accurately predict second-language achievement. Such a conclusion appears to be based on the assumption that skill in a second-language is a direct function of aptitude--an assumption which has been shown to be only partially correct

judging from most validation studies of language aptitude tests (5, 9, 11, 12, 26, 50, 56). These studies have generally shown significant correlations between aptitude test scores and measures of second-language achievement indicating that “aptitude” is at least one variable involved in the learning of a second language. However, the fact that the validity coefficients for these aptitude tests show considerable variability from one testing situation to the next indicates that there are often other variables which are involved in the learning of a second language. Some proponents of the concept of aptitude have recognized this and have suggested that personality, motivation, interest (23, 24, 50, 52) etc., might account for the limitations of aptitude tests in predicting second- language achievement. Only recently, however, have aptitude theorists incorporated some of these “other” variables into their prediction equations (9, 53).

Travers (53) for example, has suggested that as a first step toward the development of a theoretical structure for use in the development of research on aptitudes, the variables that must be considered in the prediction of achievement should be listed and classified.

He classifies these variables under 5 categories:

- C I Previous achievement related to the training program.
- C II Responses which are necessary prerequisites for learning the responses to be acquired in training.
- C III Learning set variables.
- C IV Aptitude (i.e., the ability to make the discriminations which are necessary to profit from training).

C V Motivation.

He then proposes the following mathematical function for the prediction of achievement:

$$KC_I + [f(C_V)][f(C_{IV}) + (C_{III})]$$

where K is a constant that maximizes prediction. This function has several notable characteristics. When either $f(C_V)$ and/or $[f(C_{IV}) + f(C_{III})]$ equals 0, no new learning will take place (i.e., the function will equal KC_I). However, (if such a condition can be conceptualized) when aptitude, $f(C_{IV}) = 0$, some learning will occur. It is not necessary to consider all the possibilities here. What is evident is that motivation (C_V) has been given a central role in aptitude theorizing even though its practicability is questioned in the statement that “there seems to be certain fundamental difficulties in developing empirical variables related to human behavior which measure anything corresponding to a need.” (53, p. 10).

Carroll (9) also recognizes the importance of postulating a concept of motivation in order to more accurately predict second-language achievement. He argues that to assume success in foreign-language training is a direct function of only measured aptitude is “oversimplified, if not downright wrong” (9, p. 36). However, he also feels that “the concept of motivation...is difficult to define or to measure and it would be preferable to develop a model which does not involve it, at least not directly” (9, p. 36). He suggests that “such a model can be approximated by analyzing the process of instruction in the case of a complex task like learning a foreign language.” (9, pp. 36-37).

This analysis results in the prediction equation:

$$t_{ij} = S_m (a'_{ij}, m_{ij}, O_j)$$

where S_m denotes the function “smallest of the values listed” (9, p. 39), and a'_{ij} is the ratio of a student’s aptitude (a_{ij}) to his understanding of the task requirements (u_{ij}), where understanding is defined as some function of the student’s intelligence (g_{ij}), and the adequacy with which the task is presented (p_j).

In words, the equation states that the time taken by an individual “i” to learn task “j” (t_{ij}) is a function of the time actually needed by the individual to learn the task (when p_j may take any value)² the maximum amount of time individual “i” would spend in trying to learn task “j”, given adequate opportunity, until a criterion of success is reached (m_{ij}), or the time allowed (opportunity, (O_j)) for learning task “j”, whichever of these values is the smallest.

It should be observed that this model is expressed in terms of time scores such that a small value of a_{ij} means high aptitude, while a small value of m_{ij} means low motivation. Since the function in the equation is “smallest of the values listed,” it is obvious that a high level of motivation plays no role in determining “ t_{ij} ”. This is always true unless, of course, aptitude is extremely low (i.e., a'_{ij} assumes some very large value, larger than m_{ij}). In other words, a_{ij} (aptitude) places a limit on how quickly the student will learn.

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Carroll has defined this part of the function such that when $p_j = 1$, (i.e., the material is clearly presented), $a'_{ij} = a_{ij}$. It consequently clarifies the discussion if a'_{ij} is considered as an index of aptitude, and in no way contradicts this interpretation.

An individual will never take more time in learning a task (t_{ij}) than the time he needs (a_{ij}). However, he may take less time, (i.e., when m_{ij} is lower than a_{ij}) but presumably under these conditions the individual will not completely learn the task. Translating this model into terms of amount learned, it states that an individual will never learn more than his aptitude allows, but he may learn less if he is not sufficiently motivated. Thus motivation is postulated as playing a role in second-language achievement only to the extent that it is absent.³

This function makes several assumptions which have not been empirically verified. It assumes that aptitude (a_{ij}) and intelligence (g_{ij}) are independent, though scores on tests measuring these attributes are significantly correlated (9, 24, 56) and possibly factorially related (24, 56). Similarly, the assumption that aptitude determines a limit above which an individual cannot achieve results in a tautology and any study revealing that individuals have achieved more than their aptitude test score would predict must be interpreted as indicating errors in the measurement of both aptitude and achievement. A more general model, involving less assumptions, would be one in which no achievement “ceiling” was imposed.

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In his paper, Carroll (9) develops the concept of efficiency, defined as the ratio of t_{ij} to a'_{ij} , for use as a criterion in his prediction equation. This aspect of Carroll's paper is not discussed here because the present research is concerned with determining actually what variables are necessary for the acquisition of a second language. The concept of efficiency, on the other hand, assumes that the necessary variables have already been determined.

The Concept of Motivation

The theoretical models suggested by Travers (53) and Carroll (9) both emphasize the necessity for recognizing a motivational factor in second-language acquisition. Whether this factor can account for a high level of achievement (53) or whether it can only aid in explaining underachievement (9) is an open empirical question. Before such testing can be made, however, some agreement must be reached on the definition of motivation in second language learning.

Many motives could be (and have been) postulated which might play some role in acquiring a second language. The student might be motivated by the novelty of finding new words for familiar stimuli (i.e., an exploratory drive (53)), from fear of failure (53), N achievement (53), or N order (53) to mention only a few. Such motives probably are operative during short periods of time, but in the laborious task of acquiring a new language, the novelty diminishes and fear of failure can be circumvented through “cramming” just prior to an examination or by studying only those aspects of the language which are amenable to examination. Similarly, N achievement and N order might motivate the individual to learn particular aspects of the language in order to do well on examinations, or to acquire a job (N achievement), or to understand the grammatical and syntactical rules of the language (N order). It is unlikely, however, that such motives would persist over the time period necessary for the successful acquisition of a second language.

To fully comprehend a student’s motivation to learn a second language, it is

necessary to explain his long-term drive to acquire all aspects of the language. Attempts to explain how the child learns his first language have given attention to motivational variables. At birth all infants, regardless of cultural or language membership groups, manifest the same sound profiles (44) and the fact that as children they acquire the language sounds of their parents has been attributed to imitation. Many researchers who have attempted to explain this process have relied heavily upon the concept of secondary reinforcement, arguing that the parents' activities and indeed their mere presence are reinforcing to the child since they are regularly paired with primary drive reduction (16, 19, 39, 40, 44). Since this reinforcement is generally accompanied by verbalization on the part of the parents, the language sounds themselves can acquire secondary reinforcing properties. When the child is alone and utters a sound like one in the language of the parents, this act, through auditory feedback, is in itself reinforcing. That is, the verbal response is self-rewarding since it reproduces the cues associated with the valued person, and consequently this response is learned. The tendency for the child to copy the parents particularly in the parents' absence Mowrer calls "identification" (40, p. 714).

Such a paradigm cannot explain the whole of first-language acquisition. Much of the learning of a language appears to involve a more direct form of reinforcement - - as when the parent withholds a reward until the child makes the appropriate linguistic response. However, as Mowrer suggests, much of this instrumental learning is based on a dependency between the child and the parent (40). That is, the parents' activities (e.g., praising the child) must be perceived as reinforcing by the child if it is to affect his

behavior.

Theories of first language acquisition, then, place emphasis on a particular type of motivation. Linguistic responses are learned because the responses themselves are rewarding, the reward being dependent upon some type of emotional liaison with the parent. This interpretation is substantiated by the repeated finding that children who are raised under conditions of impersonality show marked retardation in language skills whereas children raised under emotionally warm conditions tend to show an accelerated linguistic development (2, 3, 36, 37, 38, 55).

The relevance of a concept such as identification to the second-language learning situation has become evident in recent years. Ervin, for example, argues that “the social and psychological incitements to imitation and to identification may account for some of the marked individual differences in (linguistic) attainment” (19, p. 10). Whyte and Holmberg similarly find “a factor of identification” among Americans who successfully learned Spanish while working in Latin America. Those workers who believed that they shared physical attributes with the Latin Americans and who showed a “willingness and even a desire to meet with them on a plane of social equality” (54, p. 13) learned the language, and became much more fluent than workers who couldn’t, or wouldn’t, make this identification. Politzer’s (46) finding that a greater proportion of “A” students in college language courses showed an interest in the people, culture, or literature than did those students obtaining failing grades would appear to indicate that an “identification-like factor” is related to linguistic achievement even in the classroom situation.

In discussing the relation of motivation to second-language learning, Nida (41) argues that “motivation” should be conceptualized in terms of an interest in learning particular linguistic skills for specific purposes (cf., Dunkel (18)). Drawing upon case history material, he concludes that there are “two fundamental types of motivation which when present to any considerable degree tend to guarantee a high measure of success in language learning” (41):

- (a) Desire to communicate, which he suggests involves an interest in an exchange of significant impressions, ideas and concerns about a wide range of subjects, and not merely a personality trait of extraversion and/or talkativeness.
- (b) Sensitivity to the out-group, defined as an interest and concern in how members of the language group react to one’s social and linguistic behavior.

A similar conclusion was reached by Gardner and Lambert (24). They found that two orthogonal factors were equally related to second-language achievement, one an intellectual or aptitude factor, and the other a motivational factor, which was characterized by a strong drive to learn the language, favorable attitudes towards the language group, and an expressed desire to learn more about the language group and meet more of its members (referred to as an integrative orientation).

The purpose of the Gardner and Lambert study was to investigate attitudinal differences between successful and unsuccessful students of a second language. Previously

it had been found that: (a) both extent of bilingualism (35) and an advanced level of language study (23) were associated with lower F-Scale scores, suggesting that non-authoritarianism was related to linguistic achievement; (b) dominance in the acquired language was related to personal dissatisfactions with one's own group (29), and (c) higher anomie scores (23), (which also reflect a dissatisfaction with one's own group) were associated with a tendency to choose conversational as opposed to grammatically-oriented courses.

All of the above-mentioned studies appear to warrant the conclusion that an identification-like factor underlies second-language achievement. There are, however, important differences between the concept of identification postulated to explain the development of the first language and that used here. Identification in the case of the first language refers to that process whereby the child imitates the behavior of the parents because their behavior has been associated with primary drive reduction and consequently has acquired secondary reinforcing properties. That is, the postulated antecedent condition of this "identification-motive" is the association of others' behavior with primary drive reduction. It should be emphasized however that the child's "identification" denotes a drive to be like members of the family (cf., Davitz (16)) and not merely to learn the language. In time the child tends to take on many behavioral characteristics of the parents, and his behavior is modified by that of the parents. That is, the family becomes a reference group, and language acquisition is consequently one aspect of social learning. The thesis proposed here is that the important motivating condition in second-language acquisition is

basically the same as that which is presumed to underlie first-language development. Languages are typically learned in the process of becoming a member of a particular group; the sustaining motivation is usually one of group membership, not of language acquisition per se. It seems advantageous therefore to reserve the term identification for the first-language condition, and refer to the willingness to become a member of another language group as an integrative orientation. This term is useful in that it denotes the desire for integration (common in both situations) but distinguishes it from identification in terms of the antecedent conditions leading to such a motive.

The desire to integrate with another group can be motivated in two ways. The first implies an “approach” dimension. That is, the individual seeks membership in another group because he perceives that group favorably and possibly as having higher status than his own group (47). The individual imitates behavioral characteristics of members of that group so that he will be recognized as a member himself. Such a drive has been hypothesized to explain some instances of marked linguistic attainment (19).

The second form of motivation to integrate is best described in terms of an “avoidance” dimension. That is, the individual does not necessarily perceive the other group as having desirable characteristics. Rather, he is motivated to choose the other group as a “reference group” because of personal dissatisfactions with his own cultural community. Consequently, this aim in integration could be independent of any favorable evaluation of the new group, and has been postulated to explain some cases of second-language dominance (29).

These two conditions are obviously extreme cases. Certainly not all high school students are actively seeking integration with a new language group. It is more likely that individuals vary in degree of “integrativeness”.

From the hypothesis that motivation to acquire a second language is dependent upon an integrative orientation, it follows that individuals seeking to learn a language for other reasons, such as for school credits, job opportunities, etc., will not manifest and maintain as high a degree of motivation over extended periods of language study. This contrasting orientation will be referred to as “instrumental” in that the student’s primary aim in studying the language appears to be an interest in acquiring sufficient knowledge of the language for its instrumental value in goal attainment but to retain or improve his membership position in his “old” reference group.

The Process of Acquiring a Second Language

The distinction between integrative and instrumental orientations implies an attitudinal as well as a motivation difference between two types of language students (23, 24). Those students who are instrumentally oriented may be handicapped by the fact that the linguistic responses they are trying to learn are not rewarding to them. That is, the responses are not particularly “liked” for their own sake, while integratively oriented students on the other hand enjoy the foreign speech sounds, grammatical rules, etc., because they are behavioral attributes of valued members of another language group.

Many researchers imply that second-language acquisition involves primarily the substitution of new for old symbols; such an interpretation appears to be an

oversimplification. In learning his first language, the child is negatively reinforced (or not positively reinforced) for accent and grammatical variations from native linguistic habits. For most people, this training continues for a long period of time. When a student acquires a second language, however, many of his previously negatively reinforced linguistic tendencies must now be learned. That is, the acquisition of a foreign language involves the learning of responses which were not permissible in the development of the first language. Furthermore, many students have associated foreign speech styles with low prestige or minority groups. Practising these responses, therefore, will be negatively reinforcing for them. In support of this idea, Nida (42) suggests that few Americans can learn a second language because they have learned to equate foreign speech characteristics with less prestigious groups and consequently cannot incorporate these linguistic habits.

The position taken here is that second-language acquisition involves more than learning that a new set of symbols is equivalent to an already learned set. The new symbols, qua symbols, have taken on distinctive meanings and affective connotations of various sorts merely because they are part of the cultural characteristics of an “other” language group. That is, words like maison, église, etc., connote Frenchness, or at least foreignness, even before they acquire specific meaning. This line of thought has led to a modification of Ervin and Osgood’s (20) notions of how two language systems will actually interact for the foreign language student, or for the bilingual who has learned the second language in a linguistically “compound” context. They postulate two types of language systems, the “compound” in which the meanings of translated equivalent symbols

are similar, and the “coordinate” in which these meanings are distinct. The compound language system presumably develops in a linguistically fused context where the two language symbols are interchangeably used to refer to the same environmental events, while the coordinate system develops in separated contexts where one language is consistently used in one situation and the other language in another (20, 33).

The school situation is typically one in which the meaning of the second-language symbol is assigned to it through contiguous pairing with the first language symbol. The student learns that “église” equals “church”, “maison” equals “house” etc., and Ervin and Osgood assume that because of this meaning assignment, the two languages will be “compound”. The development of the compound language system is schematically represented in Figure 1, where /S₁/ represents

the English symbol “church”, $r_{m1} \rightarrow s_{m1}$, the $/S_1/ \rightarrow r_{m1} \rightarrow s_{m1} \rightarrow R_1$

meaning associated with it, and /S₂/ the French symbol /S₂/

“église”. Contiguous pairing of these two symbols

FIGURE 1

will result in /S₂/ taking on the meaning of /S₁/ such that:

$$/S_2/ \rightarrow r_{m1} \rightarrow s_{m1} \rightarrow R_2$$

Note however that such a development would occur only where the second-language symbol /S₂/, is itself meaningless when first encountered by the student.

Previous research (35) suggests that second-language symbols are not completely meaningless, but that they tend to evoke in an individual some portion of his total response pattern (i.e. an attitude) to the language group that this symbol identifies or represents. Let

us assume therefore that every first- and second-language symbol has associated with it two components of “meaning”: a general attitude towards the language group ($r_{mg} \rightarrow s_{mg}$; common to all concepts within a language system), and a meaning specific to the concept ($r_m \rightarrow s_m$). Then contiguous pairing of symbols from the two languages will not necessarily result in the two symbols having identical meanings (i.e. a “compound” language system).

This is schematically represented in

$$/S_1/ \rightarrow r_{mg1} \rightarrow s_{mg1} \rightarrow R_1$$

Figure 2. With contiguous pairing of /S1/

$$/S_1/ \rightarrow r_{m1} \rightarrow s_{m1} \rightarrow R_1$$

and /S2/, /S2/ will come to elicit the same

$$/S_2/ \rightarrow r_{mg2} \rightarrow s_{mg2} \rightarrow R_g$$

specific meaning as /S1/ such that:

FIGURE 2

$$/S_2/ \rightarrow r_{mg2} \rightarrow s_{mg2} \rightarrow R_2$$

$$/S_2/ \rightarrow r_{m1} \rightarrow s_{m1} \rightarrow R_2$$

Where the attitude evoked by the symbols of the other language is as favorable as that associated with one’s own language group, the semantic separation between the translated equivalents would approach zero, but where $r_{mg1} \rightarrow s_{mg1}$ is different from $r_{mg2} \rightarrow s_{mg2}$ the semantic separation would be greater than zero. If we assume that most individuals’ attitudes towards their own group are favourable, one would expect semantic separation to be a function of the degree of negative attitudes held towards the other language group.

As the process of acquiring a second language is extended, some individuals become bilingual. That is, their skill with the second language approaches that of native speakers in that language. Lambert (30, 31, 32) has argued that not all language students reach a bilingual level and that all students are faced with a hierarchy of skills to acquire.

Lambert has isolated two clusters of tests; the first, called a “Vocabulary” cluster, differentiated graduate student French majors and native French subjects from undergraduate French majors. This finding indicates that the mastery of vocabulary skills is highly dependent upon training in the language. A “Cultural” cluster of tests (e.g., influence of French word order, French associational content, degree of French accent and pronunciation) differentiated French subjects from both groups of American students, suggesting that this more advanced level of achievement depends upon an assimilation of those aspects of the culture which influence language behavior. Lambert also noted that comparative bilingual “automaticity” (a test of comparative speed of response to directions presented in both languages) differentiated each group from each of the others (32). This finding suggests that the “automaticity” measure reflects both the effects of formal second-language training as well as experience in using the second language as a means of communication. In a subsequent study, Lambert, Havelka, and Gardner (34) found that the automaticity measure correlated highly with several other measures of bilingualism.

It is suggested here that aptitude and the integrative motive will have differential effects on achievement at each of these levels of second-language skill. It is likely that aptitude will play a major role in determining success in those skills taught in the classroom setting such as vocabulary, grammar, reading fluency, and aural comprehension. This is predictable because aptitude is highly correlated with intelligence and the more intelligent the student, the more he should be expected to profit from instruction. Obviously some degree of motivation is required to permit the student to pay attention to what is being

taught. On the other hand, aptitude is not likely to contribute to success with those skills which, for their development, depend upon an interaction with members of the other linguistic community. The integrative motive would be expected to play the determining role for the acquisition of such skills, since it orients students to make social contacts with members of the cultural community and thereby learn those linguistic skills which characterize that group.

Statement of the Hypotheses

The general purpose of the present investigation is to determine what variables are related to a high level of motivation in second-language acquisition. Specifically, it is hypothesized that the integrative motive will include a favorable evaluation of the other language group, an interest in meeting with and understanding more about members of that group, a desire to learn their language and a readiness to expend considerable effort in attaining this goal. At a more general level, integratively motivated students are expected to be non-authoritarian and non-ethnocentric because the presence of these two personality characteristics reflects adherence to a rigid ingroup/outgroup dichotomy with concomitant suspicion and rejection of all outgroups. To the extent that an integrative motive also denotes dissatisfaction with one's position in his own group some integratively motivated individuals would be expected to manifest comparatively greater feelings of in-group disaffection.

It is further hypothesized that although an integrative motive underlies all aspects of second-language achievement, it will show a particularly strong relation to those aspects of

second-language skill which are developed in interaction with members of the other language community.

Because many second-language skills are taught in the classroom situation and consequently depend upon intelligence, it is expected that language aptitude, considered as a correlate of intelligence, will show a greater association with these skills than will an integrative motivation.

Finally, although no specific predictions can be made, it is assumed that the integrative motive develops because of conditions in the early home situation. In the analysis of the data, therefore, some attention is given to a number of home background variables.

The tests employed in the present investigation were selected because of their relevance to the Montreal bi-cultural scene as well as to the theoretical orientation outlined above.⁴ Confirmation of the stated hypotheses would reflect on the adequacy of this theoretical position and should lead to a reformulation of the concept of motivation in second-language acquisition. Such a reformulation could then lead to the development of tests which would prove useful in other cultural settings.

4

The term "French-Canadian instead of "French" was used in this study to make Ss think in terms of the language group with which they come into contact in Montreal. Although the courses use standard French with little or no reference to any French-Canadian modifications, the French learned in school can be used with no difficulty by English-speaking students in the province of Quebec. It may be true that a few Ss were motivated to learn French because of their interest in the European French community and inclusion of these Ss will tend to reduce the relationships of the integrative motive with the skill variables.

PROCEDURE

SUBJECTS (Ss)

A total of 90 grade ten students from six Montreal high schools were administered a three hour battery of tests (see Appendix B) designed to measure achievement in French, language aptitude, attitudes towards the parents, home background characteristics, and other variables hypothesized to measure an integrative motive in second-language study. Fifteen students were tested in each school. These students had been previously selected by the principal and French language teacher of each school so that one-third of the group represented “Superior” students in French, one-third “Average” and one-third “Poor”. This restriction was placed on the sampling distribution in order to ensure a wide variance with respect to French skills. Examination of the distribution of scores on the tests designed to measure French achievement indicated that the scores for each test were continuous and approximately normally distributed.

One further restriction on the selection of these students was that they come from English-speaking homes. This restriction was further investigated during the testing situation and seven students had to be dropped because they indicated that one of their parents was French and used French considerably in the home.

At the beginning of each testing session the students were told that the experimenter was interested in their proficiency in French and that he was endeavoring to find out what variables were important in the learning of a second language. They were given a brief description of the kinds of tests that were to be administered and were asked to be as frank

as possible in stating their opinions where requested. In an attempt to minimize false or “acceptable” opinions, it was requested that responses to items considered embarrassing to the student should be omitted. Prior to commencing the testing session, and once again during a ten minute recess mid-way through the session, it was impressed on the students that the school authorities would not have access to any individual student’s responses to any of the tests.

As the design of the project also required individual interviews with the mothers of each of the students, Ss were requested to give their names and addresses on one of the questionnaires. Although all students gave their names, ten did not give their home address.

RESULTS AND DISCUSSION

The basic assumption underlying this research was that two concepts, the integrative motive and linguistic aptitude, must be postulated to understand second-language acquisition. The following two sections, therefore, examine the relation between indices of French achievement and, first, the hypothesized components of the integrative motive, and then, language aptitude.

In order to clarify the discussion, the nine tests of French achievement are discussed as though they were independent (i.e., uncorrelated among themselves) as are the indices of the integrative motive and those of language aptitude. It should be emphasized, however, that this assumption is made only for the sake of clarity in presentation. In a subsequent section it will be shown that many of the tests constituting each one of these general variables (i.e., achievement, motivation and aptitude) are highly interrelated and that this interrelation generally serves to highlight the conclusions drawn here.

Relation of the Integrative Motive to French Achievement

The correlations between the nine measures of French achievement and the eight indices of the integrative motive are given in Table 1. The pattern of significant intercorrelations suggests that the integrative motive has differential effects on the various components of French achievement.

Aural comprehension is the only test in the battery specifically designed to measure the student's decoding skills (i.e., his ability to understand spoken French). The correlations of the attitude and motivational variables with this test suggest that skill in

understanding spoken French depends upon a desire to learn the language (Variable B), favorable attitudes towards the other language group (Variable D), and an expressed desire to meet with and understand members of that group (Variable A). Since achievement in this task is unrelated to the amount of effort the student expends in acquiring French, it would appear that the acquisition of decoding skills is relatively passive but highly dependent upon a genuine interest in members of the linguistic community.

The tests of Vocabulary and Grammar are characterized as tapping a more central aspect of language skill in that they measure the amount of information the student has about the structure of the language. Achievement in these two skills is correlated with Variables A, B, and C, suggesting that the successful student must not only want to learn the language and associate with members of the language group, but also expend considerable energy in actually acquiring the language.

The number of Associations in French, and Meaning Separation, were included to measure a somewhat different aspect of language achievement. The number of associations given to a verbal symbol has been hypothesized as an index of its meaningfulness (43) (the more associations an individual gives to a word, the more meaningful it presumably is for him). To the extent that the mean number of associations obtained for each student in this study is an estimate of the “average” meaningfulness of second-language symbols for him, we must conclude that meaningfulness is related to a desire to learn the language, and the effort expended in its acquisition.

Meaning Separation refers to the difference in connotative meaning between French

and English verbal symbols for the same concept. In this case the meaning (in contrast to meaningfulness) of a concept refers to the pattern of ratings a S gives that concept on a series of descriptive scales (the semantic differential (45)), and the separation of meanings is determined by finding the square root of the sum of the squares of the difference of mean ratings of each translated equivalent over three semantic factors (i.e., Evaluation, Potency, Activity (45)). Ervin and Osgood (20) argue that meaning separation should be minimal for students who acquire the second language through the indirect, or translation, method.

However, it was hypothesized above that the magnitude of meaning separation would be positively related to unfavorable attitudes towards the other language group. The obtained correlations support this hypothesis and further suggest that meaning separation is also negatively related to a desire to learn the language. These results suggest that for students acquiring a second language in a linguistically fused context, the degree of meaning separation is not an index of language achievement but rather of unfavorable attitudes towards the other language group, and a general disinterest in learning the language. Since the meaning separation score obtained here was based on the difference in meanings of “me” and “moi”, and “my friend” and “mon ami”, the results might be interpreted as suggesting that students with negative attitudes towards the other language group try to keep separate, in the two languages, the meanings of concepts which are of direct personal value to them. Further research is necessary to determine whether this relationship would hold for less personal concepts.

The remaining four tests of French achievement measure various aspects of a student's encoding skills. The student's fluency in reading French, and his pronunciation accuracy are positively related to his desire to learn French, the effort he expends in acquiring French, and his interest in meeting with members of the French-speaking community. Similarly, whether or not the student acquires a French-Canadian accent also depends upon these variables. Furthermore, the accent variable is negatively related to the California F-Scale (Variable G), a measure of authoritarianism, suggesting that despite having these characteristics of the integrative motive, only those students who do not adhere to a rigid in-group-out-group dichotomy of social groups are capable of acquiring the speech characteristics of the other language group.⁵

Lambert's (29, 34) central measure of bilingualism (i.e., automaticity) was included as a measure of a student's comparative encoding skill in the two languages. High positive scores on this test are indicative of extreme English dominance, high negative scores reflect French-language dominance, and zero scores suggest that the student has equal facility in the two languages. In this sample, all but three of the Ss obtained positive scores suggesting that, in this context, the test generally measures the extent to which a student is comparatively English dominant. The significant negative correlation obtained between

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The California F-scale has been shown to be negatively correlated with intelligence (13, 51), and it might be argued that the correlation noted above indicates that the less intelligent students are not capable of acquiring a French-Canadian accent. This argument is rejected here because although the aptitude tests have previously been shown to be factorially similar to indices of intelligence (24), they are not related to accent in this study (see Table II).

Automaticity and Desire to learn French is in accordance with the hypotheses outlined above. That is, students who do not want to learn French are more English dominant than those who do, or otherwise stated, equal facility in both French and English for native English-speaking students is related to a desire to learn French.

Relation of Aptitude to French Achievement

The correlations of the three aptitude tests, with the nine measures of French achievement are given in Table II. These results stress the importance of the intellectual variables in many aspects of second-language acquisition. Language aptitude accounts for a significant part of the variance in tests designed to measure decoding skills (Aural Comprehension), knowledge concerning the structural properties of the language (Vocabulary, and Grammar) and some of the encoding skills (Reading Fluency, and Pronunciation Accuracy).

The remaining four tests of French achievement show virtually no relation to a student's intellectual capabilities. The number of associations in French (meaningfulness) is significantly related to only one of the aptitude tests, Spelling Clues, indicating that this skill is related to the student's knowledge of English vocabulary (10).

Although Meaning Separation is not significantly correlated with any of the indices of language aptitude, the sign of each of the correlation coefficients is negative, suggesting that those students who obtain good scores on language aptitude tests consider translated equivalents as having similar connotative meanings.

The lack of any significant correlations between the aptitude variables and accent

characteristics highlight the greatest aspect of second-language achievement which is apparently not determined by intellectual variables. It is this component of second-language skill which appears from this study to depend mostly upon an integrative motive in language study. Unless a student wants to become a member of the new language group, he may develop facility in most aspects of the second language, provided he has the necessary aptitude and certain aspects of motivation, but it appears as though he will not acquire the speech characteristics associated with that language.

Lambert's (29, 34) measures of automaticity similarly shows little significant relation with the aptitude variables, but the trend noted is in an unexpected direction. The signs of the obtained correlation coefficients are all positive, suggesting that language aptitude is positively related to English dominance, or, in other words, that those native English-speaking students who have equal facility with their two languages tend to do poorly on language aptitude tests.

In summarizing the results presented in Tables I and II, it would appear that an integrative motive and language aptitude are both necessary in the acquisition of basic French skills. That is, indices of the integrative motive and language aptitude are significantly related to tests of aural comprehension, vocabulary, grammar, reading fluency, and pronunciation accuracy. Furthermore, if the magnitude of the obtained correlations is used as an index of the relative importance of the motivational and intellectual variables, it must be concluded that language aptitude plays the more dominant role in determining

these aspects of second-language achievement.⁶ However, the integrative motive appears to play the more dominant role in the acquisition of those second-language skills which are of little value in the school situation but of great importance when using the language in a bilingual setting. The number of associations in French, Accent, Automaticity, and Meaning Separation show virtually no significant correlation with aptitude measures, but are significantly related to many indices of the integrative motive. The first three of these measures of second-language skill are very similar to those measures which constitute Lambert's "Culture" cluster (32) in that they appear to reflect cultural characteristics of language achievement. That is, they would appear to reflect not simply experience with the language, but rather an actual usage of the language in bilingual communication situations. To the extent that this interpretation is correct, we must conclude that an integrative motive is more important in the development of those language skills which depend upon an interaction with members of the other linguistic community. The earlier mentioned skills on the other hand are characteristic of those explicitly taught in the school situation (cf., Lambert's "Vocabulary" cluster (32)), and it is quite possible that the intellectual variables play a more dominant role at this level.

The relation of Meaning Separation to negative attitudes towards the

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It is not clear whether these results actually reflect the greater importance of language aptitude in the acquisition of French, or the great heterogeneity of this sample with respect to intelligence. Following the testing programs, it was learned from some of the school principals that many of the students chosen to represent the "poor" French-achievement group were also poor intellectually. Since aptitude is correlated with intelligence this would help to increase the relation between French achievement and language aptitude.

French-Canadians and a lack of interest in learning French would appear to support the hypothesis that the connotative meaning of a language symbol has two components: a general attitude towards the language group, and a meaning specific to the concept. These results would definitely suggest that students who have unfavourable attitudes toward the other linguistic community tend to keep valued concepts in the two languages semantically separated.

Dimensions of French Achievement

In the two previous sections, the relation of the integrative motive and of language aptitude to various measures of French achievement were discussed on the assumption that the indices of French achievement were independent. In this section, the results of a factor analysis of the intercorrelation of 30 variables are discussed in order to determine how these variables relate to second-language achievement. The 30 variables include those already discussed which are concerned with French achievement, language aptitude, and an integrative motive as well as indices of a student's perception of his early home environment, his parents, and himself. The home background variables (see Appendix B) were introduced in an attempt to describe, in a very preliminary fashion, possible antecedents of an integrative motive. The guiding notion for the selection of these indices was that the components of an integrative motive are learned, at least in part, in the home. The disciplinary and socialization techniques of parents were conceived of as possible determiners of their children's orientations to members of a different cultural group. The procedures worked out by Shutz (48) to measure perceived characteristics of the home

environment were adopted with this view in mind.

Pearson product-moment correlation coefficients were computed between all the continuous variables. The correlations of each of these variables with the three dichotomous variables (Accent, Orientation, and Sex) were computed as point biserial correlations, while the intercorrelations of these three variables were computed as phi-coefficients (cf., 22). The correlation matrix is given in Table III.

The correlation matrix was factor analyzed using the Principal Component method which extracts orthogonal factors in order of decreasing variance (22). All calculations were performed on an IBM 704 digital computer and the program used required the extraction of as many factors as there are variables. Thus, 30 factors were extracted.

The number of factors which would account for most of the common variance in the correlation matrix was determined by Humphrey's rule (22). This criterion is based on the assumption that a common factor is defined by a minimum of two variables, and consequently the two highest loadings on any one factor are statistically tested to determine whether these intercorrelations differ significantly from zero. Although this criterion is intended for use with a Centroid solution, and often results in an overestimation of the number of common factors (22), its use here was dictated by the fact that the factor analysis program used on the IBM 704 computer does not reproduce the residual matrices and it is on these matrices that most other tests of significance are made (22). Examination of the original Principal Component factor matrix suggests that Humphrey's rule resulted in a slight overestimation in the number of common factors. Nevertheless, this estimate was

used in the subsequent rotations since overestimation does not seriously effect the results whereas an underestimation will. When the number of common factors is overestimated, rotation of these factors will generally result in the extra factors having little common variance.

Humphrey's rule indicated that nine factors (see Table IV) accounted for most the common variance in the correlation matrix. These factors were rotated by means of Dr. J. B. Carroll's biquartimin criterion program for rotation to simple structure using the IBM 704 digital computer (6, 7, 8). The rotated factor loadings are given in Table V. Since this is an oblique solution (i.e., the factors are allowed to be correlated), the correlations between factors are given in Table VI. For the purposes of this analysis, correlations between factors greater than 0.16 are considered as indicative of a possible relation between factors.

Factor I obtains its highest loadings from Variables 1 (Reading Fluency), 2 (Pronunciation Accuracy), 3 (Aural Comprehension), 4 (Grammar), 5 (Vocabulary), 6 (Accent), 10 (Spelling Clues), 11 (Words in Sentences), 12 (Paired Associates), 13 (Orientation), and 14 (Desire to learn French) (see Table V). The predominance of French Achievement tests on this factor defines it as a Second-Language Achievement factor, however the high loadings of the language aptitude tests and of two indices of the integrative motive indicate that aptitude and motivation account for much of the variance common to most second-language achievement measures. In other words, both aptitude and some components of the integrative motive are related to a general component of skill

in a second language. It should be noted, however, that the aptitude variables show greater loadings on this factor, which suggests that aptitude plays a slightly greater role in the acquisition of those second-language skills which are taught in the school situation.

Factor II clearly demonstrates the role of the integrative motive in second-language acquisition. Of the eight tests which constitute this factor, three are indices of the integrative motive, three are measures of second-language achievement, and two measure language aptitude. The high positive loadings of Variables 13 (Orientation), 14 (Desire to learn French) and 15 (Motivational Intensity) indicate that this should be defined as an Integrative-Motivational factor since these tests measure a specific drive to acquire a second language and an interest in becoming like members of the other language community. The positive loading of the Accent and Vocabulary tests further suggest that this drive element is related to the acquisition of some aspects of the language of another cultural group, and the high negative loading of the Automaticity measure (Variable 8) indicates that this motivational component is also associated with more equivalent facility in the two languages. The negative loadings of the two aptitude tests, (Variables 10 and 11) on the other hand, might appear to suggest that this drive to acquire the language and subsequent achievement in some aspects of the second language is related to a lack of language aptitude. Moreover, such an interpretation would contradict the results obtained from Factor I. It is probably clearer to assume that the negative loadings of these tests reflects a lack of English-language skill. That is, part of the variance on these tests (particularly Spelling Clues, and Words in Sentences) is determined by the student's

knowledge of English vocabulary and grammar (10). Low scores consequently reflect the student's lack of knowledge of the English language, and it would appear that some of this ignorance is due to the student's extreme interest in acquiring the language of another cultural group.

Factor II suggests therefore that an integrative motive accounts for much of the variance on those tests which measure achievement in those language skills which are characteristic of native speakers of the other language. It should be noted further that three other measures of French achievement also have small positive loadings on this factor (Fluency, Pronunciation Accuracy, and Associations in French). Although these loadings are relatively low, it is quite likely that they are of some psychological significance suggesting that part of the variance in these skills (over and above that associated with general French achievement) is due to an integrative motive in language study.

Factor II is positively correlated with Factor I. Although this correlation is low, and could be due to sampling fluctuations, it might also suggest some interdependence between a general level of French achievement and the integrative motive. Since two of the indices of the integrative motive also receive positive loadings on Factor I, the relevance of this drive element to all aspects of second-language acquisition is indicated. It is clear, however, that an integrative motive plays its greatest role in the acquisition of the speech characteristics of the other language group, and in the development of bilingual skills.

Factor III has been labelled a Home Background factor since the variables which receive highest loadings on this axis are mostly concerned with attitudes toward the home

and the parents. Variables 23 and 25 measure the student's perception of the amount of attention and affection he received as a young child, while the negative loading of Variable 27 (Evaluation of the Father) implies that this factor also reflects favorable attitudes toward the father. The positive loading of the Motivational Intensity scale suggests that those students who perceived their earlier home life as attentive and affectionate and who have a favorable evaluation of their father will tend to work harder in the acquisition of a second language. This component of the Motivational Intensity scale might imply a general school adjustment dimension, in that students who perceive their paternal parent and early home life favorably, might be expected to work diligently on all school tasks. Although Factor III derives no high loadings from the standard tests of French achievement, the positive loading of Variable 7 (Meaning Separation) suggests that some elements of the home background are related to the extent to which the student keeps separate in the two languages those concepts which are of direct personal relevance to him. The composition of this factor suggests that the degree of meaning separation depends upon a favorable evaluation of the home and the paternal parent. Furthermore, the low but consistent loadings of the two attitudinal measures (Variables 16 and 17) suggest that this aspect of the early home life might result in negative attitudes towards the other group and that it is because of these negative attitudes that the student distinguishes between the connotative meanings of French and English language symbols.

Factor IV is not of too great an interest for the purposes of this study. All of the semantic differential variables receive high loadings suggesting that this factor accounts for

much of the variance of students' approaches to the semantic differential.

Factor V derives its highest loadings from Variables 6 (Accent), 9 (Associations in French), 29 (Associations in English), and 30 (Sex). This is clearly a General Associational Fluency or Meaningfulness factor and the positive loading of the accent variable on this axis indicates that a general intellectual, or fluency component is associated with the acquisition of the speech characteristics of the other language community. The negative loading of Sex on this factor suggests that boys are more fluent in French and have better French-Canadian accents than do girls, and could conceivably reflect the greater opportunity for boys to interact with members of the other language group in sports events and the like. It should be noted that, in this context, fluency refers to the number of associations students gave in 30 second intervals and not to the fluency with which they read a French passage (Variable 1). The positive loading of Variable 19 (Motivational Intensity) again reflects the reliance of some components of language achievement on motivational characteristics. However, it should be noted that motivational intensity appears to influence fluency in both languages.

The high positive loadings of Variables 18 (Ethnocentrism), 19 (Authoritarianism), and 20 (Anomie) on Factor VI suggest that these tests have considerable common variance. Both the ethnocentrism scale and the F-scale presumably measure the extent to which an individual makes rigid ingroup-outgroup distinctions with submissive attitudes regarding the in-group and a general intolerance of out-groups (1). The high positive loading of the anomie scale furthermore suggests that a general ethnocentric ideology encompasses a

dissatisfaction with one's position in the in-group (cf., Srole (49)). Factor VI is therefore labelled a General Ethnocentrism factor. The negative loading of Variable 26 indicates that an ethnocentric ideology is related to the expression of favorable attitudes towards the mother - - a characteristic already noted in the research literature (1, 21). The low but negative loadings of Variables 6 (Accent), and 14 (Desire to learn French) again underscores the relation between attitudinal characteristics and the acquisition of a second language. Individuals who are ethnocentrically oriented appear to show a lack of interest in learning the second language and a consequent inability to acquire the speech characteristics of another cultural community.

Factor VII is defined by the loadings of four variables: the student's perception of the discipline he received as a child, a favorable evaluation of the father, anomie, and favorable attitudes towards the French-Canadians. The interpretation of this factor is not clear. However, the high loading of Variable 24 suggests that this is a "home discipline" factor associated with expressed favorable evaluations of the father (Variable 27). (There is a slight tendency for unfavorable evaluations of the mother on this factor). The presence of the anomie variable on this factor indicates that a general dissatisfaction with one's position in his own cultural group may be a result of the punishments received as a child, and this in turn may be the background for the positive attitudes toward the other cultural group (Variable 16) noted here. Factor VII is therefore defined as a Home Discipline-Anomic Orientation factor characterized by memories of early home-life discipline, favorable evaluations expressed toward the father, dissatisfaction with one's role

in society, and a favorable evaluation of the other language community.

Although incidental, it is interesting to note that this anomic disposition has a slight relation with an integrative orientation (Variable 13), a finding which deserves further study. Likewise, this aspect of the integrative orientation is slightly related to a deficit in French vocabulary skills as well as to a similarity between French and English meanings.

Four tests receive high loadings on Factor VIII. Two of these, Variables 16 and 17, reflect negative attitudes towards the French-Canadian group, while the high positive loading of Variable 22 suggests that this negative evaluation is associated with a general tendency to perceive the French-Canadian out-group as comparatively different from the self. The negative loading of Variable 21 further indicates that this factor encompasses a favorable evaluation of the English-Canadian in-group.

This factor is clearly a Francophobia or Social Distance factor. The small negative correlation between Factors I and VIII show a slight relation between favorable attitudes and general French achievement. Although this correlation is low, it does characterize the hypothesized relation between attitudes and French achievement. Because of the dependence of most aspects of linguistic achievement on intellectual variables, it is expected that a purely attitudinal characteristic would play only a small role in the acquisition of a second language in a sample of “normal” students. This does not preclude the importance of this attitudinal component, but suggests that it is of great importance only in extreme cases. Thus, the negative correlation obtained between Factors I and VIII could mean that only in cases where a student has a strong negative attitude towards the other

language group would it have any deleterious effects on his ability to acquire those aspects of the second language which can be learned from formal instruction. However, to attain any degree of success in this extreme case, we would expect the individual to have considerable language aptitude, and be strongly motivated to acquire the language (obviously for reasons other than integration).

It is doubtful whether Factor IX is amenable to any meaningful interpretation, since it appears to reflect mostly sex differences obtained in the correlation matrix. The positive loading of Sex (Variable 30) on this axis suggests that whatever this factor represents is characteristic of girls, while the positive loadings of Variables 12 (Paired Associates) and 15 (Motivational Intensity), and the negative loading of Variable 7 (Meaning Separation) merely reflect the correlation of these variables with Sex. That is, the girls tended to obtain higher scores on Tests 12 and 15, and lower scores on Test 7 (see Table III). The high positive loading of Variable 22 (Perceived dissimilarity between self and the French) however, is difficult to understand in this context. The factor would appear therefore to be a composite of Sex and Social Distance.

Factor IX is negatively correlated with Factors II, IV, and VIII. Because the composition of this factor includes sex characteristics as well as a social distance component, no consistent meaningful interpretations can be made of these correlations. The negative correlation between Factors II and IX is meaningful to the extent that Factor IX characterizes a social-distance dimension, suggesting that an integrative motive is related to a perception of the other language group as being comparatively similar to the

self. Such an interpretation is consistent with the results obtained in the correlation matrix. However, it is not clear why Sex should show a negative relation to Factor II. The negative correlation between Factors IV and IX on the other hand is meaningful if Factor IX is interpreted as a composite of Sex and Social Distance since the correlation matrix does suggest a negative relation between both of the variables and semantic differential ratings. Finally, the high negative correlation between Factors VIII and IX is meaningful only if Factor IX is interpreted as a Sex factor since girls showed more negative attitudes toward the French and positive attitudes towards the English than did the boys. Because so many inconsistent interpretations of Factor IX present themselves, it does not seem appropriate to attach any particular meanings to this factor.

It is clear from the preceding discussions that cause-effect statements have been made about results obtained from correlational data. Factor analysis has been used here to great advantage as a method of describing patterns of intercorrelations but, as a technique, it does not indicate the direction of cause-effect sequences. In fact, only the experimental method actually permits one to make causal interpretations. The results of this study, which have been stated in what is considered their most meaningful cause-effect form, should be looked at therefore, as a series of hypotheses for future experimental tests where certain variables can be made to vary and their effects on other variables noted.

In summary, the results of the correlational and the factor analysis demonstrate that the various components of French achievement are differentially related to the aptitude and motivational characteristics of the individual. It is clear that the component which is

common to many tests of French achievement is highly dependent upon linguistic aptitude and to a lesser extent on an integrative motive (Factor I). Since many of these skills are specifically taught in the classroom situation, it is suggested that their relation to aptitude is the result of the fact that students must have the necessary intellectual capabilities to profit from instruction. However, it is equally true that even in the setting of high school French classes an integrative motive also appears to be a necessary prerequisite for achievement. (Factor I, and the correlation between Factors I and II).

An integrative motive is necessary for the successful acquisition of the speech characteristics of the other language group, and for the development of bilingual skill. However, it should be noted that this motivation does not necessarily imply any favorable attitudes towards the other group. Instead, these results indicate that an integrative motive is defined by an interest in meeting with and understanding more about members of the other community (the integrative orientation), a desire to learn their language, and considerable effort expended toward this goal.

In the factor analysis, we were interested in measuring the attitudes toward French-Canadians as a group and relating it to the integrative motive, however no significant relation was found. When attention is given to other data gathered for this study, a significant relation is found between the integrative orientation and students' attitudes towards those particular French-Canadians with whom they were acquainted. The students were asked to rate, on a seven point scale how much they liked those French-Canadians they knew. It was found that the integratively-oriented students liked

their French-Canadian acquaintances significantly more than did those who were instrumentally oriented. ($t=2.83$, 44 d.f., $p<.01$).

Although attitudes towards the French-Canadians as a group seem to be independent of the integrative motive, there is the suggestion that success in basic second-language skills is nonetheless dependent upon favorable attitudes towards that group (i.e., the correlation between Factors I and VIII). Also at a more general level, there is the indication that an ethnocentric ideology might underlie a lack of interest in learning the second language and an inability to acquire the speech characteristics of the out-group (Factor VI). An anomic disposition is related to the impression that the early home life was “punishing” and the results indicate that this anomic disposition may account for some instances of an integrative orientation. This aspect of the integrative orientation, however, does not appear to result in a high level of second-language achievement (Factor VII).

Although one component of motivational intensity would appear to depend upon an affectionate and attentive early home life, this aspect of motivation appears to be unrelated to second-language achievement. These home background characteristics do, however, appear to result in a tendency to keep translated equivalents for valued concepts semantically separated. (Factor III).

A French-Canadian accent and the meaningfulness of French concepts were found to be related to the meaningfulness of English concepts and to sex. This was interpreted as possibly indicating that both a general fluency and a sex component accounted for achievement in some French skills which are not acquired in formal instruction. Since this

aspect of achievement was characteristic of boys, it was hypothesized that these skills may be acquired in interaction with French-Canadians in various activities more available to young men. (Factor V).

Parental Supports of the Integrative Orientation

The results of this study as well as a previous one (24) suggest that the integrative orientation is the coordinator of attitudes and motivation which gives the concept of the integrative motive in language study its distinctive meaning. That is, the student's orientation in language study and language use provides a meaningful bond between the student's drive to acquire the language and his attitudes towards the language group or particular members of that group. Because of this, the study was designed to determine what parental support, if any, there was for an integrative orientation. In interviews with a parent of each student⁷, questions were asked to determine:

- (a) the parent's orientation towards language study (classified as integrative or instrumental).
- (b) the parent's attitudes towards the French-Canadian community (scored as pro-French or neutral and anti-French).
- (c) the number of French speaking friends the parents had (classified as many, or few).

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Only one parent in each family was interviewed. Generally, this was the mother, however, in some instances the father was the only one available for interviewing.

- (d) the number of French speaking friends the parent thought his child had (classified as many, or few).
- (e) the degree of French language skill each parent felt he or she possessed (classified as poor, or good command of the language).

Table VII gives the χ^2 values obtained for the relation between the student's orientation and each of the variables listed above. These data clearly suggest that a high school student's orientation is related to that of the parent. Integratively-oriented students tended to have an integratively-oriented parent, instrumentally-oriented students, an instrumentally-oriented parent ($\chi^2 = 6.73, p < .01$). Similarly, the student's orientation was positively related to the parent's attitude towards the French-Canadians.

Integratively-oriented students came from homes where the attitudes were pro-French, while instrumentally oriented students came from homes where the attitudes were either neutral, or negative ($\chi^2 = 4.30, p < .05$).

While the data do not indicate any association between the student's orientation and the number of French friends his parents have ($\chi^2 = 0.00$), there is the suggestion that the parents of integratively-oriented Ss think that their children have more French-Canadian friends than do the parents of the instrumentally-oriented students ($\chi^2 = 3.17, p < .10$).

Whether this is a statement of fact, (i.e., that the integratively-oriented Ss do have more French friends) cannot be ascertained from the data. It is equally possible that this relation reflects the attitudes of the parents. That is, because they have favorable attitudes towards the French-Canadian community, the parents of the integratively-oriented student are

willing to ascribe a number of French friends to their children, while parents of the instrumentally oriented Ss, with their unfavorable attitude, will not admit that their children associate with many French-Canadian children.

Finally, the student's orientation does not reflect an opportunity to use the second language in the home situation. Neither the mother's nor the father's proficiency in French is related to the student's orientation.

Although, there is nothing in the data to definitely support the hypothesis that an integrative motive is dependent upon any antecedent conditions in the home, it is clear that an integrative orientation will not be maintained by the student unless it is reinforced by a similar orientation and favorable attitudes toward the other language group by members of his family.

SUMMARY AND CONCLUSIONS

Thirty tests measuring French achievement, language aptitude, orientations toward the French group and to the study of French, and home background characteristics were administered to 83 English-speaking high school students. It was found that language aptitude correlated primarily with those French skills learned in school, while indices of social motivation correlated with all skills measured. A factor analysis confirmed these results and further indicated that an “integrative motive” was of considerable importance for becoming bilingual, and acquiring a French-Canadian accent. Favorable attitudes toward the French-Canadian group were related to language achievement but the integrative motive was factorially unrelated to these attitudes. Other data indicated that an integrative orientation, the central component of the integrative motive, was related to favorable attitudes towards French-Canadian acquaintances. This integrative orientation of students was further found to depend upon parental orientations and attitudes. The findings are considered as hypotheses for further experimental examination.

APPENDIX A

Table I

Relation of Motivational Variables to French Achievement

	Aural Comp	Voc	Gram.	Assoc	Mng Sep.	Read Fl.	Pron Acc	Acc	Aut
Orientation	.36	.31	.40	.08	-.16	.40	.39	.41	-.24
Desire to learn French	.34	.37	.39	.33	-.27	.36	.42	.30	-.23
Motivational Intensity	.07	.33	.30	.37	-.07	.37	.36	.22	-.16
French Attitudes	.23	.10	.09	.19	-.35	-.02	.02	-.14	-.04
French-Canadians	-.10	-.05	-.11	-.11	.40	-.06	.04	.20	.04
Ethnocentrism	-.19	.07	-.07	-.07	.21	.00	-.05	-.04	.14
F-Scale	.00	.13	.04	.15	-.12	.08	-.04	-.25	.00
Anomie Scale	-.11	.03	-.14	.11	.08	.03	-.11	-.03	-.04

For 80 d.f.

$$r = .22 \text{ p} < .05$$

$$r = .28 \text{ p} < .01$$

Table II

Relation of Aptitude Variables to French Achievement

	Aural Comp	Voc	Gram	Ass.	Mng Sep.	Read Fl	Pron Acc	Acc	Aut
Spelling Clues	.42	.49	.46	.28	-.10	.47	.49	.18	.25
Words in Sentences	.41	.39	.56	.09	-.16	.40	.39	.08	.20
Paired Associates	.28	.37	.46	.20	-.16	.34	.34	.01	.08

For 80 d.f.

$$r = .22 \text{ } p < .05$$

$$r = .28 \text{ } p < .01$$

Table III
Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1		.84	.62	.51	.62	.43	.01	-.08	.33	.47	.40	.34	.40	.36	.37
2			.60	.51	.58	.56	-.03	-.07	.35	.49	.39	.34	.39	.42	.36
3				.58	.43	.29	-.16	-.07	.18	.42	.41	.28	.36	.34	.07
4					.52	.26	-.24	.06	.27	.46	.56	.46	.40	.39	.30
5						.25	-.12	-.30	.38	.49	.39	.37	.31	.37	.38
6							.16	-.14	.35	.18	.08	.01	.41	.30	.22
7								.07	-.09	-.10	-.16	-.16	-.16	-.27	-.07
8									.03	.25	.20	.08	-.24	-.23	-.16
9										.28	.09	.20	.08	.33	.37
10											.56	.51	.34	.26	.05
11												.51	.08	.25	.02
12													.10	.25	.16
13														.37	.20
14															.46
15															

See Table IV for the names of the Variables

Table III (continued)

Correlation Matrix

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	-.02	-.06	.00	.08	.03	.00	-.21	.26	.16	.20	-.11	-.18	-.09	.22	.08
2	.02	.04	-.05	-.04	-.11	.00	-.22	.24	.12	.15	-.09	-.09	-.06	.24	.00
3	.23	-.10	-.19	.00	-.11	-.14	-.24	.16	.10	.02	.08	-.15	-.08	.17	.06
4	.09	-.11	-.07	.04	-.14	-.04	-.30	.13	.03	.07	-.11	-.05	-.14	.17	.37
5	.10	-.05	.07	.13	.03	-.05	-.15	.13	-.04	.10	-.14	-.04	-.02	.28	.15
6	-.14	.20	-.04	-.25	-.03	-.04	-.14	.12	.06	.08	.22	.09	.05	.24	-.15
7	-.35	.40	.21	-.12	.08	-.02	.08	.24	-.11	.17	-.05	.05	.06	.03	-.32
8	-.04	.04	.14	.00	-.04	-.11	.07	.08	.02	.07	-.04	-.02	-.10	.15	.12
9	.19	-.11	.00	.15	.11	-.17	-.15	.02	.01	.13	-.14	.12	-.16	.69	-.19
10	.25	-.06	-.07	.08	-.05	-.15	-.18	.15	.01	.07	-.07	-.05	.06	.32	.10
11	.19	-.04	-.16	.04	-.13	.02	-.12	.10	.14	.03	.00	-.14	-.03	.18	.18
12	.23	-.22	-.08	.04	-.18	-.05	.11	.12	.07	.22	-.17	-.11	-.22	.11	.30
13	.12	-.01	.04	-.03	.18	.05	.15	.11	.06	-.03	.19	.02	.00	-.06	.16
14	.23	-.25	-.16	-.07	-.25	.01	-.31	.15	.00	.17	-.11	-.21	-.14	.22	.22
15	.08	-.22	.07	.17	-.01	.02	-.18	.21	.08	.24	-.24	-.11	-.07	.10	.19

Table IV
Principal Component Factor Matrix

	I	II	III	IV	V	VI	VII	VIII	IX
1. Reading Fluency	.79	.23	.13	.16	-.07	.15	-.15	-.09	.05
2. Pronunciation Accuracy	.79	.31	.10	.17	.00	-.01	-.12	-.06	.04
3. French Aural Comprehension	.69	.12	-.07	-.07	.13	0.04	-.26	-.28	.13
4. Grammar	.75	.08	-.18	-.09	.12	.12	-.14	.15	.06
5. Vocabulary	.71	.18	.14	-.07	-.12	.14	-.10	.25	.08
6. Accent	.42	.53	.20	.25	-.07	-.30	-.07	-.10	-.19
7. Meaning Separation	-.23	.22	.33	.61	.10	.09	.04	.00	.29
8. Automaticity	-.06	-.18	.05	.09	.60	.32	.26	-.04	-.03
9. Associations in French	.49	.06	.55	-.13	.03	-.21	.42	.17	-.24
10. Spelling Clued	.66	.07	.03	-.13	.41	.22	.03	-.04	.09
11. Words in Sentences	.57	.03	-.23	-.13	.45	.28	.03	-.07	.08
12. Paired Associates	.57	-.19	-.18	-.07	.30	.23	.02	.25	-.12
13. Orientation	.47	.33	-.09	-.12	-.33	.01	-.33	-.17	-.12
14. Desire to Learn French	.64	-.02	-.13	-.06	-.26	-.33	.08	.16	-.06
15. Motivational Intensity Scale	.47	-.07	.11	.11	-.52	-.03	.17	.33	-.10
16. French Attitude Scale	.30	-.39	-.14	-.48	-.10	-.08	.32	-.25	.03
17. French-Canadians (Eval.)	-.27	.70	-.03	.33	.16	.23	.03	.07	-.04
18. Ethnocentrism Scale	-.11	-.07	.46	.12	-.20	.42	-.15	.05	.17
19. California F-scale	.07	-.25	.39	-.39	-.31	.55	.11	-.02	.17
20. Anomie Scale	-.16	.21	.45	-.30	-.29	.52	-.02	-.20	-.20
21. English Canadians (Eval.)	-.11	.44	-.47	-.10	-.28	.19	.44	.07	.20
22. Perceived Dissimilarity	-.37	.02	.12	.09	.18	.32	-.26	.28	-.59
23. Attention	.31	-.14	-.16	.68	-.14	.15	.23	-.11	.08
24. Discipline	.16	-.13	-.13	.14	-.11	.15	.13	-.64	-.44
25. Affection	.27	-.28	-.14	.67	-.14	.12	.34	.07	-.14
26. My Mother	-.24	.73	-.29	-.17	.07	-.04	.14	-.14	-.21
27. My Father	-.24	.48	.04	-.29	.12	-.11	.07	.34	-.03
28. Me	-.24	.65	-.18	-.13	-.14	.27	.29	-.06	.15
29. Associations in English	.35	.14	.51	-.13	.30	-.20	.49	-.03	-.08
30. Sex	.22	-.17	-.63	-.05	-.15	.36	.01	.29	-.21

Table V
Rotated Oblique Factor Matrix

	I	II	III	IV	V	VI	VII	VIII	IX
1. Reading Fluency	.71	.19	.18	-.01	.06	.13	.07	.04	-.09
2. Pronunciation Accuracy	.70	.21	.16	.01	.13	-.04	.02	.05	-.11
3. French Aural Comprehension	.70	.02	-.11	-.11	-.08	-.07	.11	-.14	-.21
4. Grammar	.74	.08	-.03	-.02	-.05	-.05	-.13	.02	.15
5. Vocabulary	.63	.28	.01	.00	.11	.18	-.21	.06	.10
6. Accent	.30	.38	.11	.11	.30	-.24	.13	.21	-.12
7. Meaning Separation	-.08	-.21	.48	.10	.02	.10	-.20	.06	-.43
8. Automaticity	.12	-.69	.16	-.01	.16	.03	.04	.06	.02
9. Associations in French	.12	.19	.01	-.09	.85	.05	.01	.02	.08
10. Spelling Clued	.74	-.30	-.05	-.01	.16	.05	-.02	-.05	-.03
11. Words in Sentences	.71	-.38	-.03	.08	-.01	-.04	.02	-.07	.05
12. Paired Associates	.54	-.15	.05	-.13	.04	-.06	-.08	.15	.37
13. Orientation	.44	.46	-.15	.09	-.16	.06	.20	.09	.06
14. Desire to Learn French	.25	.50	.04	-.09	.19	-.24	-.03	-.12	.16
15. Motivational Intensity Scale	.05	.58	.30	-.04	.23	.13	-.08	.04	.28
16. French Attitude Scale	.00	-.03	-.21	-.11	.19	.06	.27	-.51	.03
17. French-Canadians (Eval.)	.08	-.15	.22	.60	-.04	-.05	-.08	.34	-.04
18. Ethnocentrism Scale	.00	-.03	.12	-.10	-.09	.62	-.12	.08	-.14
19. California F-scale	.04	-.05	-.14	-.04	.06	.84	.01	-.23	.00
20. Anomie Scale	-.03	.04	-.21	.20	.11	.73	.30	.16	.06
21. English Canadians (Eval.)	-.08	.06	.16	.82	-.09	.01	-.06	-.28	.09
22. Perceived Dissimilarity	-.13	-.06	-.07	-.09	-.06	.08	.06	.79	.54
23. Attention	.11	-.02	.79	.04	-.07	-.06	.16	-.08	-.07
24. Discipline	-.02	-.05	.23	.00	.04	.02	.83	.02	.08
25. Affection	-.05	.04	.82	-.04	.07	-.11	.18	.08	.19
26. My Mother	-.02	.01	-.19	.70	.06	-.26	.19	.13	.08
27. My Father	-.06	.06	-.34	.37	.18	-.11	-.33	.16	.12
28. Me	-.02	-.05	.00	.82	-.03	.16	.00	-.13	-.07
29. Associations in English	.13	-.14	.01	-.09	.85	.05	.01	.02	.08
30. Sex	.19	.11	.14	.17	-.35	-.04	.03	.18	.65

Table VII
Relation Between Student Orientation
and Parent's Interview Data

Variables	χ^2 *	d.f.	p
Mother's Orientation	6.73	1	< .01
Mother's Attitudes	4.30	1	< .05
Parent's French Friends	0.00	1	N.S.
Student's French Friends	3.17	1	< .10
Parent's French Skills			
Mother	0.10	1	N.S.
Father	0.04	1	N.S.

* Corrected for continuity. A negative χ^2 would indicate that the distribution of frequencies in the 2X2 table was in the opposite direction to that predicted. (2005 addition: Obviously χ^2 is always positive. This footnote was meant to indicate that if the distribution of frequencies had been opposite to prediction, a negative sign would have been affixed to the χ^2 value to indicate this. In this case, all frequencies were in the predicted direction, and hence this alteration was not necessary.)

APPENDIX B

TESTS ADMINISTERED

1. Reading Fluency.

Tape recordings of the students reading a passage of unfamiliar French prose were rated on a seven point scale by each of two French experts to determine how fluently each student read. Interjudge reliability was 0.87. The judges' ratings were combined for one Reading Fluency rating.

2. Pronunciation Accuracy.

The same two judges rated each student's recording on a seven point scale in terms of his accuracy of French pronunciation. The interjudge reliability coefficient was 0.84. The ratings were combined to form an estimate of a student's pronunciation accuracy.

3. French Aural Comprehension.

Part I of the French Listening Comprehension Test (Form A) from the Cooperative French Tests, Educational Testing Service, Copyright 1955. High scores indicate a high level of achievement in understanding spoken French.

4. Grammar.

Part III of the Cooperative French Test (Advanced form), Educational Testing Service, Copyright 1951. High scores indicate a good command of French grammar.

5. Vocabulary.

Part II of the Cooperative French Test (Advanced form), Educational Testing Service, Copyright 1951. High scores indicate a good command of the French vocabulary.

6. Accent.

The judges classified each student's tape recording as manifesting either a French-Canadian accent or no French-Canadian accent. Point biserial correlations are positive if the presence of an accent is related to high scores on the other tests.

7. Meaning Separation.

Osgood's Dij of the main ratings of each translated equivalent on the three semantic factors was calculated. The translated equivalents were "me" vs. "moi" and "my friend" vs. "mon ami". Ratings were made on each of the following semantic differential scales: good-bad, pleasant-unpleasant, clean-dirty, strong-weak, large-small, fast-slow, active-passive, and hot-cold. (Ref. 45).

8. Automaticity.

The time taken to respond to each of a series of French and English directions was obtained. The time-scores were converted to ranks and the difference between the mean rank of the English times was subtracted from the mean rank of the French times. This procedure removes the effect of subject variability in speed of response. A high score indicates English dominance, a low score French dominance (see Ref. 29).

9. Associations in French.

The score used was the total number of French associations given to each of the following stimulus words in 30 second time intervals: petit, ami, maison, and libre. The larger the score, the more "meaningful" are the French words.

10. Spelling Clues.)

From J. B. Carroll's "Psi-Lambda Foreign Language Aptitude Battery" (Ref. 10).

11. Words in Sentences.)

12. Paired Associates)

13. Orientation.

Students were classified as integratively- or instrumentally- oriented according to the answers to the following questions.

1. What advantages, if any, have you experienced by speaking French with your French friends?
2. What disadvantages are there for not being able to speak French?
3. What types of personal satisfactions, if any, have you had for speaking French?

Those students who stressed that the advantages and satisfactions associated with speaking French were that they enabled one to know the French better, allowed one to make more French friends, etc., were classified as integratively oriented. Those students who stressed that the advantages of learning the language were to obtain a better job, or higher marks in school etc., were classified as instrumentally oriented. Point biserial correlations are positive if the integrative orientation is associated with higher scores on other tests.

14. Desire to learn French.

Students checked on a seven point scale (from “not at all” to “very much”) how much they wanted to learn French. The larger the score, the greater the desire.

15. Motivational Intensity Scale.

Scores on this indicate the amount of effort the student expends in learning French. The scale is reproduced on pp., 62-63.

16. French Attitude Scale.

Twenty positively worded statements about French-Canadians were presented and the student was asked to indicate his degree of disagreement or agreement on a 7-point scale. A sample item is: “The French-Canadian has every reason to be proud of his race and culture.” (Ref. 23).

17. French-Canadians (Evaluation).

The students rated the “French-Canadians” on the nine semantic differential scales (see 7, above). The mean rating on the three evaluative scales is the score used here. A high score indicates a negative evaluation of the French-Canadians.

18. Ethnocentrism Scale.

The Ethnocentrism Scale adapted from Else Frenkel-Brunswick’s Ethnocentrism Scale for Children was used (21). High scores indicate ethnocentrism.

19. California F-Scale.

Three items dealing with sex were removed from forms 40 and 45 of the scale to comply with the wishes of the school board authorities. The larger the score, the more authoritarian the student. (Ref. 1).

20. Anomie Scale.

This scale was designed to measure an individual's dissatisfaction with his role in society. (See Ref. 49).

21. English-Canadians (Evaluation).

The students rated the "English-Canadians" on the nine semantic differential scales (see 7, above). The mean rating on the three evaluative scales is the score used here. A high score indicates a negative evaluation of the English-Canadians.

22. Perceived Dissimilarity.

The difference between the Dij for "me" vs. "French Canadians" and that for "me" vs. "English-Canadians" is an index of how different the student perceives the French-Canadians, as compared to his own reference group, as being from himself. The larger the score the greater the perceived dissimilarity.

23. Attention.) Tests 23, 24, and 25, taken from Schutz (48) are designed

24. Discipline.) to measure the remembered characteristics of the early
home environment or subject. A high score on Test 23
indicates a considerable amount of attention in the home;25. Affection.) Tests 24 and 25 refer to the amount of discipline and
affection recalled about the early home life.

26. My Mother.)

27. My Father.)

The mean rating of each student for each of these concepts on the evaluative dimension of the semantic differential. A high score indicates a negative evaluation of the concept.

28. Me.)

29. Associations in English.

The score used was the total number of English associations given to each of the following stimulus words in 30 second time intervals: sad, garden, thought, and honor. The larger the score, the more “meaningful” are the English words.

30. Sex.

Point Biserial correlations are positive if girls tended to score higher on other tests.

MOTIVATIONAL INTENSITY SCALE

Answer the following questions by placing a check-mark (✓) to the left of the statement which appears most applicable to you. Try at all times to answer as accurately as possible.

Remember that this questionnaire will not be seen by anyone in this school or in this School System. Only members of this research team will have access to your answers.

Be as accurate as possible.

1. Compared to the rest of my French class, I think I:

- _____ a. do more studying than most of them
 _____ b. do less studying than most of them
 _____ c. study about as much as most of them

2. I try to speak French:

- _____ a. only when I have to
 _____ b. not at all
 _____ c. every opportunity I get
 _____ d. none of these (explain) _____

3. If French was not taught in this school, I would probably:

- _____ 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 and try to speak it when possible)
 _____ d. none of these (explain) _____

4. On the average, I spend about the following amount of time doing home study in French: (include all homework other than written exercises)

- _____ a. four hours per week
 _____ b. seven hours per week
 _____ c. one hour per week
 _____ d. none of these (give approximate number of hours per week) ____ hours

5. Looking back on last year's French class, I can honestly say that I:
- a. did just enough work to get along
 - b. must have passed on the basis of sheer luck or intelligence as I did very little work
 - c. really tried to learn French
 - d. none of these (explain) _____

6. I read French newspapers and magazines:
- a. only once in a while if they appear interesting
 - b. whenever I get the opportunity
 - c. never
 - d. none of these (explain) _____

7. After I finish High School, I will probably:
- a. use my French as much as possible
 - b. make no attempt to remember by French
 - c. continue to improve my French (e.g., daily practice, night school, etc.)
 - d. none of these (explain) _____

REFERENCES

REFERENCES

1. Adorno, T. W., Frenkel-Brunswick, E., Levinson, D. J., & Sandford, R. N. The authoritarian personality. New York: Harper, 1950.
2. Bowlby, J. Maternal care and mental health. Geneva: World Health Organization, 1952.
3. Buxbaum, E. The role of a second language in the formation of ego and superego. Psychoanalytic Quarterly. 1949, 18, 279-289.
4. Carroll, J. B. "A factor analysis of two foreign language aptitude batteries." Harvard University. (Mimeographed)
5. Carroll, J. B. "Summary of validity coefficients - - foreign language aptitude battery." Harvard University. 1956. (Mimeographed)
6. Carroll, J. B. "Solution of the oblimin criterion for oblique rotation in factor analysis." Harvard University, 1958. (Mimeographed)
7. Carroll, J. B. "IBM 704 program for oblimin rotation solution in factor analysis." Harvard University, 1958. (Mimeographed)
8. Carroll, J. B. "Preliminary change sheet - - IBM 704 program for oblimin rotation solution in factor analysis". Harvard University, 1958.
(Mimeographed)
9. Carroll, J. B. The prediction of success in intensive foreign language training (Preliminary draft - - Paper prepared for a Symposium on Training Research, University of Pittsburg, February 1960). (Mimeographed).

10. Carroll, J. B., and Sapon, S. M. "Supplement I to examiner's manual - - Psi-Lambda foreign language aptitude battery." Harvard University. 1956
(Mimeographed)
11. Carroll, J. B., and Sapon, S. M. "Cross validation of foreign language aptitude tests with a second Air Force trial course sample." The Harvard language aptitude project: Report No. 2, Cambridge, Mass., February, 1955.
(Mimeographed)
12. Carroll, J. B., Sapon, S. M., and Richards, S. E. "Construction and validation of a test battery for predicting success in spoken foreign language courses." The Harvard language aptitude project: Report No. 1, Cambridge, Mass., June, 1954.
(Mimeographed)
13. Christie, R., and Jahoda, M. Studies in the scope and method of the authoritarian personality. Illinois: Free Press, 1954.
14. Coleman, A. Experiments and studies in modern language teaching. Chicago: University of Chicago Press, 1934.
15. Cox, F. N. The prediction of success and failure in learning foreign languages. Aust. J. Psychol., 1955. 7. 56-65.
16. Davitz, J. R. Social perception and sociometric choice of children. J. abnorm. soc. Psychol. , 1955. 50, 173-176.
17. Dunkel, H. B. The effect of personality type on language achievement. J. educ. Psychol., 1947, 38, 177-182.

18. Dunkel, H. B. Second-language learning. Boston: Ginn, 1948.
19. Ervin, Susan, M. "Identification and bilingualism." Harvard University, 1954.
(Mimeographed)
20. Ervin, Susan, M., and Osgood, C. E. Second language learning and bilingualism. J. abnorm. soc. Psychol., Supplement. 1954, 49, 139-146.
21. Frenkel-Brunswick, Else. A study of prejudice in children. Human Relations. 1948, 1, 295-306.
22. Fructer, B. Introduction to factor analysis. New York: Van Nostrand, 1954.
23. Gardner, R. C. Social factors in second-language acquisition. Unpublished Master's thesis, McGill University, 1958.
24. Gardner, R. C., and Lambert, W. E. Motivational variables in second-language acquisition. Canad. J. Psychol., 1959, 13, 266-272.
25. Guilford, J. P. Psychometric methods. New York: McGraw-Hill, 1954.
26. Henmon, V.A.C. Prognosis tests in the modern foreign languages. Publications of the American and Canadian committees on modern foreign languages. 1929, 14, 3-31.
27. Henle, P. (ed.) Language, thought and culture. Michigan: Univer. of Michigan Press, 1958, 49-95.
28. Hill, A.A. (ed.) Report of the fourth annual round table meeting on linguistics and language teaching. Washington, D.C. Georgetown Univer. Press. 1953, 21-29.

29. Lambert, W. E. Measurement of the linguistic dominance of bilinguals. J. abnorm. soc. Psychol., 1955, 50, 197-200.
30. Lambert, W.E. Developmental aspects of second-language acquisition: I Associational fluency, stimulus provocativeness, and word-order influence. J. soc. Psychol., 1956, 43, 83-89.
31. Lambert, W. E. Developmental aspects of second-language acquisition: II Associational stereotypy, associational form, vocabulary commonness, and pronunciation. J. soc. Psychol., 1956, 43, 91-98.
32. Lambert, W.E. Developmental aspects of second-language acquisition: III A description of developmental changes. J. soc. Psychol., 1956, 43, 99-104.
33. Lambert, W.E., Havelka, J., and Crosby, C. The influence of language-acquisition contexts on bilingualism. J. abnorm. soc. Psychol., 1958, 56, 239-244.
34. Lambert, W.E., Havelka, J., and Gardner, R.C. Linguistic manifestations of bilingualism. Amer. J. Psychol., 1959, 72, 72-82.
35. Lambert, W.E., Hodgson, R.C., Gardner, R.C., and Fillenbaum, S. Evaluational reactions to spoken languages. J. abnorm. soc. Psychol., 1960, 60, 44-51.
36. McCarthy, Dorothea. Language disorders and parent-child relationships. J. speech Dis., 1954, 19, 514-523.
37. McCarthy, Dorothea. Language development in children. Chapter 9 in Manual of child Psychology. (Carmichael, L., editor) New York: Wiley, 1954.

38. Moore, J.K. Speech content of selected groups of orphanage and non-orphanage preschool children. J. exp. Educ., 1947, 16, 122-133.
39. Miller, N.E., and Dollard, J. Social learning and imitation. Connecticut: Yale Univer. Press. 1941.
40. Mowrer, O.H. Learning theory and personality dynamics. New York: Ronald, 1950.
41. Nida, E.A. Motivation in second-language learning. Language learning, 1956-1957, 7, 11-16.
42. Nida, E.A. Some psychological problems in language learning. Language learning, 1957-1958, 8, 7-16.
43. Noble, C.N. An Analysis of Meaning. Psychol. Rev., 1952, 59, 421-431.
44. Osgood, C.E., and Jenkins, J.J., A psycholinguistic analysis of decoding and encoding. J. abnorm. soc. Psychol., Supplement 1954, 49, 126-135.
45. Osgood, C.E., Suci, G.J., and Tannenbaum, P.H. The measurement of meaning. Illinois: Univer. of Illinois Press, 1957.
46. Politzer, R.L. Student motivation and interest in elementary language courses. Language learning, 1953-1954, 5, 15-21.
47. Queener, E.L. Introduction to social psychology. New York: Sloane, 1951.
48. Schutz, W.C. FIRO - - A three-dimensional theory of interpersonal behavior. New York: Rinehart, 1958.
49. Srole, L. "Social dysfunction, personality and social distance attitudes." (Paper

read before American Sociological Society, 1951 National Meetings, Chicago, Illinois)

50. Symonds, P.M. A modern foreign language prognosis test. Publications of the American and Canadian Committees on modern foreign languages. 1929, 14, 91- 126.
51. Titus, H.E., and Hollander, E.P. The California F-Scale in psychological research: 1950-1955. Psychol. Bull., 1957, 54, 47-64.
52. Todd, J.W. The psychological fundamentals of linguistic achievement. Publications of the American and Canadian Committee on modern foreign languages, 1929, 14, 129-172.
53. Travers, R.M.W. An inquiry into the problem of predicting achievement. Research Bulletin, AFPTRC - TR - 54-93, 1954.
54. Whyte, W.F., and Holmberg, A.R. Human problems of U. S. enterprise in Latin America. Human Organization, 1956, 15, No. 3, 1-40.
55. Williams, H.M., and McFarland, M.L. A revision of the Smith Vocabulary Test for preschool children. Part III Development of language and vocabulary in young children. University of Iowa Studies in Child Welfare, 1937, 13, 35-46.
56. Wittenborn, J.R., and Larsen, R.P. A factorial study of achievement in college German. J. educ. Psychol., 1944, 35, 39-48.