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ADULT LEARNERS IN THE FOREIGN LANGUAGE CLASSROOM: AN EXPLORATORY STUDY OF LEARNER VARIABLES AFFECTING SUCCESSFUL LANGUAGE LEARNING

The Ohio State University

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ADULT LEARNERS IN THE FOREIGN LANGUAGE CLASSROOM:
AN EXPLORATORY STUDY OF LEARNER VARIABLES
AFFECTING SUCCESSFUL LANGUAGE LEARNING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

by
Bette LeFeber Stevens, B.A., M.A.T.

* * * * *

The Ohio State University
1983

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To Jerry, General and "Ozzie"

"Friends in Need are Friends Indeed"
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And with love to my family, especially my mother, who have always urged me to "go for it."
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FIELDS OF STUDY

Major Field: Foreign Language Education

Studies in Foreign Language Education.
  Professors Edward D. Allen and Gilbert A. Jarvis

Studies in Cultural Anthropology and Role Analysis.
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I. INTRODUCTION TO THE PROBLEM

Introduction

As more and more adults have returned in recent years to institutions of higher education for pleasure or for advancement in their chosen fields, the population of the college foreign language classroom has changed. The more or less homogeneous classroom population, composed of students who are 18 to 22 years old and who come from somewhat similar educational and experiential backgrounds, has been augmented or replaced in many colleges and universities by students of widely varying motivations, backgrounds, ages and abilities. As a result, foreign language educators face more disparate groups of students than in prior years.

The numbers of 18 to 22 year-old students in institutions of higher education during the 1980's and 1990's will decrease, due in part to this age group's declining birthrate and in part to a decision by 18 to 22 year olds to defer higher education for a few years in order to work. On the other hand, the numbers of adults, age 23 and above, who will be enrolling in institutions of higher education will increase during the next decades. In 1972, 29 per cent of the students in institutions of higher education were 24
years old. By 1978, the proportion had risen to 35 per cent (Ostar, 1981).

Colleges and universities, in addition to their regular course offerings, are actively recruiting adults through programs such as Weekend College or Saturday University. These innovative programs attract adults who are involved in life-long learning, leisure-time learning pursuits, or mid-life career changes. These enrollment changes and the challenge of meeting these varied adult-student needs have encouraged foreign language educators (Wesche, 1975; Webb, 1980; Joiner, 1981) to look at the adult learner in various learning situations, such as, courses for special purposes, career-related language courses, intensive workshops for credit or non-credit and traditional language courses leading to a degree. These researchers emphasize the need for foreign language educators to understand the learning characteristics of adults, to understand in what ways adult learners are different from pre-adult learners, and to understand how these differences affect learning a foreign language.

Statement of the Problem

It has been established that adults, 23 years old or older, have approaches to learning and learning characteristics that differ from those of pre-adults, 18-22 years old
In a study specifically concerned with adults in foreign language classrooms, Webb found that teachers of adults in beginning-level, career-related Spanish classes indicated that teaching adults differed substantively from teaching pre-adults.

Clearly then, foreign language educators are beginning to realize that adults in their classes are somehow different from traditional-aged students but descriptions of these differences are, as yet, rather vague. Without such knowledge, arranging appropriate conditions for learning for this group becomes a "shotgun" approach.

It is, therefore, important that foreign language educators understand learning characteristics of older learners, how these characteristics may differ from pre-adult learners, and determine how these characteristics may affect foreign language learning.

This research attempted to provide this information. The study identified certain learner variables that seem to matter in foreign language learning and contrasted adult and pre-adult learners on measures associated with those variables.

Rationale for Identification of Adult Foreign Language Learner Characteristics Contrasted to Those of Pre-adults

Adult learning theory (Knox) stresses that although adults change throughout adulthood, personality
characteristics of a given adult, when measured from year to year, will remain fairly stable. When considered from decade to decade, however, there is evidence of change and modification, especially with respect to how adults view the self. Knox says that adults' needs, motives, interests, and attitudes continue to be modified by interaction with others. By describing these variables and how they may relate to foreign language learning, foreign language educators will gain a better understanding of students in their classrooms. Webb suggests identifying successful and unsuccessful adult learners and investigating personality variables that may affect learning a foreign language. She advocates correlating such variables with language achievement.

Rubin (1975) and Wesch also advocate analysing personality variables of unsuccessful as well as successful foreign language learners. Although investigating unsuccessful or minimally-successful learners proved to be difficult in Wesch's and Rubin's studies, they felt it was important to look at "what did not work" as well as what was successful. Stern, et al. (1978) recommend a "cautious teaching how-to-learn" approach, especially with adults, since one finding of their Adult Interview Study that impressed the research team was the active and directing role the adult interviewees had taken in making their language learning successful.
In addition, Naiman et al. (1978) in their study of the good language learner recommend that in future studies it would be desirable to investigate the relationship of aptitude as manifested in language aptitude tests, and the other processes employed language learners. One major omission of their study, they felt, was the absence of the Carroll-Sapon MLAT (Modern Language Aptitude Test) or EMLAT (Elementary Modern Language Aptitude Test) or the Pimsleur PLAB (Pimsleur Language Aptitude Battery).

Because adults have acquired a wider variety of experiences, there are greater individual differences among adults than there are among children or adolescents. Knowles (1973), an adult learning theorist, believes that, to a certain extent, adults are the product of their experiences. Foreign language educators need to understand the ways in which these widely-varying experiences may affect adults in learning a foreign language.

Value of the Study

In "Strength Through Wisdom: A Critique of U.S. Capability, A Report to the President from the President's Commission on Foreign Languages and International Studies" (1980), it is stated that in order to implement any program of global awareness, all levels of education would have to take into account the growing adult population of the United
States. In addition, funding is recommended in order to teach two segments of the adult population: 1) persons in business, industry, trade, and government who require skills in foreign languages and culture in order to conduct their business; and 2) persons who wish to pursue the study of foreign languages and cultures as a leisure-time activity. In order to facilitate learning by these segments of the adult population, however, it is necessary to have a better understanding of the variables that affect their learning.

What motivations, for example, do adults have for learning a foreign language? Gardner and Lambert (1972) found that in North American learning environments students of foreign languages profited more from the study of a foreign language if they were helped to develop an integrative rather than an instrumental, outlook toward the group whose language was being studied. (An integrative outlook was characterized by wishing to learn more about the other culture. An instrumental outlook, on the other hand, was associated with linguistic achievement or getting ahead in one's occupation.) Their study, it should be recalled, focused on adolescents. Does the kind of motivation make a difference for successful foreign language learning by adults? Might instrumental motivation be as appropriate as integrative motivation for adults who need to learn a foreign language for business purposes or who need to complete a language requirement for an undergraduate or graduate liberal arts degree?
What kinds of learning backgrounds do adults bring to the foreign language classroom? Does high school Latin taken 20 years ago influence the language learning ability of an adult learner returning to the educational environment after a hiatus of several years? High school grades or Scholastic Aptitude Tests serve as points for comparison or prediction of achievement for the traditional-age student. What kinds of measures are appropriate predictors for adults? Do high school grades have any kind of predictive validity 20 years after graduation? These kinds of questions must be asked and answered by foreign language educators who want to come to know adult learners. An appropriate research design, the exploratory field study, is one way to find some of the answers to these kinds of questions.

Kerlinger (1973) advocates the use of exploratory field studies, such as the one here, in order to discover significant variables in the field situation and the relations among those variables. Such studies, he states, lay the groundwork for more systematic analysis at a later date, including rigorous testing of hypotheses by controlled experiments. The value of a study to explore adult language learner variables, including motivation, language aptitude and selected personality traits, is that educators would be able to identify variables that seem to be important when adults learn foreign languages and the relations among those variables. It would then be possible for educators to identify students
having similar profiles and to take such information into account when arranging conditions for learning. In addition, by designing activities based on such profiles, foreign language educators would help adults to strengthen characteristics or combinations of characteristics that seem to matter in successful foreign language learning.

Purpose of the Study

The purpose of this study was to evaluate the effects of selected learner characteristics or combinations of characteristics that appear to contribute to success in learning a foreign language. Adult and pre-adult learners of foreign languages were contrasted on these selected characteristics in order to see if there were differences between the two groups.

The study addressed the following research questions:

1. Which selected learner characteristics or combinations of characteristics seem to be most important for successful foreign language learning by adults?

2. Are there differences between adult learners and pre-adult learners on these selected characteristics?
Definition of Terms

The operational definitions used in this study were as follows:

1. **Adult learner.** An adult learner is a student 23 years old or older. Ashby (1974), Johansen and Samuel (1977) and McCoy (1977) use 22 as the upper limit of the "college age group". Persons beyond 22 are considered adults.

2. **Pre-adult learner.** A pre-adult learner is a college student 22 years old or younger. (In this study the term is interchangeable with traditional-aged learner.)

3. **Traditional-aged learner.** The traditional-aged learner is designated as 13-22 years old. (McCoy characterizes this developmental stage as "Leaving Home.")

4. **Adult Learning Characteristics.** These are the approaches to learning and the learning characteristics typical of adults that may affect their ability to learn a foreign language. (Webb, pp. 56-60, has identified fifteen learning characteristics based on the literature on adult learning.) These characteristics are described in detail in Chapter II.

5. **Language Aptitude.** Language aptitude is the potential for achievement in learning a foreign language in a typical foreign language course in the usually allotted time. This construct is measured by the Modern Language Aptitude Test (Carroll and Sapon, 1959). Low aptitude in this study is defined as those scores on the MLAT that fall in the bottom quartile; that is, any total raw score between 29 and 70.

6. **Foreign Language Achievement.** Achievement in a foreign language is defined as the grade received after the first semester of study of a foreign language in a formal classroom setting.

7. **Instrumental Motivation.** Motivation for learning a foreign language related to getting ahead in one's occupation or to linguistic achievement.
This construct is measured by the Motivation Orientation Scale (Gardner and Lambert, 1972).

8. **Integrative Motivation.** Motivation for learning a foreign language related to wishing to know more about the other culture or to acquire the language of a valued second-language community in order to communicate with that group (Gardner, et al., 1976). This construct is measured by the Motivation Orientation Scale.

9. **Language Learning Background.** The prior language-learning experiences of the learner, either formal or informal.

10. **Social Background.** The socio-economic status, ethnic group, sex, etc. of the learner.

11. **Dogmatism.** The resistance to change of a system of beliefs. This construct is measured by Rokeach's (1960) D-Scale, a rating scale that measures the openness and closedness of an individual's belief system and general intolerance and authoritarianism.

12. **Cognitive Flexibility.** The ability to change patterns of thinking or approaches to a task. Individuals high in cognitive flexibility make these changes more easily and spontaneously than those who are low in cognitive flexibility. Greater cognitive flexibility indicates less rigidity in one's thinking. This construct is measured by the Functionally Remote Associates Test (FRAT) (Worthen and Clark, 1971), an adaptation of Mednick's Remote Associates Test (RAT) (Mednick, 1962).
Limitations of the Study

The very nature of an exploratory study is to discover and identify variables in the learning situation. This precludes any attempt to predict performance in a given learning situation although results from such a study may lead researchers to design further studies with such predictive powers. In addition, the sample selected is limited to adults and pre-adults learning a foreign language in an academic learning situation.

The results of this study are generalizable to populations of similar composition to that of the one used here. That is, they are generalizable to adult and pre-adult students at Ohio Dominican College, a small, private liberal arts college having a foreign language graduation requirement. The use of volunteers also admits bias into the study.

The question of whether tests of dogmatism and remote associational ability are valid measures of authoritarianism and cognitive flexibility is still largely unanswered. The use of those measures here was based on precedents set in earlier studies. Whether or not the measures used in this study produce a true indication of dogmatism and cognitive flexibility, it is likely that they measure the same effect that has been observed in previous studies.
Organization of the Dissertation

The report of this study is divided into five sections followed by appendices and a bibliography. The first chapter presents the problem that was investigated, the objectives of the study, the research questions to be answered and the definitions of key terms and concepts referred to throughout the report. The second chapter is a review of the pertinent literature and how this particular study relates to research that has already been done. The third chapter describes the procedures of the investigation, the testing instruments used and the statistical analyses employed. In the fourth chapter the findings are analyzed based on the interpretation of the results of statistical procedures utilized and on the interpretation of other measures employed in the study. Chapter five contains a summary of the study and recommendations for further research.
II. RELATED RESEARCH

**Foreign Language Aptitude**

Individuals differ in their capability to learn a foreign language. Some people appear to acquire a foreign language with seemingly little effort although their motivation and attitude may not be particularly strong. Others, however, seem to have a great deal of difficulty in learning a foreign language even when highly motivated and interested in doing so. Although many adults can and do learn foreign languages successfully, some people still feel that learning a foreign language is best undertaken before a certain "critical period" has ended, before a certain "knack" or aptitude has been lost. Does a "knack" or aptitude for learning a foreign language exist? If so, can it be measured? Do adults have the same amount of aptitude as children or is it somehow lost as individuals age?

Some researchers, such as Scovel (1969), Seliger (1978) and Selinker (1972) have adopted what is referred to as a "softened version" of the critical period hypothesis. This version considers that 1) for purely biological reasons, most adult language learners will be incapable of acquiring accent-free speech in a second language; 2) that exceptions to this rule are adults who have somehow retained the language
learning cerebral configuration of children; and 3) that theories or models of second language acquisition need not account for these exceptions.

Other researchers (e.g., Hubbard, 1975; Roeming, 1966) maintain that success in acquiring a foreign language depends on the learner's motivation, personality, and attitude, and not on aptitude. Gardner and Lambert (1972) used aptitude measures extensively in their research but also considered motivational and attitudinal factors as equally important. These two sources of influence, an intelligence-aptitude component and an attitudinal-motivational component are independent, in that one cannot predict from knowledge of a student's intelligence or language learning aptitude scores what his attitudes or motivations may be or vice-versa.

Neufeld (1978, 1979) accepts the concept of foreign language aptitude as "readiness" but believes that it is not fixed; that a learner's experiences prior to the initial foreign language study have greater importance on the successful acquisition of a foreign language. He states that aptitude as a variable in language acquisition models is reasonable from an intuitive standpoint but believes that including aptitude in such models is unwarranted at the present time. One reason is that he thinks that the term aptitude is still ambiguous since it has been defined in different ways by different researchers. He questions
whether aptitude, however it may be defined, is an ability that remains constant or whether it decreases with age. In general he agrees with Ausubel (1964) and Taylor (1974) who have concluded from their research that the differences between adult learning performance and that of children may depend more on social and psychological factors that function independently of any actual language learning ability.

Krashen (1978, 1981), distinguishing between foreign language acquisition (more or less subconscious and found in more informal learning settings) and foreign language learning (conscious and structured such as may be found in a formal classroom setting), found that aptitude as measured by the Modern Language Aptitude Test was more related to conscious learning experiences. In his studies, attitude and personality factors related directly to acquisition and only indirectly to conscious learning. His findings indicate that attitude and aptitude are statistically independent constructs. Thus, aptitude was not related to whether or not a person liked foreign language study. Gardner and Lambert found much the same result in their studies.

John B. Carroll has, for the past twenty-five years, pursued the idea that foreign language aptitude exists and that this aptitude can be measured. In responding to the question of "What is the knack for learning a foreign language?", Carroll (1981) freely admits that he does not possess completely satisfying answers himself. He does not believe,
however, that foreign language aptitude is the same as "intelligence" or even "verbal intelligence" because foreign language aptitude measures do not share the same patterns of correlations with foreign language achievement as intelligence and academic ability measures do. In addition, he states that although an individual may be able to answer questions about his or her motivation and interest in learning a foreign language rather easily, the ability to describe aptitude is not as easily described and only manifests itself indirectly through the observation of learning and performance tasks.

Foreign language aptitude for Carroll differs from the kind of ability required for first language acquisition. He believes that foreign language ability or aptitude is normally distributed and that learners of foreign languages range from weak to strong in their potential for learning a foreign language. He also believes that the isolation of language-related skills is possible and constitutes a sound theoretical approach to the study of foreign language aptitude. He considers aptitude as some current state of capability on the part of the learner before approaching a particular learning task or program. Carroll believes that, at the present time, the kind of evidence that would help researchers decide the rigidity of foreign language aptitude in an individual does not exist. Some evidence that he has,
however, suggests that foreign language aptitude is relatively fixed over long periods of an individual's life span and relatively difficult to modify in any significant way. In some ways this statement would seem to be in conflict with one of Carroll's general findings that from childhood through adolescence foreign language aptitude increases rather than declines. He admits this and suggests that further research will eventually clarify the matter.

Carroll disagrees with psychologists who state that measurements of aptitude cannot be distinguished on empirical grounds from measurements of achievement and that, therefore, there is no difference between aptitude and achievement. He states that both aptitude and achievement are concepts that can be clearly distinguished on theoretical and logical grounds. He offers a number of conditions or criteria for distinguishing between the two concepts, the general idea being that prior to a learning task, there should be no significant correlation between an aptitude test and the achievement test that is to measure the outcomes of the learning program. After the learning program, however, the correlation between the aptitude test given prior to learning and the achievement test given after learning should become significant. Carroll limits his concept of foreign language aptitude to a context consisting of some sort of more or less formal instruction. Aptitude for him is the"rate at which persons at secondary school, university
and adult level learn to criterion" (1973, p. 5).

In a discussion of the Modern Language Aptitude Test, Carroll (1981) concludes that evidence is now available that is clearly against the proposition that foreign language aptitude is a single unitary ability. As measured by the MLAT, aptitude seems to consist of at least four or five basic cognitive abilities that are largely independent of intelligence and that operate independently of the motivations and attitudes of the learner. Gardner and Lambert's findings support Carroll's ways of conceptualizing foreign language aptitude and validate the MLAT. Cloos (1971), in addition to Carroll (1959) and others, has also shown that the MLAT is sufficiently free of measurements that might be affected by prior language learning experience. In Cloos' research prior foreign language study before administration of the MLAT was not significantly related to the MLAT scores received. In addition, Green (1975) found that language aptitude was a better predictor of foreign language achievement than was previous language experience.

In summary, therefore, there are several ways to describe foreign language aptitude. Neufeld assumes the following:
1) there are intrinsic differences between first and second language learning ability; 2) language learning ability is an innate rather than an acquired trait; 3) this ability does not vary significantly from individual to individual or culture to culture; 4) this ability does not decrease with age; and
5) the disparity between child and adult performance can be explained primarily by social and psychological factors which are independent of psycholinguistic abilities.

In addition, Carroll states: 1) that there are adequate theoretical grounds for viewing foreign language aptitude as different from first language acquisition; 2) that foreign language ability is normally distributed, that is, that students lie along a continuum, ranging from weak to strong in foreign language learning potential; and 3) that the isolation of language-related skills in which successful foreign language students excel constitutes a sound theoretical approach to the study of foreign language aptitude.

Age and Language Learning

The question of whether adults or children or adolescents are the best language learners has been and continues to be a hotly debated issue. In an early study of adults as foreign language learners, Thorndike, et al. (1925) found that except for acquiring an acceptable accent in the foreign language, adults learned more rapidly than children on other aspects of foreign language learning when the learning time was held constant for the two groups. Although their study may be seen to have questionable validity when viewed in the light of today's more sophisticated techniques in educational research; nevertheless, it is of historical importance in that
it presented evidence to the contrary that only children were successful learners of foreign languages.

Although some researchers argue for a "critical period" of language learning, beyond which time, perfection in learning a foreign language is rare (Penfield and Roberts, 1959; Lenneberg, 1967), other researchers have argued against such a period for language learning. Asher and Garcia (1969), for example, found no direct evidence to support the belief that a child has a special language learning capacity which is absent in an adult. It must be noted, however, that their study did not include any participant over 19.

A problem with many studies of foreign language learners where age is a variable has been that the definition of "adult" has not been consistent. Adults are frequently cited as anyone over the age of 12 and no study thus far has attempted to contrast adults over the age of 22 with pre-adults on certain learner variables such as aptitude.

Joiner (1981) hypothesizes that on the basis of the research the typical college-age student would be more likely to outperform the older adult in programs that focus almost exclusively on listening and speaking, but that in a balanced skills approach, the older adults could achieve by making the most of their extensive vocabulary and knowledge of grammatical principles. She stresses, however, that there is very little research to support such guesses.
Snow and Hoefnagel-Höhle (1972, 1978) and Olson and Samuels (1973) reject the critical period hypothesis. Their studies showed that youth conferred no immediate advantage in learning to pronounce foreign sounds. Olson and Samuels believe that the biological conditions which are important in primary language learning are not so important in second language learning. Many of the studies cited on both sides of the "critical age" question are based on natural language acquisition rather than upon the artificial language learning situation of the typical classroom. In addition, Ausubel, et al. state that although a critical period of readiness is supported by some aspects of motor, physical and perceptual development, it still has to be validated in the field of intellectual development.

Ausubel (1964) and Neufeld (1978, 1980) conclude that adults can acquire language more readily than children since they don't need to learn concepts but rather just new verbal symbols for already known referents. Even though the most consistent indicator of adult inferiority that Neufeld could find was the average adult learner's inability to get rid of a foreign accent when speaking the second language, adults could acquire native-like proficiency in the sound patterns of another language in an artificial learning situation. Christopherson (1973) suggests that adults are motivated to fail in achieving perfect mastery of a second language because of fear of losing their cultural-personal identities.
It is this researcher's opinion that this fear may be related in some way to dogmatism and that a measure of dogmatism could be useful in contrasting adult and pre-adult learners.

Fathman (1975) found that among children (age 6-15) studying English as a second language, there was a difference in the rate of learning English morphology, syntax and phonology based on differences in age but that the order of acquisition in second language learning did not change with age. She concluded that certain aspects of learning a foreign language may be age related. Saville-Troike (in Gingras, 1978) concurs with Fathman and states that research evidence remains inadequate, contradictory, or questionable on a number of key points in the language learning processes in adults versus those in children.

Smythe, Stennet and Gardner (1975) believe that the weight of research evidence supports the position that in many respects the young child is neither as efficient nor as successful in learning a second language as is the older individual. They support an evaluation of the advantages and disadvantages of foreign language training at certain ages in terms of appropriate goals, aims, and projected benefits that would result from such training. They conclude that strategies and techniques that may be appropriate for the younger learner may not be appropriate for adults. Stern (1976) suggests that on developmental grounds each age in life has probably
its peculiar advantages and disadvantages for language learning. He advocates performing research to resolve the question of what is the most efficient, educationally most productive and most cost-effective combination of time, age and approach.

Krashen, et al. (1979) have concluded after reviewing studies involving age, rate, and eventual language attainment that adults and older children in general initially acquire the language faster than young children but that in the long run child second-language acquisition will usually be superior in terms of ultimate attainment.

Webb, (1980) in an excellent synthesis of the research on adults as learners and adults as learners of foreign languages in particular, lists the following learning characteristics typical of many adults that may affect their success in learning foreign languages.

1. Adults change throughout adulthood; changes in life roles and experiences affect adults' motivation to learn.

2. Adults may experience difficulty in learning in a course or with materials that are viewed as complicated, unusual or fast-paced.

3. Adults tend to emphasize accuracy in the learning tasks they undertake.

4. Adults may need longer to learn than do pre-adults, and they need more practice with verbal material to be learned.

5. With age, adults experience a decline in short term memory and recall ability, and increased interference from previous learning.
6. Adult students may have misconceptions about what the learning task is, and how long it will take to accomplish it.

7. Adults may have lost confidence in their ability to learn.

8. Adults may be less flexible and more rigid in their approaches to learning.

9. Methods and techniques that involve the learner most deeply in self-directed inquiry produce the greatest learning.

10. Adults need to have a part in assessing their objectives and in determining the best ways to meet them.

11. Individual differences in cognitive styles and learning approaches are greater among adults than among pre-adults.

12. Adults learn more easily material they can relate to experiences.

13. Adults are most interested in learning that is immediate and practical; they are basically problem solvers.

14. For adults, work demands and social demands may have priority over learning demands.

15. A fundamental need of adults is to be respected as adults and social aspects of the learning environment need to recognize the adultness of the learner.

In summary then, although the myth appears to be that children are the best learners of foreign languages, the reality seems to be that adults, given the proper conditions for learning, can learn foreign languages as well as, if not better, than children and that different expectations, goals, and outcomes should be considered when planning learning experiences for adults.
Motivation and Second Language Learning

Pimsleur, et al. (1962), in reviewing various early studies of motivation in second language learning, concluded that there were two main factors influencing achievement in second language learning: 1) verbal intelligence and 2) motivation of a particular type, "characterized by a willingness to be like valued members of the language community." (p. 167). In later studies Gardner and Lambert (1972) defined this type of motivation as "integrative" and contrasted it with an "instrumental" type of motivation. Tucker, Hamayan and Genesee (1976) also found that for children measures of attitude and motivation were related to achievement in French and were much better predictors than aptitude and IQ measures. Rubin (1975) reported an interrelationship between foreign language aptitude and motivation and, in addition, found that integrative motivation was more highly correlated with achievement in foreign language learning than was instrumental motivation.

Gardner and Lambert (1972) cite several studies that they have undertaken dealing with types of motivation. They define two types of motivation. Integrative motivation in distinguished by the learner's need to learn for the sake of learning itself or for self enhancement. Learners exhibiting integrative motivation also wish to learn more about the
other cultural community. Gardner and Lambert felt that
the integratively-oriented learner might be a better foreign
language learner in the long run because an integrative
motivation would sustain the learner over the long term effort
needed to master a second language. In their studies adoles­
cent learners of foreign languages profited more from their
language study when they were helped to develop an integrative
outlook toward the group whose language was being studied.
On the other hand, an instrumental approach, which was char­
acterized by a more utilitarian value toward linguistic
achievement, such as getting ahead in one's job, was of little
significance for adolescent learners of foreign languages.
Savignon (1972), on the other hand, found that motivation
came from success in communication. Unlike the Gardner and
Lambert studies she found that empathy with the target cu.1. ••.era
was not a significant variable in successful foreign language
learning.

Ausubel, et al., Taylor (1975), Thompson (1977) and
Schumann (1975) emphasize the importance of developing an
integrative motivation, especially with adults. Taylor feels
that affective psychological variables may constitute the
major reason why adults are not always as successful as child­
ren in language acquisition. Negative social attitudes are
not usually present in young children, whereas they are pre­
sent in most adults. A favorable disposition toward the
language and culture (part of integrative motivation) may be
necessary before successful language learning can take place. Ausubel, et al. state that a key factor in motivation is ego enhancement. The individual must see language acquisition as intrinsically and urgently valuable. In addition, Thompson points out the existence of stressful situations involved with ego in language learning for adults. He advocates seeking out ways to reduce such stress. He also sees that for post-pubescent learners learning a second language involves a reevaluation of self and that a new identity is formed. The ability to form this new identity may be a factor in the development of an integrative motivation. According to Schumann, affective factors such as language shock, culture shock, attitude and ego permeability may play a more important role than does biological maturation in the acquisition of a foreign language. He feels that because these affective factors may be more severe as one becomes older, the development of an integrative motivation will be greatly reduced unless specific ways to help reverse this result are utilized in the learning situation.

Gardner, Smythe, et al. (1976), reporting on data gathered from a national survey in Canada of adolescent students studying foreign languages, found that an index of motivation was the most consistent predictor for determining individual differences in achievement in the early stages of second-language acquisition. In addition, when comparisons were made between the measures of integrativeness and
instrumentality, integrativeness was a consistently better predictor than instrumentality. Their results suggest that the cultural milieu in which an individual lives will have an effect on the development of a series of motivational characteristics and their potential relationship to the second-language learning situation. For adult learners, this may mean that where an adult lives (e.g. Texas or Ohio), reasons for learning a foreign language (e.g. teacher certification, desire to travel, graduation requirement, etc.) may play a bigger role in their eventual success in learning a foreign language, than, say, aptitude.

Other studies have found that for adults an instrumental motivation may be as appropriate as an integrative one. Webb (1980) lists among several characteristics of adult learners of foreign languages that language learning may be seen as a "task to be performed." During adulthood there tends to be a greater orientation to separate learning into tasks and to emphasize accuracy in the accomplishment of those tasks. In studies by Lukmani (1972) and Gardner and Lambert (1972) an instrumental motivation characterized by 1) learning with a practical end in mind, or 2) where there may be a special urgency about second language acquisition, or 3) where there appears either little opportunity or little desire to interact with the target culture, was shown to be superior to integrative motivation as a predictor of achievement. Lukmani found that for female Marathi speakers in Bombay, belonging to a
comparatively non-Westernized segment of Bombay society, proficiency in English was more related to instrumental motivation than to integrative motivation. Gardner and Lambert (1972) reached similar conclusions for English as a second language in the Philippines. They found that in the situation where English was the language of education and business but was rarely spoken in the home, instrumental motivation was a better predictor of overall English proficiency. It would seem, therefore, that different motivations for learning a foreign language may be appropriate for different learners and at different stages of the language learning process.

In another study by Gardner and Lambert (1972) it was found that students learning French who showed authoritarian and ethnocentric attitudes with a preference for the American over the French way of life were more likely to be instrumentally oriented to their study of French. This instrumental orientation and ethnocentrism, however, was not directly related to any of the achievement measures given. In addition, the ethnocentrism expressed did not include negative attitudes toward the target culture but rather simply a preference for American culture. Gardner and Lambert also found a subclass of subjects who had a vague system focussed on success which made up for weakness in intellectual ability or home background. Since this seems to be an instrumental orientation, it would appear that thinking in terms of success in general
was an aid to academic achievement in the study of French, the language under consideration in their research.

In their review of studies on motivation, Gardner, Smythe, et al. (1976) point out that the conclusion warranted from all the studies was that motivational variables were related to second-language achievement and where such comparisons were possible that the motivational variables were as highly related to second-language achievement as were the indices of language aptitude. Both motivation and foreign language aptitude, however, were relatively independent of measures of verbal intelligence. Roeming (1966) suggests that students grouped not primarily by ability but by the greatest number of primary motivational factors, would be more certain of success in second language learning than scores on aptitude tests would predict.

Krashen (1981) summarizes the strengths and weaknesses of integrative and instrumental motivations in certain learning situations as follows: Instrumental motivation may take precedence as a predictor of achievement where there is a special urgency about second language learning and where there appears to be little desire or opportunity to "integrate." Integrative motivation relates to second language proficiency in situations where intake from the target language and culture is available. Integrative motivation also seems to affect actual behavior in the classroom. Students who were classified as integratively motivated volunteered
to answer questions more often, made more correct answers in class and received more positive reinforcement by the teacher. Instrumental acquirers or learners "fossilized" (Selinker, 1972) or ceased progress when they perceived that communication needs were met. Integrative learners or acquirers fossilized when they perceived that their social needs were met.

In summary, it would seem that while an integrative motivation would be most desirable in foreign language learning by adults, an instrumental motivation may "get the job done" at least at the early stages of language learning.

Selected Personality Variables and Foreign Language Learning

In an early study, Dunkel (1947) emphasized the need for a comprehensive approach to predicting achievement in a foreign language which would incorporate non-intellective predictors. Lavin (1965) states that although ability (intellectual) measures are presently the best single type of predictor of success in academic performance, they still account for less than half of the variation. Personality factors help to make up the other half of the variance in academic performance. In a study concerned specifically with achievement in foreign languages, Pimsleur, et al. (1962) found that intelligence and verbal ability consistently showed the highest correlations with academic success in modern
foreign language courses but that these variables still ac­
counted for only 20 per cent of the variance. Clearly then,
successful foreign language learning depends on more than
intelligence and aptitude.

Snow (1976) further supports the need for looking at
personality and stylistic characteristics as components of
aptitude and feels that applying the term aptitude only to
ability tests is detrimental. In studies dealing specifical­
ly with personality variables and successful second language
learning, Schumann (in Gingras, 1978) states that there is
at present "too little research (or even speculation on the
relationship of these (personality, cognitive style, biolo­
gical and personal) factors to second language acquisiton to
build an argument for or against them as causal variables
in the language learning process (p. 48)." He suggests,
however, (1975) that affective variables may play a more
important role than does biological maturation in problems
associated with adult second language acquisition. Taylor
(1974) believes that affective psychological variables may
constitute the major reason why adults are not always as
successful as children in acquiring a second language.

The authors of two studies on the good language learn­
er (Naiman, et al. , 1978) and Rubin (1975) developed a list of
strategies that good language learners use. Among other
characteristics present in good language learners are two
that are pertinent to this study.
1. Good language learners are often not inhibited. They are willing to appear foolish if reasonable communication results. They are willing to make mistakes in order to learn and, perhaps most important, they are willing to live with a certain amount of vagueness. It is this researcher's opinion that this tolerance for vagueness may be a manifestation of a less rigid or dogmatic belief system.

2. In addition to focusing on communication, good language learners are prepared to attend to form. The good language learner is constantly looking for patterns in the language. It is this researcher's opinion that a search for patterns may be a manifestation of cognitive flexibility and that the more remote the association of a pattern, the more difficulty a person with low cognitive flexibility has in finding that pattern.

Johnson's (1968) findings in a study on the relationship between remote associational ability and dogmatism, demonstrated by performance on Rokeach's (1960) D-Scale (Dogmatism Scale) and Mednick's (1962) RAT (Remote Associates Test), were negatively related for males when intelligence was controlled. That is, the higher the dogmatism of a subject, as represented by scores on the D-Scale, the lower his creativity or cognitive flexibility, represented by scores on the RAT. There was no significant correlation for females on the measures. Johnson believes that this is because the subjects were high school students and that during the
teenage years, females conform more; thus, the range of scores was not as widespread. He suggests further research to determine the extent to which so-called "non-cognitive factors" are involved in cognition and specifically recommends that a further study using older groups whose social pressures are of a different nature would be valuable. He also feels it is important to look at the comparison between the sexes on the measures given. Other studies supporting the need to look at the relationship between dogmatism, cognitive flexibility and successful learning include Ehrlich (1961) and Jacoby (1967).

Ehrlich, in an exploratory study of one aspect of personality and its functional significance in a learning situation, found that dogmatism, represented by the D-Scale, was inversely related to the degree of learning for college-age students and that the relationship was independent of academic aptitude. Jacoby found that scores on the D-Scale were inversely related to performance on the RAT, although the resulting correlation co-efficient, though in the predicted direction, failed to reach statistical significance. He suggests that further research into the relationship between dogmatism and creativity or cognitive flexibility is warranted.

Worthen and Clark (1971) mention several studies containing problems with the interpretation of the RAT as a
measure of creativity or divergent thinking ability. They suggest that the RAT appears to represent more an assessment of sensitivity to language structure than of remote associational ability. The reason is that the items appear to possess an over-reliance upon associations based on structural proximity between stimulus and response. (One item, for example, contained the words "bug," "finger," and "killer." The word to be associated with these three items was "lady." But, as Worthen and Clark point out, this example of root words combined into compound words may really test an individual's sensitivity to the patterns of language rather than a true creative or divergent thinking ability.) In addition, the RAT has been observed to correlate consistently with intelligence at about the .40 level.

Because of these problems, Worthen and Clark developed the FRAT (Functionally Remote Associates Test). The results of their studies support the contention that the FRAT tends to be more a measure of divergent or creative ability and less a measure of intelligence than the RAT. Since there appears to be a correlation between intelligence, verbal ability and foreign language acquisition, this researcher thought that a measure of divergent or creative ability given to different age groups would provide additional information on the cognitive learner characteristics of adult learners versus pre-adult learners. The D-Scale, then, would measure flexibility in the affective domain.
Part of the "folklore" surrounding adult learners has been the idea that as adults grow older, they become less flexible. Schaie (1968) found that on measures of speed and cognitive flexibility, adults did, indeed, have more difficulty in adjusting to change when performing familiar tasks and experienced more difficulty in the ability to emit familiar responses in a timed situation. Chown (1972) also found that on several measures of flexibility-rigidity adults did not perform as well as younger groups although the correlations were small. She found that, in general, less intelligent people were more rigid and less able to adapt to new methods or to adapt to new instructions. Adaptability to tasks that required novel solutions or divergent approaches was associated more with flexibility than with age.

Kidd (1977) reports on a phenomenon long recognized in adult education -- that of "closed-mindedness" -- a kind of dogmatism in students that may result in the rejection of certain viewpoints even before the evidence is presented and examined. In addition, he mentions a study by Wohlwill stating that "persons with low levels of competence have a more limited ability to deal flexibly with societal demands, constraints and expectations (p. 536)."

In a study using high school students as subjects, Uhes and Shaver (1970) found a negative correlation between dogmatism and divergent ability. The level of dogmatism was
not correlated with the number of responses an individual made in a problem-solving situation but, when responses were evaluated either for originality or flexibility, significant differences were observed.

Brown (1973), recommending a more thorough investigation of the role of affective variables in second language acquisition, suggests that even in cases of "instrumentally" motivated language learners, individuals are forced to take on a new identity if they are to become competent in a second language. The very definition of communication implies a process of revealing one's self to another. He states that since adults tend to be more rigid and are less likely to be able to shift styles of learning (it must be noted here, however, that he does not support this statement with findings from the research), the degree to which an ability to shift styles is present in an adult may indeed affect the level of competence in second language acquisition. This belief tends to support Christopherson's (1973) suggestion that adults are motivated to fail in achieving mastery of a second language because of fear of losing their cultural-personal identities. A cultural-personal identity that can entertain new or contradictory propositions may be an example of "openmindedness"; one that cannot do so may be an example of a more "dogmatic" personality.

Two studies on underachievement in foreign language learning are pertinent to the present study in that they
explore certain personality variables of underachievers and overachievers. Pimsleur, Sundlund, and McIntyre (1966), in a study of underachievement at the junior high and high school level, measured several personality variables, including tolerance of ambiguity, rigidity-flexibility and dogmatism. Although they found no significant relationships among the variables, they conjectured that since the foreign language programs studied were highly structured, self-expression on the part of the students would not have been reflected in the measure of achievement used which was the final grade received at the end of the course of study. They suggest that studying individuals for whom the learning of a foreign language is extremely easy or difficult may disclose personality factors related to their achievement.

Smart, Elton and Burnett (1970), as a result of their study on underachievers and overachievers in intermediate college French, suggested that student achievement in foreign language study is related to the way classes are conducted and exams given. The courses in their sample were highly structured. Students who were more introverted were the overachievers. The researchers warn that although generalizations from the data are restrictive, further study of personality variables and successful foreign language learning should be encouraged.

Newmark and Reibel (1968) also suggest that the relationship between personality variables and the structure of the
foreign language classroom be investigated more thoroughly. They hypothesize that good learners in a contextually impoverished situation, through imagination and rich associational possibilities of their own are able to simulate for themselves the context in which the items learned would be appropriate. Associating functionally remote words; that is, simulating a context for which the three words on each item of the FRAT would be appropriate, is one way for the researcher to test for the presence of this ability.

In summary, researchers agree that in addition to ability measures, personality factors must also be taken into consideration when attempting to account for success or failure in foreign language learning. What role selected personality variables play in the learning of foreign languages by adults compared to pre-adults was one the aims of this study.
This chapter of the study is divided into four main sections. 1.) Population and Sample -- a description of the population and a description of the sampling procedures. 2.) Instrumentation -- a description of the instruments used. 3.) Data Collection Procedures -- a description of the administration of the instruments and the evaluation and scoring procedures. 4.) Statistical Analysis -- a description of the statistical procedures used to analyse the data.

Population and Sample

The population of foreign language students for this study was comprised of beginning foreign language students at Ohio Dominican College, a small, Catholic liberal arts college located in Columbus, Ohio. Approximately 43 per cent of its student body is comprised of students who are 23 years of age or older. All students are required to take at least one year of a foreign language in order to complete general distribution requirements in the liberal arts. During the first week of classes, the researcher visited the beginning sections of the foreign language classes or contacted students
individually to explain the nature of the research project and to ask for volunteers for the study. Adult students were particularly encouraged to participate in the study. A total of 105 students volunteered to participate in the study, 70 adults, age 23 or above, and 35 pre-adults, age 18-22.

Because of the voluntary nature of the data collection, not all subjects completed all the measures, although every effort was made to encourage the completion of all tasks. With some measures, therefore, the number of respondents is lower than would have been desirable (see Table 1).

**Instrumentation**

The following measures were used for this study:


Foreign language aptitude for Carroll differs from the kind of ability required for first language acquisition. He considers foreign language aptitude as some current state of capability on the part of the learner before approaching a particular learning task or program. Some of his evidence suggests that foreign language aptitude is relatively fixed over long periods of an individual's life span and is relatively difficult to modify in any significant way. In addition, it must be recalled that Carroll limits his concept
TABLE 1
Number of Respondents to Measures Given

<table>
<thead>
<tr>
<th>Age</th>
<th>M</th>
<th>F</th>
<th>Total</th>
<th>MLAT</th>
<th>FRAT</th>
<th>DSCL</th>
<th>IIMS</th>
<th>FGFL</th>
<th>*</th>
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</table>

Totals 39 66 105 103 71 52 24 83 W=16 A=6

* W=withdrawal; A=audit

MLAT=Modern Language Aptitude Test
FRAT=Functionally Remote Associates Test
DSCL=D-Scale, Dogmatism Scale
IIMS=Instrumental/Integrative Motivation Scale
FGFL=Final Grade Foreign Language
of foreign language aptitude to a context consisting of some sort of more or less formal instruction. Based on these considerations, Carroll and Sapon developed the Modern Language Aptitude Test (MLAT).

The MLAT indicates an individual's probable degree of success in learning a foreign language. It is applicable to both "modern" languages and ancient languages such as Latin or Greek. The complete test requires about sixty to seventy minutes to administer and utilizes a tape recorder to present the instructions and stimuli. Materials consist of a test booklet, a two-sided IBM answer sheet, a special practice exercise sheet, and a pencil. The test itself is divided into five parts, each part measuring a particular trait of language learning aptitude.

Because of the length of the measure, it is sometimes necessary to divide the testing into two different time segments. The test manual provides instructions for administering the test in two parts should it be necessary to do so. In order to fit the administration of the MLAT into regularly scheduled class time at Ohio Dominican College, it was necessary to administer Sections I, II, and III at one sitting and Sections IV and V at another sitting. In the case of Weekend College students participating in the study, the measure was given at a mutually convenient time and was given in one sitting. Regularly scheduled class time for Weekend College
students was not used to give the MLAT due to the necessity of utilizing all available class time for language study.

Part I, Number Learning (MLAT/NUML), seems to measure some aspect of the memory component of foreign language aptitude as well as what Carroll and Sapon describe as an "auditory alertness" factor which would play a role in auditory comprehension of a foreign language.

Part II, Phonetic Script (MLAT/PHSC) seems to measure what Carroll and Sapon call sound-symbol association ability. They describe this ability as being able to learn correspondences between speech sounds and orthographic symbols. It may also, they believe, measure a sort of memory for speech sounds and tends to correlate highly with the ability to mimic speech sounds and sound combinations in foreign languages.

Part III, Spelling Clues (MLAT/SPCL) is highly speeded. Subjects are given five minutes in which to complete 50 items containing a disguised spelling of a word for which one of five responses is a synonym (e.g. "luv"-- a. carry, b. exist, c. affection, d. wash, e. spy). This section of the test measures the same kind of sound-symbol association ability as Part II and is also to some extent dependent on the student's knowledge of English vocabulary.

Part IV, Words in Sentences (MLAT/WDSS), seems to measure sensitivity to grammatical structure and the student's
ability to handle grammatical aspects of a foreign language. No grammatical terminology is involved; Carroll and Sapon state, however, that it is not known how much scores on this test are a reflection of formal training in grammar.

Part V, Paired Associates (MLAT/PAAS), measures the rote memory aspect of the learning of a foreign language. In addition, it is highly speeded. Subjects are given two minutes in which to memorize vocabulary in Kurdish, then four minutes to recall 24 Kurdish vocabulary words with five choices given in English.

The MLAT has generally high validity which seems to indicate that it measures basic abilities essential to facile foreign language learning. The MLAT manual contains validity coefficients for several populations. Reliability coefficients may also be found in the MLAT manual. The coefficients of intercorrelation are low enough to indicate that the separate parts do, in fact, measure somewhat different aspects of foreign language aptitude. If two parts were highly intercorrelated, it might indicate that either part is failing to provide unique information.


Because of the high correlation of the RAT with measures of intelligence (Cropley, 1966, Ketcham and Kheirally, 1963,
cited in Cropley), Worthen and Clark developed the Functionally Remote Associates Test (FRAT). The FRAT is an adaptation of Mednick's Remote Associates Test (RAT), (Mednick, 1962). In the FRAT subjects are presented with 38 items consisting of three words each. Each item is arranged in order of increasing difficulty and each item has one correct response. Subjects are given 40 minutes to complete the task. In the time alloted, subjects must produce a fourth word that is related to each of the three words. The three words are not necessarily related to each other, but each of them is in some way related to the missing fourth word. Subjects must then go through many words associated with each of the given words until they find the word that is associated with all three words. (For example, the fourth word that is related to the words "cheese", "cabin", "honeymoon" is "cottage". Cottage cheese is a food; a cottage is related closely, functionally, to a cabin; and many persons think of spending a honeymoon in a cottage.) Mednick reports that some people cannot think of many words beyond their first strong impression. These people are less likely to be able to find the word associated with all three words. The person who is more flexible in his or her thinking can produce many words associated with each of the given words and, thus, is likely to find the missing word.

Worthen and Clark reported generally lower correlations between the FRAT and a quick word test intelligence measure
than between the RAT and the quick word test. Their study appears to support the contention that the FRAT tends to be more a measure of divergent thinking or creative ability and less a measure of intelligence than the RAT. The extent to which divergent thinking or creative ability is related to cognition and to "non-cognitive" factors such as dogmatism has received attention from several researchers (Ehrlich, Jacoby, Johnson). Their findings suggest that further investigation into the relationships among these factors is warranted.

3. **Dogmatism Scale (DSCL) (Rokeach, 1960).**

Dogmatism, as defined by Rokeach, does not have a unidimensional character. Lack of dogmatism is a gauge of the open mind. Dogmatism, represented by the D-Scale, has been found to be inversely related to the degree of learning for college-age students and, in addition, it has been found that the relationship was independent of academic aptitude (Ehrlich). Furthermore, scores on the D-Scale have been found to be inversely related to the performance by an individual on the RAT (Jacoby).

The D-Scale used in this study consists of a 60-item measure. Twenty items from other Rokeach scales have been interspersed with Form E of the D-Scale to serve as distractors. The instrument measures the openedness and closedness...
of one's belief systems, general intolerance and authoritarianism. The subjects indicate disagreement or agreement with each item on a scale ranging from -3 to +3 with the 0 point included in order to force responses toward disagreement or agreement. The twenty distractor items are then eliminated and the measure is subsequently converted, for scoring purposes, to a 1 to 7 point scale by adding a constant of 4 to each item score. The total score is the sum of scores obtained on all 40 items in the test (Rokeach, p. 88). Subjects complete the task within 15 minutes.


The Integrative/Instrumental Motivation Scale is a measure designed to identify the motivation of subjects studying a foreign language. Several studies (see Chapter II) have indicated that having an integrative motivation is better for learning a foreign language; yet, in certain circumstances, an instrumental motivation seems to "get the job done." The scale is a Likert-type scale and consists of nine statements to which subjects mark their preference on a scale from "not my feeling at all" to "definitely my feeling." Four statements have been classified as "instrumentally" oriented in their approach and four statements as "integratively" oriented in their approach. Statement number 9: "any other
personal reason" was supplied in case an individual thought the alternatives given were inadequate. Responses to number 9 were classified as instrumental or integrative if two judges agreed. Changes were made by this researcher in the wording of some statements in order for the measure to be more appropriate for college level students. Subjects complete the task within 5 minutes.

Data Collection Procedures

Procedures of administration, inasmuch as they have not been described above, will be discussed in this section. All measures were administered during the first two weeks of study of the foreign language. Whenever possible, the MLAT, FRAT and DSCL were administered during the regularly scheduled foreign language class period. The first measure given was the MLAT. The FRAT was given second, followed by the D-Scale. The IIMS was completed outside of class. Students not wishing to participate in the study were given alternative tasks to complete during the time in class utilized for administering the above measures. Evaluation and scoring of the measures was carried out by the researcher.
Statistical Analysis

A computerized program, STAT 11, Statistical Package, adapted from the original publication of the same name (Digital Equipment Corp., 1974) was used to compute correlation coefficients among the variables. The IIMS was hand-scored and evaluated separately by the researcher.

The analysis of the data attempted to answer two major questions. They are as follows:

1.) Which selected learner characteristics or combinations of characteristics seem to be most important for successful foreign language learning by adults?

2.) Are there differences between adult learners and pre-adult learners on these selected characteristics? The major questions subsume other questions. These subquestions and the analyses used to answer them are listed below.

Aptitude

1. Do adult men and adult women come from the same population?

2. Is there a difference between adult men and adult women in foreign language aptitude as represented by the MLAT?

3. Is there a difference between Weekend College adult students and regular adults in foreign language aptitude?
4. Is there a difference between adults and pre-adults in foreign language aptitude as represented by the MLAT? T-tests were calculated to answer the above questions.

5. Is there a relation between age and foreign language aptitude as represented by the MLAT and its subtests? Correlation coefficients were obtained to answer the above question.

**Achievement**

1. Is there a difference between Weekend College adults and regular adults in the final grade received at the end of the first semester of study of a foreign language? A t-test was calculated.

2. Is there a difference between adults and pre-adults on the final grade received at the end of the first semester of study of a foreign language? A t-test was calculated.

3. Is there a relation between age and the final grade received at the end of the first semester of study of a foreign language? A correlation coefficient was obtained.

**Cognitive Flexibility**

1. Is there a relation between cognitive flexibility, as represented by the FRAT, and age?

2. Is there a relation between cognitive flexibility and foreign language aptitude, as represented by the MLAT and its subtests?
3. Is there a relation between cognitive flexibility and achievement in a foreign language as represented by the final grade received at the end of the first semester of study of a foreign language?

Correlation coefficients were obtained to answer the above questions.

4. Do Weekend College adults differ from regular adults on cognitive flexibility? A t-test was calculated.

Dogmatism

1. Is there a relation between dogmatism, as represented by the D-Scale, and age?

2. Is there a relation between foreign language aptitude and dogmatism?

3. Is there a relation between foreign language achievement and dogmatism?

4. Is there a relation between dogmatism and cognitive flexibility?

Correlation coefficients were obtained to answer the above questions.

5. Is there a difference between Weekend College adults and regular adults on dogmatism? A t-test was calculated.
Motivation

1. Is there a difference between adults and pre-adults in the type of motivation exhibited?

1. Is there a difference between men and women in the type of motivation exhibited?

3. Is there a difference between Weekend College adults and regular adults in the type of motivation exhibited?

4. Does one type of motivation contribute more toward foreign language achievement by adults than another?

Due to the small number of responses to the motivation measure, the scale was hand scored and comparisons made among the groups by the researcher.
IV. ANALYSIS AND RESULTS

Introduction

As described at the end of Chapter III, the analysis of data attempted to answer the following questions:

1.) Which selected learner characteristics or combinations of characteristics seem to be most important for successful foreign language learning by adults?

2.) Are there differences between adult learners and pre-adult learners on these selected characteristics?

These major questions subsumed other questions. This chapter will present the results of the analyses performed to answer each of the questions and sub-questions.

Two different analyses were used to help answer the questions. T-tests were performed to determine whether pre-adults and adults came from the same population and whether men and women came from the same population with respect to the other variables under consideration. Several significant differences were obtained. They are discussed under each sub-question. Correlation coefficients were also calculated for the continuous variables. Variables included in the correlation matrix were 1.) age, 2.) MLAT/RAWS/COMP (Modern
Language Aptitude Test (raw score completed), 3.) MLAT/RAWS/RHT (Modern Language Aptitude Test, raw score right), 4.) NUML/RHT (Number Learning, right), 5.) PHSC/RHT (Phonetic Script, right), 6.) SPCL/RHT (Spelling Clues, right), 7.) WDSS/RHT (Words in Sentences, right), 8.) PAAS/RHT (Paired Associates, right), 9.) FRAT (Functionally Remote Associates Test), 10.) DSCL (D-Scale, dogmatism scale), 11.) FGFL (Final Grade Foreign Language). The correlation matrix is presented in Table 2.

Although several significant differences were observed in the correlation coefficients, the only obtained r values which indicated a strong relationship between the variables were those correlations among the various parts of the MLAT with the raw score of the MLAT. The r values obtained for the other variables do indeed show a linear trend but the relation cannot be considered strong. Kerlinger (p.201) states that frequently in the literature there are cases where r's are low and borderline. With r's of about .10 or less Kerlinger says that it is probably inappropriate to pursue further any correlation between the variables. With r's of about .30, however, he suggests that it may help investigators later to find an important relation if they can eliminate problems in measurement. He believes that dropping a statistically significant r of around .30 may be losing a valuable lead for theory and subsequent
**TABLE 2**

**Correlation Matrix of Variables**

<table>
<thead>
<tr>
<th></th>
<th>AGE</th>
<th>MLAT/RAWS/COMP</th>
<th>MLAT/RAWS/RHT</th>
<th>NUML/RHT</th>
<th>PHSC/RHT</th>
<th>SPCL/RHT</th>
<th>WDSJ/RHT</th>
<th>PAAS/RHT</th>
<th>FRAT</th>
<th>DSCL</th>
<th>FGFL</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>1.000</td>
<td></td>
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<td></td>
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<tr>
<td>(n)</td>
<td>(103)</td>
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<td></td>
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</tr>
<tr>
<td>MLAT/RAWS/COMP</td>
<td>-0.350**</td>
<td>1.000</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>(n)</td>
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<tr>
<td>MLAT/RAWS/RHT</td>
<td>-0.262**</td>
<td>0.640**</td>
<td>1.000</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>NUML/RHT</td>
<td>-0.305**</td>
<td>0.410**</td>
<td>0.751**</td>
<td>1.000</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>PHSC/RHT</td>
<td>-0.104</td>
<td>0.163</td>
<td>0.501**</td>
<td>0.226*</td>
<td>1.000</td>
<td></td>
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<tr>
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</tr>
<tr>
<td>SPCL/RHT</td>
<td>-0.119</td>
<td>0.633**</td>
<td>0.722**</td>
<td>0.264**</td>
<td>0.261**</td>
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<td>(103)</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>WDSJ/RHT</td>
<td>-0.070</td>
<td>0.324**</td>
<td>0.736**</td>
<td>0.486**</td>
<td>0.344**</td>
<td>0.380**</td>
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<tr>
<td>(n)</td>
<td>(103)</td>
<td></td>
<td>(103)</td>
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<td>(103)</td>
<td>(103)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAAS/RHT</td>
<td>-0.243**</td>
<td>0.583**</td>
<td>0.740**</td>
<td>0.449**</td>
<td>0.303**</td>
<td>0.529**</td>
<td>0.411**</td>
<td>1.000</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(n)</td>
<td>(103)</td>
<td></td>
<td>(103)</td>
<td>(103)</td>
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<td>(103)</td>
<td>(103)</td>
<td>(103)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRAT</td>
<td>2.168</td>
<td>0.116</td>
<td>0.355**</td>
<td>0.17%</td>
<td>0.300*</td>
<td>0.234</td>
<td>0.121**</td>
<td>0.289*</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n)</td>
<td>(71)</td>
<td></td>
<td>(69)</td>
<td>(69)</td>
<td>(69)</td>
<td>(69)</td>
<td>(69)</td>
<td>(69)</td>
<td>(69)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSCL</td>
<td>-0.341*</td>
<td>0.194</td>
<td>0.023</td>
<td>0.108</td>
<td>-0.115</td>
<td>-0.046</td>
<td>0.010</td>
<td>0.500</td>
<td>-0.119</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>(n)</td>
<td>(52)</td>
<td></td>
<td>(51)</td>
<td>(51)</td>
<td>(51)</td>
<td>(51)</td>
<td>(51)</td>
<td>(51)</td>
<td>(51)</td>
<td>(47)</td>
<td>(52)</td>
</tr>
<tr>
<td>FGFL</td>
<td>0.015</td>
<td>0.168</td>
<td>0.387</td>
<td>0.257*</td>
<td>0.446**</td>
<td>0.221*</td>
<td>0.287**</td>
<td>0.305**</td>
<td>0.247</td>
<td>0.027</td>
<td>1.000</td>
</tr>
<tr>
<td>(n)</td>
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<td>(82)</td>
<td>(82)</td>
<td>(82)</td>
<td>(59)</td>
<td>(43)</td>
</tr>
</tbody>
</table>

*P < 0.05  
**P < 0.01
research by the investigator at a later time. Several significant r's in this range appear in the correlation matrix (See page 56).

**Aptitude**

1. Is there a difference between adult men and adult women in foreign language aptitude, as represented by the MLAT, and the adult norms of the MLAT?

This question was of particular interest to the researcher because of the non-existence of data on the comparative validity of the MLAT for adult women and adult men. Practically all of the adult data used to establish the norms on the MLAT are for males. Table 3 shows the means, standard deviations, t-ratios and p values for adult men and women in this study compared to the adult groups used to establish the norms of the MLAT. These groups were Air Force Enlisted Men, Men in Intensive Language Training and Students at the Army Language School.

Because of the small Ohio Dominican College sample size, a pooled variance estimate was used to calculate the t-tests. The assumption was made that the variance for population was the same. As Table 3 illustrates, there is a significant difference between the two groups. Clearly, the adults taking the MLAT at Ohio Dominican College are different from those groups that were used to establish the norms for the MLAT.
### TABLE 3
Comparison of ODC Adults with MLAT Norm Groups

#### Comparison of ODC Adults with Air Force Enlisted Men

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t-ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODC Males</td>
<td>27</td>
<td>74.33</td>
<td>23.10</td>
<td>6.5818</td>
<td>p&lt;.002</td>
</tr>
<tr>
<td>ODC Females</td>
<td>41</td>
<td>88.00</td>
<td>29.00</td>
<td>4.4657</td>
<td>p&lt;.002</td>
</tr>
<tr>
<td>AF Enl. Men</td>
<td>177</td>
<td>107.90</td>
<td>24.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Comparison of ODC Adults with Men in Intensive Language Training

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t-ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODC Males</td>
<td>27</td>
<td>74.33</td>
<td>23.10</td>
<td>6.0783</td>
<td>p&lt;.002</td>
</tr>
<tr>
<td>ODC Females</td>
<td>41</td>
<td>88.00</td>
<td>29.00</td>
<td>4.5077</td>
<td>p&lt;.002</td>
</tr>
<tr>
<td>Men in ILT</td>
<td>77</td>
<td>114.90</td>
<td>31.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Comparison of ODC Adults with Students at Army Language School

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t-ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODC Males</td>
<td>27</td>
<td>74.33</td>
<td>23.10</td>
<td>4.0210</td>
<td>p&lt;.002</td>
</tr>
<tr>
<td>ODC Females</td>
<td>41</td>
<td>88.00</td>
<td>29.00</td>
<td>1.9520</td>
<td>p&lt;.002</td>
</tr>
<tr>
<td>Army LS</td>
<td>781</td>
<td>97.10</td>
<td>29.10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A significant difference ($p < .002$) was found between ODC women and the Air Force Enlisted Men and the Men in Intensive Language Training. A significant difference ($p < .05$) was found between ODC women and Students at the Army Language School. Significant differences ($p < .002$) were also obtained for ODC men with the three groups used to establish the MLAT norms.

Several explanations come to mind to explain the differences in these groups. The groups used to establish the MLAT norms were tested in the late 1950's. Educational practices and curricula have undergone many changes in the last thirty years. The educational background of adults who studied in high schools in the 1950's is likely to be quite different from the educational background of adults who studied in high schools in the 1970's. Did the Air Force have unusually selective recruitment standards at that time so that its enlisted men may not have represented the "average" high school graduate? The intensive language training group included enlisted men from the armed services and civilian personnel attached to the Department of State and other governmental agencies. The third group was composed of 781 men at the Army Language School. Carroll and Sapon do not state whether these men were selected according to some previously determined criteria although it is safe to assume that they were. It is also unknown
whether these groups had any prior language training experiences. Thus, these groups may not be "average" but rather may have had more foreign language aptitude to begin with.

It may also be that the adult students at ODC do indeed come from a population having less foreign language aptitude. (as measured by the MLAT which predicts success in formal learning experiences). Ohio Dominican College considers itself a "first generation" college in that many of its students are the first generation in their families to attend institutions of higher education. In many cases, the adult students have been away from formal education for several years and find it difficult to meet the intellectual challenge of college work.

In any case, the norms for the MLAT and the ODC groups are significantly different. Neufeld (1969), in comparing aptitude as represented by the MLAT and achievement in intermediate foreign language classes, found that several improvements in the MLAT would have to be made if the test were to be a predictor of success for his sample (if, as he states, his sample was representative of the college population). If the ODC sample of adults studying foreign language in a formal classroom setting is representative then it would seem that establishing new norms for the MLAT for adults would be desirable. At the very least, norms should be established for women.
2. Do ODC adult men and ODC adult women differ with respect to foreign language aptitude?

No significant difference (t+ -1.347, df=66) was found when the two groups were compared.

3. Is there a difference between WEC adults and regular adults in foreign language aptitude as represented by the MLAT?

Table 4 shows the t-ratio that was found when the two groups were compared on number of items completed; table 5 shows the t-ratio found when the two groups were compared on number of items right.

Table 4

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEC Adults</td>
<td>14</td>
<td>163.00</td>
<td>11.08</td>
<td>-3.75305</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Regular Adults</td>
<td>54</td>
<td>140.61</td>
<td>23.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A significant difference was found between the groups. The Weekend College adults may have been more willing to guess at answers that they didn't know or may have felt that they knew more correct answers. The result of the t-test shows that on this measure the two groups come from different populations.
Table 5
Comparison of WEC Adults and Regular Adults on MLAT, Number of Items Right

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEC Adults</td>
<td>14</td>
<td>114.50</td>
<td>21.31</td>
<td>-5.7844</td>
<td>&lt; .01</td>
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<tr>
<td>Regular Adults</td>
<td>54</td>
<td>75.79</td>
<td>22.54</td>
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</tr>
</tbody>
</table>

Weekend College adults answered more items correctly than did regular adults. Of course, they also answered more items but the data indicate that these two groups are from separate populations. The question of whether there is a difference between adults enrolled in the Weekend College and adults enrolled in the regular college has been of great interest to the faculty who teach both groups and to the Office of Continuing Education. The results of this t-test and others appear to bear out the observation that these groups are different. Further discussion of why this may be so appears elsewhere in this study.

4. Is there a difference between pre-adults and adults in foreign language aptitude as represented by the MLAT?

Table 6 shows the t-ratio obtained when these two groups were compared on sub-tests and the raw score of the MLAT. As can be seen from the table, several significant differences were obtained when the two groups were compared. The pre-adults overall had more foreign language aptitude. They were also better than adults on the Number learning
### TABLE 6

Comparison of Pre-Adults and Adults on Subtests and Raw Score of MLAT

<table>
<thead>
<tr>
<th>Measure</th>
<th>Subjects</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t-ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUML</td>
<td>Pre-adults</td>
<td>35</td>
<td>40.57</td>
<td>11.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adults</td>
<td>68</td>
<td>37.39</td>
<td>10.83</td>
<td>3.2053</td>
<td>.01</td>
</tr>
<tr>
<td>PHSC</td>
<td>Pre-adults</td>
<td>35</td>
<td>21.34</td>
<td>4.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adults</td>
<td>68</td>
<td>19.48</td>
<td>4.96</td>
<td>1.8605</td>
<td>n.s.</td>
</tr>
<tr>
<td>SPCL</td>
<td>Pre-adults</td>
<td>35</td>
<td>18.58</td>
<td>10.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adults</td>
<td>68</td>
<td>14.32</td>
<td>8.96</td>
<td>2.1793</td>
<td>.05</td>
</tr>
<tr>
<td>WDSS</td>
<td>Pre-adults</td>
<td>35</td>
<td>18.40</td>
<td>6.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adults</td>
<td>68</td>
<td>17.16</td>
<td>7.63</td>
<td>.8159</td>
<td>n.s.</td>
</tr>
<tr>
<td>PAAS</td>
<td>Pre-adults</td>
<td>35</td>
<td>13.71</td>
<td>6.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adults</td>
<td>68</td>
<td>10.52</td>
<td>5.65</td>
<td>2.6089</td>
<td>.05</td>
</tr>
<tr>
<td>RAWS</td>
<td>Pre-adults</td>
<td>35</td>
<td>102.40</td>
<td>28.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adults</td>
<td>68</td>
<td>83.76</td>
<td>27.18</td>
<td>3.2563</td>
<td>.01</td>
</tr>
</tbody>
</table>

The Spelling Clues sub-test (NUML), the Spelling Clues sub-test (SPCL) and the Paired Associates sub-test (PAAS). The possible reasons for these differences are discussed under question 5. Possible reasons for the significant difference obtained for the Spelling Clues sub-test are discussed below.

The Spelling Clues section is highly speeded. One must complete 50 items in five minutes. Given a set for accuracy, a tendency to make sure of an answer before answering, and a tendency not to guess at an answer appear to put adults at a disadvantage in some aspects of language learning. One
of the characteristics of the good language learner according
to Rubin is a willingness to guess and a willingness to accept
ambiguity. Adults may not possess these characteristics to
the extent that pre-adults do. In addition, the pressure
of a time limit puts adults at a disadvantage.

5. Is there a relation between age and foreign lan-
guage aptitude as represented by the MLAT and its sub-tests?

As can be seen in Table 7, several significant
correlations were obtained when the data were analysed.
Although the magnitude of the coefficients is not large, all
of the correlations show a negative value of r and thus
indicate a negative direction of association. That is, on
all of the measures of the MLAT and its sub-tests younger
students tended to perform better than older students. On
four of the measures significant correlations were observed.

A correlation of -0.350 (p < .01, df=100) was obtained
between age and the MLAT/Raw Score completed (MLAT/RAWS/
COMP). This finding indicates that adults, as a whole,
left more items blank than did the younger students.
Younger students may have known more answers or guessed at
more answers. This finding seems to substantiate one of
Webb's characteristics of adults learners of foreign lan-
guages. That is, that adults tend to emphasize accuracy
in learning tasks. It may also reflect the lower ability
of adults to accurately perform tasks of a highly speeded
nature.
A correlation of \(-0.243\) (\(p \leq 0.01\), \(df=100\)) was obtained between age and MLAT/PAAS/RHT. Again, younger students performed better than older ones on this portion of the test. In the paired associates section subjects must memorize new vocabulary words in a limited amount of time. This section tests the rote memory aspect of learning a foreign language and is highly speeded. In looking at the practice answer sheets, adults were less adept at efficient grouping of words for rapid learning than were the younger students. According to adult learning theory this result is not too surprising. Tasks of a highly speeded nature, especially those involving rote memory are more difficult for adults.

TABLE 7

Correlation of Age and Modern Language Aptitude

<table>
<thead>
<tr>
<th>Measure</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLAT/RAWS/COMP</td>
<td>-0.350**</td>
</tr>
<tr>
<td>MLAT/RAWS/RHT</td>
<td>-0.262**</td>
</tr>
<tr>
<td>NUML/RHT</td>
<td>-0.305**</td>
</tr>
<tr>
<td>PHSC/RHT</td>
<td>-0.104</td>
</tr>
<tr>
<td>SPCL/RHT</td>
<td>-0.119</td>
</tr>
<tr>
<td>WDSS/RHT</td>
<td>-0.070</td>
</tr>
<tr>
<td>PAAS/RHT</td>
<td>-0.243**</td>
</tr>
</tbody>
</table>

**\(p \leq 0.01\) \(df=100\)**
A correlation of \(-0.243\) \((p < .01, df=100)\) was obtained between age and MLAT/PAAS/RHT. Again, younger students performed better than older ones on this portion of the test. In the paired associates section subjects must memorize new vocabulary words in a limited amount of time. This section tests the rote memory aspect of learning a foreign language and is highly speeded. In looking at the practice answer sheets, adults were less adept at efficient grouping of words for rapid learning than were the younger students. According to adult learning theory this result is not too surprising. Tasks of a highly speeded nature, especially those involving rote memory are more difficult for adults.

A correlation of \(-0.305\) \((p < .01, df=100)\) was obtained between age and the Modern Language Aptitude Test, Number Learning (MLAT/NUML/RHT). Younger students performed better than adults on this portion of the measure. The number learning section seems to measure some aspect of the memory component of foreign language aptitude as well as what Carroll and Sapon describe as an "auditory alertness" factor which would play a role in auditory comprehension of a foreign language. According to the literature on adult learning, this finding should not be too surprising. Listening discrimination seems to be difficult for adults and remembering patterns in a short amount of time is difficult for adults.
No significant correlations were obtained between age and each of the other subtests.

A correlation of $-0.262$ ($p < .01$, $df=100$) was obtained between age and the MLAT, Raw Score, Right (MLAT/RAWS/RHT). This finding indicates that overall younger students demonstrated more aptitude for learning a foreign language than did older students. Carroll and Sapon (p. 23) state that they have no evidence that true language aptitude changes with age. "...indeed, our results are contrary to the often-repeated assertion that children are better able to learn (and forget) foreign languages than adolescents or adults. Valid evidence on these points could be obtained only by putting individuals of various ages in the same learning situation and comparing their rates of learning. Since it is not usual to do anything like this in the typical school situation we are not likely to acquire the necessary research evidence in the near future."

This study did observe individuals of various ages in the same learning situation and, based on the results obtained, it may be said that there was no difference between adults and pre-adults in achievement (FGFL). The data indicate, however, that foreign language aptitude does appear to decrease as one ages. It must be repeated, however, that the low magnitude of the $r$ value would require that caution be used in such an interpretation. Subsequent research, following Kerlinger's suggestions, would seem appropriate to pursue.
Achievement

1. Is there a difference between Weekend College adults and regular adults in the final grade received at the end of the first semester of study of a foreign language?

Table 8 shows the t-ratio calculated when the two groups were compared.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEC Adults</td>
<td>12</td>
<td>3.66</td>
<td>.492</td>
<td>-3.5304</td>
<td>.01</td>
</tr>
<tr>
<td>Regular Adults</td>
<td>40</td>
<td>2.42</td>
<td>1.179</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A significant difference was found between the means for the two groups. Weekend college students received higher grades at the end of the first semester of study of a foreign language than did the regular adults. The data, again, show that the two groups come from separate populations. Twenty-one out of the 25 lowest scores on the MLAT were received by adults. No Weekend College adults, however, were in the bottom quartile of foreign language aptitude scores. Observed differences by Ohio Dominican
College faculty in the "quality" and kind of student attending Weekend College as opposed to the regular college classes are substantiated by the data. One explanation may be that WEC adults, because of more limited time due to full-time job commitments during the week, may demonstrate better study habits, clearer orientation to the learning task or a more "no-nonsense" approach in the classroom. Adults enrolled in the regular weekday classes, on the other hand, may have different reasons for studying a foreign language and different time commitments outside the learning situation.

2. Is there a difference between adults and pre-adults on the final grade received at the end of the first semester of study of a foreign language?

Table 9 shows the t-ratio calculated when the two groups were compared.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Adults</td>
<td>31</td>
<td>2.82</td>
<td>1.34</td>
<td>0.3913</td>
<td>n.s.</td>
</tr>
<tr>
<td>Adults</td>
<td>52</td>
<td>2.71</td>
<td>1.18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No significant difference was found between the means of the two groups on the final grade received at the end
of the first semester of study of a foreign language. With respect to achievement, the two groups come from the same population. Adults may make up for any difference in foreign language aptitude by perseverance, motivation, etc. or pre-adults may not take advantage of their seemingly higher foreign language aptitude. It must be remembered, however, that 12 adults withdrew from the course and that six adults who audited the course did not receive a final grade in the course. Thus, final achievement measures were unavailable for 26 per cent of the adults who participated in the study. Had such data been available, the calculated t-ratio might have been different.

3. Is there a relation between age and the final grade received at the end of the first semester of study of a foreign language?

A correlation coefficient was obtained. Table 2, p. 56, shows the correlation coefficient. There was no relation between age and achievement as represented by the final grade. This correlation coefficient was one of only two coefficients relating age to other variables that was not in a negative direction. Thus, the data seem to show that whatever differences in aptitude between adults and younger students may be present at the beginning of the study of a foreign language, the adults who finish the course are able
to compensate adequately during the actual course of study of the foreign language. Perhaps other factors such as motivation, study habits or other socio-psychological factors help the older learners make up for whatever aptitude differences may be present prior to the study of a foreign language.

It must be remembered, however, that this correlation coefficient does not take into account the numbers of withdraws and audits (see Table 1, p. 42). There were a total of four withdraws from the pre-adult group; twelve from the adult group. Six audits, for whom final grades were unavailable, were also from the adult group. Five withdraws in the adult group were part of the bottom quartile; one withdraw from the pre-adult group was part of the bottom quartile. Although there may be many reasons for withdrawing from a course, 24 per cent of the adult withdraws were adults who exhibited low foreign language aptitude as represented by the MLAT. Six adults chose not to take a grade in the course. Because it was not possible to obtain achievement measures on these subjects, one cannot rule out the possibility that age and foreign language achievement may be negatively correlated. Had such data been available, a different correlation might have been obtained.
In addition, a problem exists in using the final grade as a measure of achievement. An achievement test would have been a truer indicator of actual achievement but such a measure and the time involved to give such a measure was not available to the researcher. Final grades received at the end of a course of study may, in addition to achievement in learning tasks, include such factors as attendance, special projects, etc. To that extent they are less accurate indicators of actual foreign language achievement.

It is interesting to note, however, that FGFL is significantly correlated with MLAT/RAWS/RHT and all of its subtests (See Table 2). Carroll (1981) cautions, however, against assuming that aptitude and achievement measure "the same thing." He believes that the concept of aptitude and achievement are logically distinguishable. Certain basic capabilities are measured in the case of aptitude measures and certain foreign language outcomes in the case of achievement. Carroll's rationale for distinguishing aptitude and achievement is that prior to a learning task, there should be no significant correlation between an aptitude test and the achievement test that is to measure the outcomes of the learning program; but, after learning, the correlation between the aptitude test given prior to learning and the achievement test given after learning should become significant (p. 81).
Cognitive Flexibility

1. Is there a relation between cognitive flexibility, as represented by the Functionally Remote Associates Test (FRAT), and age?

Table 2 shows the correlation coefficient obtained when the two variables were compared. No significant correlation was found. Thirty-four subjects out of 103, however, chose not to respond or to finish the FRAT. Of the 34 non-respondents, 21 were adults. In other words, 61 per cent of the non-respondents were adults.

In the FRAT subjects are presented with 38 items consisting of three words each. Each item is arranged in order of increasing difficulty and each item has one correct response. Subjects are given 40 minutes to complete the task. In the time allotted, subjects must produce a fourth word that is related to each of the three words. The three words are not necessarily related to each other, but each of them is in some way related to the missing fourth word.

Adults may have viewed the task as too complicated, especially in view of the time limit imposed. Webb states that adults will have trouble with tasks that are viewed as complicated even if, in actuality, they are not as complicated as they may first appear. The FRAT may also be viewed as a kind of word game with no practical outcome.
Thus, those adults who seek practicality and relevance for each task undertaken may have considered completion of the task to be a waste of time.

The data do indicate, however, that for those adults who completed the measure, there was no correlation between them and younger students in cognitive flexibility as represented by the FRAT. It may be assumed, then, that adults do not lose the ability to look at a problem from several different viewpoints or to switch processing techniques, if necessary, to accomplish the task at hand. Although Chown (1972) and Schaie (1958) found that adults performed less well on tasks of speed and cognitive flexibility, these data do not support such findings. Due to the number of non-respondents, however, such a conclusion is, at best, tenuous.

Knox discusses two types of intelligence that relate to general learning ability. One, fluid intelligence, tends to peak during adolescence and to decline gradually during adulthood. The other, crystallized intelligence, increases gradually during the adult years. Fluid intelligence is more associated with the ability to perceive complex relations, engage in abstract reasoning, form concepts and engage in short term memory tasks. Fluid intelligence could be expected to be a factor in foreign language learning in tasks dealing with rote memorization, analogy and verbal reasoning. Crystallized intelligence, on the other
hand, is linked to acculturation and would be a factor in tasks related to vocabulary knowledge, general information, social situations and reading comprehension. Adults who possess a rich background in the above could rely more on their crystallized intelligence to successfully complete a task such as the FRAT. Those adults with a poorer background plus a gradual loss of their fluid intelligence might find the task too confusing or complicated to attempt. Pre-adults, using fluid intelligence, would be able to grasp quickly and accurately the complex relations involved in associating three unrelated words with a fourth word common to all three words. In replicating a study such as this one, if the number of non-respondents to measures could be decreased, it is likely that different results would be obtained.

2. Is there a relation between cognitive flexibility and foreign language aptitude, as represented by the MLAT and its subtests?

Table 10 shows the correlation coefficients obtained when the variables were compared.
Several significant correlations were obtained. The FRAT proved to be significantly correlated with MLAT/RAWS/COMP ($r=0.355$, $p<.01$); with PHSC/RHT ($r=0.300$, $p<.01$); with WDSS/RHT ($r=0.321$, $p<.01$) and with PAAS/RHT ($r=0.289$, $p<.05$). Although the correlations do show a linear trend, the relationship cannot be considered strong. Recalling Kerlinger's suggestion, however, that dropping a significant $r$ of around .300 may be losing a valuable lead for further research, some explanations for these correlations are discussed.

### Table 10
Comparison of FRAT with MLAT and its Subtests

<table>
<thead>
<tr>
<th>Subtest</th>
<th>FRAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLAT/RAWS/COMP</td>
<td>0.116</td>
</tr>
<tr>
<td>MLAT/RAWS/RHT</td>
<td>0.355**</td>
</tr>
<tr>
<td>NUML/RHT</td>
<td>0.175</td>
</tr>
<tr>
<td>PHSC/RHT</td>
<td>0.300**</td>
</tr>
<tr>
<td>SPCL/RHT</td>
<td>0.234</td>
</tr>
<tr>
<td>WDSS/RHT</td>
<td>0.321**</td>
</tr>
<tr>
<td>PAAS/RHT</td>
<td>0.289 *</td>
</tr>
</tbody>
</table>

* $p<.05$
** $p<.01$

df=69
Cox (1980) found that the FRAT appeared to be more a measure of scholastic aptitude (more precisely of verbal aptitude) than a measure of flexibility. In her study the FRAT proved to be significantly correlated with the American College Test English score and with the ACT Composite score. Pimsleur (1962), in reviewing research on student factors in successful foreign language learning, found that several studies tended to show that verbal ability in one's native language was positively correlated with success in learning a foreign language. Although the FRAT was not significantly correlated with FGFL, the significant correlations with the MLAT indicate that the two measures do seem to be tapping similar verbal skills or abilities. The question of whether these skills or abilities are manifestations of cognitive flexibility or verbal intelligence remains to be answered.

A large number of non-respondents to the FRAT also received low scores on the MLAT. Sixteen of the non-respondents to the FRAT were in the bottom quartile on the MLAT. Two other subjects who were in the bottom quartile also received very low scores on the FRAT (10 right out of 38 and 14 right out of 38). Thus, 72 per cent of the low aptitude subjects either did not choose to complete the FRAT or received extremely low scores. Had all subjects responded to the FRAT the correlation coefficient might have been higher.
It would have been interesting to correlate the FRAT with some known measure of verbal intelligence such as the ACT or the SAT but those data were not available to the researcher. In fact, it was impossible to find a common denominator, such as an English grade or standardized test that both pre-adults and adults had taken. A weakness of the study, in the researcher's opinion, is that no common base measure could be found for pre-adults and adults.

3. Is there a relation between cognitive flexibility and achievement in a foreign language as represented by the final grade received at the end of the first semester of study of a foreign language?

No significant correlation was found when the two variables were compared. Although the r value obtained was almost significant at $p < .05$. This finding is somewhat unusual in that the FRAT and MLAT/RAWS/RHT are significantly correlated. Had a larger n been possible, a different correlation coefficient might have been obtained. Again, with so many non-respondents to the measure, any conclusions drawn from the data should be tentative.

4. Do Weekend College adults differ from regular adults in cognitive flexibility as represented by the FRAT?
Table 11 shows the t-ratio obtained when the two groups were compared.

Table 11
Comparison of WEC Adults and Regular Adults on FRAT

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEC Adults</td>
<td>15</td>
<td>21.46</td>
<td>5.71</td>
<td>-3.4475</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>Regular adults</td>
<td>30</td>
<td>15.16</td>
<td>5.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A significant difference was found between the groups. The Weekend College adults come from a different population than do the regular adults with regard to cognitive flexibility as represented by the FRAT. They are also different with respect to foreign language aptitude and final grade received at the end of the first semester of study of a foreign language. Explanations for the differences between these groups might be discovered by studying the groups in depth, using other measures or interviews to determine what differences in background, education, motivation, etc. are contributing to the differences between them.
Dogmatism

1. Is there a relation between dogmatism, as represented by the D-Scale and age?

A correlation of \(-0.341\) (\(p < .05, \text{df}=52\)) was obtained between age and dogmatism. This finding indicates that younger students were more dogmatic than adults in the openedness or closedness of their belief system. The "folklore" suggests that as people age, they become more rigid or inflexible in their beliefs. The results of this study indicate that as people age, they become more open-minded in their belief system.

The response of the volunteer subjects to the D-Scale was poor. Only 52 subjects completed the measure. Many subjects looked at the measure, chose not to complete it and returned it. The D-Scale was one of the last measures to be given during the period of data collection. The subjects who were more interested in the nature of the study were the ones who persevered with the task. Only 10 subjects in the pre-adult group responded; 42 in the adult group responded.

A t-test was performed to compare the means of the two groups. Table 12 shows the t-ratio obtained when adults and pre-adults were compared on dogmatism.
Table 12
Comparison of Adults and Pre-Adults on Dogmatism

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-adults</td>
<td>10</td>
<td>161.90</td>
<td>30.80</td>
<td>2.8158</td>
<td>p &lt; .01</td>
</tr>
<tr>
<td>Adults</td>
<td>42</td>
<td>134.64</td>
<td>26.30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A significant difference was found between the groups. The data indicate that the two groups come from different populations. This interpretation should be viewed with caution, however, due to the high number of non-respondents, both adult and pre-adult, to the measure.

2. Is there a relation between foreign language aptitude and dogmatism?

A correlation coefficient of 0.023 was obtained when the two variables were compared. The result would seem to indicate that there is no relation between foreign language aptitude and dogmatism. Only 52 subjects, however, responded to the measure. Twelve non-respondents to the D-Scale were also in the bottom quartile of the MLAT. That means that almost 50 per cent of the lowest aptitude subjects chose not to complete the measure. Had more subjects responded to the measure, especially the lower aptitude students, the resulting correlation coefficient might have been different.
3. Is there a relation between foreign language achievement and dogmatism?

A correlation coefficient of 0.027 (n.s., df=43) was obtained between foreign language achievement and dogmatism. The data indicate that there is no correlation between dogmatism and foreign language achievement as represented by the final grade received after the first semester of study of a foreign language.

Again, any conclusion drawn from the data should be viewed with caution due to the low number of respondents to the D-Scale. In addition, 11 out of 16 subjects who withdrew from the course chose not to complete the D-Scale (68 per cent of the withdraws).

Is there a relation between dogmatism, as represented by the D-Scale and cognitive flexibility, as represented by the FRAT?

A correlation coefficient of -0.119 (n.s., df=47) was obtained between dogmatism and cognitive flexibility. Jacoby (1967) also found a non-significant negative correlation in a study using Rokeach's dogmatism scale and Mednick's Remote Associates Test. The correlation coefficient was, however, in the predicted direction since higher scores on the D-Scale indicate a more closed belief system and higher scores on the RAT indicate greater creativity.
Rokeach suggests that the ability to synthesize is far more important to creativity than the ability to analyze. Thus, the results obtained in this study, along with those in the Jacoby and Johnson (see Chapter 2) studies, indicate that further research into the relation between dogmatism and creativity is warranted. It should be remembered, however, that there is some doubt as to whether the RAT and the FRAT measure creativity and cognitive flexibility or are measures more closely associated with verbal intelligence and verbal aptitude. Still, further research into the relation of dogmatism to these variables would be desirable.

5. Is there a difference between Weekend College adults and regular adults on dogmatism?

Table 13 shows the t-ratio calculated when the two variables were compared.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEC Adults</td>
<td>14</td>
<td>139.92</td>
<td>26.80</td>
<td>-.9192</td>
<td>n.s.</td>
</tr>
<tr>
<td>Regular adults</td>
<td>28</td>
<td>132.00</td>
<td>26.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The t-ratio obtained shows that the two groups come from the same population with regard to dogmatism.
Motivation

Due to the disappointingly small number of responses to the motivation measure, the instrument was hand-scored and comparisons made among the groups by the researcher.

1. Is there a difference between adults and preadults in the type of motivation exhibited?
   Only one response to the instrument was obtained in the pre-adult group; therefore, the question cannot be answered.

2. Is there a difference between men and women in the type of motivation exhibited?
   Sixteen women responded to the measure and eight men responded. Both groups were more instrumentally oriented in their motivation, the men more so. Of the women, 50 per cent were instrumentally motivated, whereas 43 per cent were integratively motivated. Of the men, 63 per cent were instrumentally motivated and 37 per cent were integratively motivated.

3. Is there a difference between Weekend College adults and regular adults in the type of motivation exhibited?
   Adults who responded to the measure numbered 24; 16 Weekend College adults and eight regular adults. There was
no clear orientation by the adults as a whole to either type of motivation. Thirteen responses showed a stronger instrumental motivation; eleven responses showed a stronger integrative motivation. When the adults were divided into WEC adults and regular adults, however, a difference could be seen. In the WEC group, seven instrumental orientations and nine integrative orientations were observed. There was no clear orientation to type of motivation for this group. The regular adults, however, showed a more instrumental motivation, six instrumental orientations as opposed to three integrative. Of the adults, 66 per cent of the regular adults showed an instrumental orientation; while only 43 per cent of the WEC adults indicated an instrumental orientation.

Although the figures are too low to make any statement with confidence regarding a difference in motivation between the two groups, they may be indicative of yet another difference between these two groups.

4. Does one type of motivation contribute more toward foreign language achievement by adults than another?

Both types of motivation seemed to work when the adults were taken as a whole. When the adults were divided, however, a difference was observed. The average grade for the WEC group was 3.6; their motivation showed no clear orientation one way or the other. The average grade for
the regular adults was 3.0; their motivation orientation was instrumental. These results should be interpreted cautiously, but the difference in motivation seems to be one more variable that separates the Weekend College adults and the regular adults into two different populations.

Summary

The analyses performed to answer the major questions yielded the following results:

Aptitude

1. There were significant differences between ODC adults and all of the groups used to establish the norms for the MLAT. Pooled variance estimates were used to calculate all of the t-tests because of the small ODC sample size.

2. ODC adult men and ODC adult women were found to come from the same population with regard to foreign language aptitude.

3. A significant difference was obtained when Weekend College adults and regular adults were compared on foreign language aptitude. This was the first of several significant results obtained between these two groups.

4. Several significant differences were obtained when adults were compared to pre-adults on foreign language
aptitude. The two groups were shown to come from two different populations when compared on the following measures: (1) MLAT/Number Learning, (2) MLAT/Spelling Clues, (3) MLAT/Paired Associates, (4) MLAT/Raw Score.

Several significant correlations were obtained when age and foreign language aptitude were compared. On all the measures of the MLAT and its sub-tests, younger students tended to perform better than older students. Significant correlations were found on four of the measures: (1) MLAT/Raw Score Completed, (2) MLAT/Raw Score Right, (3) MLAT/Number Learning, (4) MLAT/Paired Associates.

Achievement

1. A significant difference was found between WEC adults and regular adults on the final grade received at the end of the first semester of study of a foreign language. The Weekend College adults received higher grades.

2. There was no difference in achievement, as measured by the FGPI, between adults and pre-adults. It should be remembered, however, that 12 adults withdrew from the course and that six adults audited the course and did not receive a final grade.

3. There was no relation between age and achievement as shown by a correlation coefficient. This correlation coefficient was one of only two coefficients relating age to other variables that was not in a negative direction.
Cognitive Flexibility

1. No significant correlation was obtained when age and cognitive flexibility were compared. It should be recalled, however, that of the non-respondents to the measure, 61 per cent were adults.

2. Correlation coefficients obtained when the MLAT and its subtests and the FRAT were compared yielded significant correlations. The FRAT proved to be significantly correlated with the MLAT/Raw Score right, with Phonetic Script, with Words in Sentences and with Paired Associates.

3. No significant correlation was obtained when the FRAT and achievement were compared although the correlation coefficient was almost significant at $p > .05$.

4. A significant difference was found between WEC adults and regular adults in cognitive flexibility.

Dogmatism

1. A significant correlation was found between age and dogmatism. Younger students were more dogmatic than adults in the openedness and closedness of their belief systems.

2. No relation was found between foreign language aptitude and dogmatism.

3. No relation was found between foreign language achievement and dogmatism.
4. No relation was found between dogmatism and cognitive flexibility. The correlation coefficient was, however, in the predicted direction.

5. There was no difference between WEC adults and regular adults on dogmatism.

Motivation

1. Due to low response by the pre-adult group to the measure, adults and pre-adults could not be compared with regard to the type of motivation exhibited in learning a foreign language.

2. Both adult men and adult women were more instrumentally oriented in their motivation, the men more so.

3. There was a difference between the Weekend College adults and the regular adults. The regular adults showed a more instrumental motivation.

4. Both integrative and instrumental motivation seemed to contribute toward foreign language achievement by adults when taken as a whole. WEC adults, however, obtained higher average grades than did regular adults whose motivation was more instrumental.

All results of the study must be interpreted with great caution due to the small sample size.
V. SUMMARY AND RECOMMENDATIONS

Summary

This study attempted to discover which selected learner variables were most important for adults learning a foreign language and if these characteristics were equally as important for pre-adults. A group of 105 first semester foreign language students volunteered for the study, 70 adults and 35 pre-adults. They were given the MLAT (Modern Language Aptitude Test) to measure foreign language aptitude, the FRAT (Functionally Remote Associates Test) to measure cognitive flexibility, the D-Scale (Dogmatism Scale) to measure the openedness or closedness of their belief system, and the IIMS (Instrumental/Integrative Motivation Scale) to measure their motivation orientation. In addition, they were compared on FGFL (Final grade received after one semester of study of a foreign language) to measure their achievement.

Significant differences were found between adults and pre-adults on some of the measures given. Pre-adults and adults came from different populations when compared on MLAT/Number Learning, MLAT/Spelling Clues, MLAT/Paired Associates and MLAT/Raw Score. Pre-adults were better than adults on
MLAT/RAWS/COMP, MLAT/RAWS/RHT, MLAT/NUML and MLAT/PAAS.
There were no significant correlations between older learners and younger learners on achievement (FGFL), or on cognitive flexibility (FRAT). Younger learners were, however, more closed in their belief systems, as represented by the DSCL, than were older learners.

Several significant differences were observed between WEC adults and regular adults. Clearly, these two groups were from different populations. Significant differences between the groups were found on aptitude, achievement and cognitive flexibility. In addition, WEC adults exhibited no clear motivational orientation either toward the instrumental or the integrative.

Significant differences were found between both adult men and adult women in this study and the adult groups used as norms for the MLAT. The norms for the MLAT are composed almost entirely of men. There was no difference between the adult men and the adult women who participated in the study.

Significant correlations were obtained between the FRAT and MLAT/RAWS/RHT, MLAT/PAAS, MLAT/WDSS and MLAT/PHSC. No significant correlation was obtained when the FRAT and achievement (FGFL) were compared although the correlation coefficient was almost significant at $p > .05$. No relation
was found between dogmatism and cognitive flexibility although the correlation coefficient was in the predicted direction.

Recommendations for Further Research

This study was an attempt to analyze selected variables that may affect adults learning a second language and to compare adults and pre-adults on these variables. Little prior research has been done in the area of contrasting adults and pre-adults in the same learning situation, especially with regard to the variables selected.

The study was handicapped at the outset by the necessity of using volunteers. The group that chose to participate in the study thus became a self-selected group and may not reflect the true composition of adult and pre-adult learners. Since response to each measure was voluntary, the low number of responses to some measures further confined the groups. The length of time required to complete the whole battery of measures was greater than many participants felt they could give. This was true of both adult and pre-adult groups. Many pre-adults were working 30-40 hours a week in addition to their regular class loads. Adults, with their full-time job responsibilities and, in many cases, family responsibilities found themselves having to
choose between participating in the study and preparing assignments for courses they were attending.

Any conclusions to be drawn from the study must be tenuous due to the small response to several measures. Low aptitude students and dropouts particularly presented a problem for the researcher. Wesche and Rubin found the same problem in their studies. It was very difficult to obtain information about the non-learner or the minimally successful learner of a foreign language. Such a study of "who didn't make it and why" would be invaluable.

Several recommendations come to mind as a result of the information obtained from the study.

First, the MLAT should be re-normed using groups that are more representative of people involved in foreign language learning activities at the present time. Given the large numbers of adults on college campuses today, such a project would not seem too far-fetched, particularly with the support of a coordinating body such as the Ohio College Association.

Second, institutions need to revamp their measurement criteria to adequately represent adults. There are no measures, such as the SAT, that are valid for both adults and pre-adults. A weakness of this study was the inability of the researcher to find a common measure which both groups had taken.
One of the results of this study showed that adults and pre-adults come from different populations with respect to foreign language aptitude. Such information is of great importance to foreign language educators as they arrange conditions for learning in their classrooms. Other disciplines could surely profit from similar knowledge.

As mentioned before, a study using interview techniques on who dropped out and why could provide the researcher with important information as to what kinds of activities worked and didn't work in the classroom or as homework assignments. Then, a study to create a taxonomy of language learning activities based on adult learner needs and characteristics would be desirable. For example, given the limited amounts of extended study time that adults have and their task orientation, short, specific learning tasks, prepared on 3 x 5 cards to be carried in the car, pocket or purse might be one way take advantage what little time adults have for studying.

One result of this study showed that adults were less efficient listeners, especially when a time element was involved. If adults need more time to develop the listening skill, then perhaps other skills, such as speaking, could be delayed for several weeks in order to help adults concentrate on fewer areas of foreign language learning (see Potovsky, 1974). A study such as Potovsky's but
using adults might yield valuable results. In addition, short (15-20 second) listening activities would be taped on cassettes for adults to listen to at home or in the car on the way to work or class.

Following Kerlinger's suggestion, the relation between cognitive flexibility and foreign language aptitude would appear to be a promising area of investigation. This study was hampered by the number of non-respondents to the FRAT, but if this problem could be solved and a deeper analysis of what the FRAT actually tests were undertaken, some interesting findings as to the nature of foreign language aptitude might emerge.

A direct outcome of this study would be to undertake a follow-up study of the differences between WEC adults and regular adults at Ohio Dominican College. The results of this study showed that the two groups were from separate populations. Questions about these groups, such as the following, need to be asked: Who had federal or state grant money or reimbursement plans from their employers? Did this affect the type of motivation exhibited? Who was working full-time, part-time or unemployed? What kinds of jobs did the WEC people have as opposed to the regular adults (more white-collar, managerial, etc.)? What differences in educational background are there between the two groups?
An exploratory study, such as the one described here asks more questions than it answers. The questions it does ask, however, are worthy of further investigation, utilizing more rigorous experimental designs in which the variables can be tightly controlled.
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