Interaction Between Cognitive Styles and Assessment Approaches.

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UMI
INTERACTION BETWEEN COGNITIVE STYLES AND ASSESSMENT APPROACHES

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of Educational Research, Leadership and Counseling

by

Mehtap Cakan
B.A., Hacettepe University, 1991
May 2000
DEDICATION

This dissertation is dedicated first and foremost to my father, mother,
sisters, brothers, and secondly to my friends,
who supported and encouraged me in this endeavor.
ACKNOWLEDGMENTS

The completion of this study would not have been possible without the support and contribution of many people. Here I would like to thank a few of them.

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# TABLE OF CONTENTS

**DEDICATION** ................................................................................................................. ii

**ACKNOWLEDGMENTS** .............................................................................................. iii

**LIST OF TABLES** .......................................................................................................... vi

**ABSTRACT** .................................................................................................................. x

**CHAPTER**

1 **INTRODUCTION** .......................................................................................... 1
   Test format ........................................................................................................... 2
   Cognitive Style and Intelligence ....................................................................... 4
   Cognitive Style and Test Format ...................................................................... 7
   Cognitive Style and Second Language Learning ........................................... 10
   Statement of the Problem ............................................................................... 14
   Objectives of the Study ................................................................................... 18
   Research Hypotheses ....................................................................................... 21
   Operational Definitions .................................................................................... 24

2 **REVIEW OF LITERATURE** ................................................................. 26.
   Introduction ................................................................................................. 26
   Impact of Cognitive Style on Academic Achievement .................................. 26
   Impact of Assessment Format on Academic Performance ............................ 34
   Cognitive Style and Performance on Different Test Formats ...................... 39
   Second Language Performance, Test Format and Students' Cognitive Style .... 43
   Measurement of Cognitive Style .................................................................... 48
   Summary ........................................................................................................... 50

3 **METHODOLOGY AND PROCEDURE** ................................................. 53
   Research Design ............................................................................................. 53
   Sample ............................................................................................................. 54
   Variables and Measures .................................................................................. 61
      1. Cognitive Style Test ................................................................................ 61
      2. French Proficiency Exam ....................................................................... 63
         Format of the Test Administration and Scoring ..................................... 64
      3. Student Interviews ............................................................................... 67
      4. Teacher Interviews ............................................................................... 68
   Dependent Variable ......................................................................................... 70

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### Data Collection Procedures

- Data Collection Procedures .......................................................... 72
- Data Analyses .............................................................................. 73
- Limitation of the Study ................................................................. 76

### CHAPTER 4 QUANTITATIVE FINDINGS AND RESULTS

- Overview of the Study ................................................................. 78
- Sampling Procedure .................................................................... 79
- Hypotheses Tested in Phase I ...................................................... 82
- Descriptive Analyses ....................................................................
  1. Descriptive Statistics Regarding Student Achievement ........ 84
  2. Descriptive Statistics Regarding Cognitive Style ................. 86
- Hypotheses Testing ....................................................................... 87
  1. Inferential Statistics Regarding Students Who Were Not on Free/Reduced Lunch Program ........................................... 88
- Auxiliary Analysis ....................................................................... 94
  1. Effect of Assessment Format on Achievement of Students who were in the Middle Section of the Cognitive Style .... 94
  2. Interaction Between Task Difficulty and Cognitive Style ..... 95
- Summary ...................................................................................... 96

### CHAPTER 5 QUALITATIVE FINDINGS AND RESULTS

- Introduction: Attitudes of Field-Dependent/Independent Students Toward Different Test Formats and Their Study Habits........ 98
- Sampling Procedure .................................................................... 100
- Analysis of Student Interviews ................................................... 103
- Summary ..................................................................................... 146
- Analysis of Teacher Interviews .................................................... 148
  1. Teachers' Report of Students' Test Performance on Various Assessment Formats ....................................................... 149
  2. Teachers' Report of Student Preferences Toward Various Assessment Formats ....................................................... 159
- Investigating a Sample of Teacher Related Factors that Might Have Affected Student Performance and Preferences Toward Various Assessment Formats ........................................... 165
- Summary ..................................................................................... 183
  1. Student Interviews ................................................................. 183
  2. Teacher Interviews ............................................................... 187

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LIST OF TABLES

Table 3.1  
Demographic Characteristics of the Students ................................................................. 56

Table 3.2  
Distribution of the Cognitive Style Test Results in the Sample ....................................... 57

Table 3.3  
Distribution of the Students Who Were Interviewed ...................................................... 60

Table 3.4  
Purposes of the Student Interview and Interview Questions ........................................... 69

Table 3.5  
Purpose of the Teacher Interview and Interview Questions ............................................ 71

Table 4.1  
Demographic Information Regarding the Sample and the Total Population of Students in the State Who Took the French Proficiency Exam in Louisiana .................................................. 81

Table 4.2  
Correlation Matrix for the Cognitive Style and the Four French Achievement Scores .......... 84

Table 4.3  
Mean z-scores of the Students on the Multiple-Choice Section of the Proficiency Exam .......... 85

Table 4.4  
Mean z-scores of the Students on the Performance-Based Section of the Proficiency Exam ................................................................. 85

Table 4.5  
Mean Cognitive Style Scores of Students by Gender and Ethnicity .................................. 86

Table 4.6  
Analysis of Variance for Cognitive Style and Assessment Approach ............................... 90

Table 4.7  
Analysis of Variance of Cognitive Style by Item Difficulty of Multiple-Choice Test ............... 96
Table 5.1
Distribution of the Students Who Were Interviewed About Their
Assessment Preferences and Study Habits .................................................. 102

Table 5.2
The Frequency Distribution of Responses to "Do You Usually Prefer
Your Knowledge of French to Be Tested by Multiple-Choice Type
Exams or by Other Techniques (Such As, Essay, Individual/Group
Projects, and Oral Exams)? ........................................................................ 110

Table 5.3
The Frequency Distribution of Responses of "How Do You Usually
Prepare or Study For Your Exams?" ........................................................ 112

Table 5.4
The Frequency Distribution of Responses to "Do You Change
Your Study Methods Depending upon the Type of Exam (Test Format)
You Will Take? For Example, Do You Change Your Study Methods
When Studying for Multiple-Choice or Essay or Project or Oral
Exams?" ...................................................................................................... 125

Table 5.5
The Frequency Distribution of Responses to "Did You Know How You
Were Going to Be Tested For the French Proficiency Exam?" .......... 131

Table 5.6
The Frequency Distribution of Responses to "Did You Change Your
Regular Study Method to Prepare For Taking the French Proficiency
Exam?" ........................................................................................................ 134

Table 5.7
The Frequency Distribution of Responses to "Do You Spend Different
Amounts of Time Studying For Different Types of Exams (e.g., Multiple-
Choice, Essay, Oral Exam, And Project)?" .................................................. 136

Table 5.8
Average Amount of Time Spent by Field-Independent and Field-Dependent
Students For Various Test Formats ............................................................ 138

Table 5.9
Average Number of Hours the Students Spent Studying For the French
Proficiency Exam During the Two Weeks Before the Exam? .................... 144
Table 5.10
Number of Students Who Were Described to Perform Better on Each Assessment Format by Their Teacher ................................................ 150

Table 5.11
Number of Students Who Were Described Performing Better on Each Specific Assessment Format by Their Teachers ............................. 151

Table 5.12
Number of Students Who Were Described as Preferring Certain Assessment Formats over Other Formats by Their Teachers ............................. 160

Table 5.13
The Frequency Distribution of Responses of "During the Current Year, What Kind of Test (Multiple-Choice, Essay, Oral-Exam, Project) Did You Give to Students?" .............................................................. 166
ABSTRACT

The present study investigated the interaction of cognitive style and assessment format (multiple-choice (MC) and performance-based assessments (PBA)) in second language proficiency. The participants consisted of 258 eighth-grade students. The second language achievement of the students was assessed by the Eighth Grade Proficiency/Credit Exam: French I. The cognitive style of the students was assessed by the Group Embedded Figures Test. The study also examined study habits and attitudes of field-dependent (FD) and field-independent (FI) students toward the two assessment formats.

The study utilized a sequential mixed-model design, consisting of both quantitative and qualitative methods. Phase I consisted of a quantitative study investigating performance difference between FD and FI students on different test formats. Phase II consisted of a qualitative study to investigate assessment preferences and study habits of FD and FI students.

Results revealed that cognitive style had a statistically significant effect on student performance whereas the effects of gender, ethnicity and socio-economic status of the students were not significant. A two-factor split-plot analysis revealed a significant interaction of cognitive style and test format. FI students outperformed FD students in the MC, but no indication of such difference was observed for the PBA. Furthermore, FD students scored better on the PBA than they did on the MC. The FI students scored better on the MC. Overall, the study indicated that compared to multiple-choice format, the performance-based assessment of second language...
proficiency is less impacted by student attributes such as cognitive style, gender, ethnicity, and socio-economic status.

Qualitative interviews with students and their teachers revealed that there are differences between study habits of FD and FI students, but no difference was observed in terms of their assessment preferences. Lincoln and Guba's (1985) constant comparative method was utilized for the analysis of the result.
CHAPTER 1
INTRODUCTION

Different aspects of educational settings have been studied in order to determine the main factors that impact student achievement. One of them is the impact of assessment approach on student achievement. A number of studies have been conducted to examine the impact of assessment format on student achievement and learning (Mills, 1996; Sivalingam, 1997). These studies reveal differences in student performance when measured by different test formats. Educators have aimed to explain why students perform differently on various test formats.

In recent years, cognitive style has gained attention as a possible factor that needs to be investigated in order to explain why students perform differently on different types of assessment formats. However, very few studies have been conducted to examine how assessment format and cognitive style interact. Also, very few studies have been conducted related to second language performance of students and how their performance interact with the assessment format and cognitive style.

Although there are some studies investigating the interaction between the cognitive style and assessment formats, there is a scarcity of studies that have investigated attitudes of students with different cognitive styles toward various assessment approaches (Birenbaum, 1997).

The current study aims to investigate a possible interaction between cognitive style and assessment format in students' second language achievement. The study also aims to investigate attitudes of field-independent and field-dependent students toward
two assessment formats (performance-based assessment and multiple-choice) and study habits of those students.

Test Format

Continuous improvement in the area of learning strategies has inspired researchers and educators to consider variations in different types of individuals, different learning environments, and varieties of methods for acquiring knowledge (Wittrock & Baker, 1991). Understanding of interactions among these factors requires new and more complicated assessment approaches in the areas of both psychological and educational measurement. Objective testing, which has been known to be a predominant approach for several decades, seems inadequate for addressing many aspects of these needs. Performance-based assessment (PBA) is considered a strong supplement or alternative to objective testing (Lu & Suen, 1995).

PBA refers to various assessment formats, which are described as being able to assess contextualized higher-order thinking (Harrington-Lueker, 1991). The capability of assessing contextualized higher-order thinking is an important feature of PBA that encourages researchers and educators to have important expectations from this approach — for example, being able to assess high-order thinking (e.g., generation, strategy choice, multidimensional thoughts, and judgment) and improve learning and instruction. Performance-based assessment permits educators to assess actual performance or highly accurate simulations of student performance (Linn, Baker, & Dunbar, 1991). In PBA, students are required to solve problems that they may encounter in their daily lives. Lab experiments, demonstrations, station activities,
dramatizations, essay exams, hands-on projects, authentic tasks, and different projects are some of the assessment formats that are used for performance-based assessments (Harrington-Lueker, 1991). The performance-based assessment has many advantages: (1) It assesses a large variety of abilities and skills, (2) allows students to display mastery in a unique way, (3) allows for assessing students' performance when they are actually using their skills in a natural context, and (4) since students perform as they would perform in everyday life, it has ecological validity (Ascher, 1990a).

A substantial number of studies have compared students' performance on multiple-choice format and performance-based assessment. In a study Mills (1996) compared the outcomes of multiple-choice tests and essay exams. The study indicated that using multiple-choice format as a major classroom assessment usually results in less initial learning, lower levels of short-term retention, and more forgetting compared to essay classroom assessments. Multiple-choice assessment also limits the acquisition of knowledge. Another study (Sivalingam, 1997) found that there is no significant evidence to conclude that performance based assessment is more equitable than multiple-choice testing for assessing students' performance. The same study also reveals that multiple-choice tests and performance-based assessments measure different attributes; therefore, one cannot be replaced by the other. Rather, both assessment formats should be used depending upon the assessment purpose. Sivalingam (1997) also indicates that performance-based courses provide more activities that emphasize problem-solving and higher-order thinking and afford students more opportunities to investigate problems than multiple-choice tests do in high school science courses.
Both multiple-choice and performance-based assessments have distinctive characteristics that are able to serve the needs of different school settings. It seems that completely rejecting one test format and hiring the other one would be a very extreme and unnecessary approach to follow. Depending upon the particular situation or need at hand, either of the assessment approaches can be useful and practical to employ. How different test formats can affect academic performance needs to be clearly investigated in conjunction with different subject areas and different student characteristics (e.g., cognitive style) that may interact differently with the test formats under various conditions.

Cognitive Style and Intelligence

Cognitive style as a psychological construct has received growing attention from researchers in the fields of both psychology and education. One of the main reasons for such attention is that cognitive styles have significant implications for educational theory and practice (Sternberg & Grigorenko, 1997). As Sternberg & Grigorenko (1997) argue, one major reason for the use of cognitive style measures is to improve the prediction of student performance as assessed by ability measures (traditional intelligence tests) until now. A number of other researchers also emphasize on importance of cognitive styles in understanding of student performance. For example, Kagan (1966) stated that (as cited in Sternberg & Grigorenko, 1997, p.702) "perhaps impulsive children would show lower performance in school because of their tendency not to be careful in their work, above and beyond any question of their intellectual abilities." Witkin (1975) commented "or perhaps children who could not separate
themselves from their perceptual field or elements of this field from each other (so called field-dependent children) would suffer when they were learning to read" (as cited in Sternberg & Grigorenko, 1997, p.702).

Cognitive style implies methods that are preferred by persons for perceiving, organizing, using and retaining knowledge. Cognitive styles differ from intellectual abilities in the sense that cognitive styles describe the process in which a learner uses information for different tasks and situations. On the other hand, intellectual abilities relate more to specific skills or talents. Sensory preferences (visual or spatial, auditory or verbal), field dependence or independence, impulsive versus reflective responses, and diversity versus consistency are some of the areas that have received attention in cognitive styles research (American Association of School Administrators [AASA], 1991; Wapner & Demick, 1991).

Since there have been many critics regarding the use of traditional intelligence tests, cognitive styles have been perceived as an alternative for explaining individual differences. Nevertheless, there have been debates regarding a possible relationship between intelligence and cognitive styles, such as field-dependence/independence. Unlike intelligence, cognitive styles are bipolar. This feature of cognitive styles is especially critical for differentiating cognitive styles from intelligence as well as from other ability measures (Witkin et al., 1977). In terms of abilities, it is always better to have more of an ability than less of it. However in cognitive styles "each pole has adaptive value under specified circumstances, and so may be judged positively in relation to those circumstances. This is clearly evident in the case of the articulated-
global dimension, where the cluster of competence in cognitive articulation plus an impersonal orientation, at one pole, and the cluster of a social orientation and social skills plus less competence in articulation, at the other pole, may each be seen as especially suited to meet the requirements of particular tasks" (Witkin et al., 1977).

Witkin & Goodenough (1981) examined eleven studies investigating the relationship between field-dependence/independence and vocabulary-test-scores as a measure of intelligence. Results of these studies indicated a mean correlation of $r = .14$ between field-dependence/independence and vocabulary. Results of the eleven studies also showed that correlation between Rod-and-frame test (RFT) scores, which is another measure of field-dependence/independence, and vocabulary was not significantly different from zero (.04). The results indicated that field-dependence/independence and verbal-comprehension constructs are not related.

Lu & Suen (1995) examined student performance on different test formats (multiple-choice and take-home exams) related to field-dependence/independence cognitive styles. The study revealed a significant difference between performances of field-dependent and independent students on take-home exams in favor of field-independent students. The study did not indicate a significant difference between the groups on the multiple-choice tests. In order to investigate whether the difference was found because of cognitive style or difficulty of the tests, Lu and Suen also examined interaction between item difficulty and cognitive style of the students. The results revealed a significant interaction between these two factors, which suggests that item difficulty was not the reason for the differences found between the two groups.
Cognitive Style and Test Format

A number of studies have been conducted to explain performance differences of students on multiple-choice testing and performance-based assessment. Lu and Suen (1995) suggested that a person's sensitivity to context may be a critical element for explaining such performance differences. The cognitive style of an individual is characterized as one of the possible context-related factors that can be tested for understanding the relationship between persons' sensitivity to context and assessment outcomes (Lu & Suen, 1995). Cognitive styles refer to a broad dimension of individual differences that concern both perceptual and intellectual activities (Witkin, Moore, Goodenough, & Cox, 1977).

The field-dependence-independence dimension has been used as a central component in distinguishing the cognitive style of learners. The field dependence-independence (FD/I) dimension defines how a learner experiences the environment in the learning process (for example, the individual's tendency toward using certain types of cues for perceiving and processing information). Individuals who are field-independent tend to use postural cues (e.g., vestibular, kinesthetic, and tactile cues). On the other hand, field-dependent individuals make use of visual cues (AASA, 1991; Wapner & Demick, 1991; Witkin & Asch, 1948).

In a study, Dwyer and Moore (1995) tested the effects of visualization on information processing strategies of FD/I students. It was hypothesized that if visualization influences the information processing of the FD/I learners, then color-coded visuals would make relevant cues more evident than black and white coded...
visuals for field-dependent learners. One hundred eighty-three college students who were enrolled in a basic educational psychology course were administered the Group Embedded Figures Test (GEFT) and classified as field-dependent and field-independent. The students were required to read an instructional booklet on anatomy and functions of the human heart. Information in the booklet was highlighted in either black and white or various other colors. After a discussion of the information, the students received four different multiple choice tests (drawing, terminology, identification, and comprehension). The result of the study indicated that on the total test, the mean score of FD students was significantly higher on the color-coded information than the black and white information.

Several studies have sought to understand which role the cognitive style plays in various school settings and how it affects student achievement. Interaction between various test formats and cognitive styles is one of the issues that has received attention and hasn't been clearly understood to date (Lu & Suen, 1995). In a study, the relationship of cognitive style (field dependence) and the reading comprehension test performance of deaf adolescents was examined on multiple-choice and free-response formats (Davey & Lasasao, 1984). Significant interactions were observed between the cognitive styles of the examinee and test formats. In addition to achievement, cognitive style was found to impact attitudes, other perceptions, and reaction to environment.

In a similar study, Birenbaum and Feidman (1998) examined the way students' cognitive styles and their attitudes toward different assessment formats interact. The study shows that student attitudes are related with "students' learning-related processes
of the cognitive and affective aspects" (Birenbaum & Feidman, 1998, p.94). Students who have good learning skills and a high academic self-concept prefer open-ended assessment over the multiple-choice format. On the other hand, students who have poor learning skills and a low academic self-concept tend to prefer multiple-choice assessment because this type of assessment format requires less demands on their information processing capacity, which can be disrupted by test anxiety.

Lu and Suen (1995) examined student performance on multiple-choice tests and performance-based assessments related to cognitive styles that were classified as field-dependent or field-independent. The result revealed that compared to field-dependent students, field-independent students perform better on performance-based assessment although there is no significant difference between the performance of the groups on multiple-choice tests. The researchers concluded that the extent to which the results of the study are generalizable to other forms of PBA is not known and should be further investigated.

Studies reviewed above have revealed that test format and the cognitive style of students seem to interact and influence academic performances of students. To date, there has not been enough empirical evidence addressing how these two factors interact and to which degree their interaction affects the academic performances of the students. It seems that the interaction of test format and the cognitive style differs depending upon the characteristics of students, types of test format, and subject domains. In order to have a clear picture of the issue, the possible interaction between these two factors needs to be investigated for different ages, grade levels of students and subject
domains. Understanding of the possible relationships among these factors would provide better educational environment for students and educators.

**Cognitive Style and Second Language Learning**

Second language learning is one of the subject areas that has been explored by the cognitive style researchers. Since intelligence is not considered to be the main factor that contributes to effective second language learning, researchers have started seeking other factors that may determine success in second language learning (Jamieson, 1992). Field dependence/independence cognitive styles are some of the factors that have captured the attention of researchers and received greater acceptance than other types of cognitive style (e.g., reflection/impulsivity) in second language learning (Jamieson, 1992).

Steves (1997) investigated the foreign language learning of 13 second- and third-grade students in Spanish as a second language. Learning style, motivation, approach to vocabulary learning, classroom behavior, listening and pronunciation skills, expectations, age, gender, and second language (L2) learning success were the important variables that were taken into consideration for the study. The data were collected through video- and audio-taping and a number of observations. The findings of the study revealed that peer group influence, classroom management, and emotional climate were closely related factors affecting second language learning. Steves concluded that there was not enough evidence suggesting that one of the personality variables was more critical than another in the long term. Overall classroom success was suggested to be the best predictor of L2 learning.
Jamieson (1992) investigated the relationships between two cognitive style measures (reflection/impulsivity and field dependence/independence) and second language acquisition (SLA) of foreign students in the United States. Students were administered the Test of English as a Foreign Language (TOEFL), the Group Embedded Figures Test (GEFT) (Witkin et al., 1971) and the adult version of the Matching Familiar Figures Test (MFFT). Pearson-product moment correlations were computed between the cognitive style measures and language proficiency. All the correlations among the cognitive style measures and the parts of the TOEFL were found to be statistically significant; the correlations between the field-independence and the language measures ranged between .37 to .45, and the correlations between the language measures and inefficiency on the reflection/impulsivity ranged from -.16 to -.37. Results of multiple regression analyses indicated that field dependence was a more important cognitive style than reflection/impulsivity for explaining language proficiency. Field independence was suggested to be an important factor for understanding second language learning.

In a similar study, Elliott (1995) investigated the effects of field dependence on the pronunciation accuracy of forty-three adult Spanish learners at Indiana University. A multimodel method was applied to investigate the significance of field-dependence and student attitude/concern for predicting success in pronunciation accuracy. The students were administered the GEFT and pronunciation pre-test and post-test as well as the attitude test (PAI) assessing student concern toward pronunciation accuracy. The correlation between field-independence and the pre-test was found to be statistically
significant \( (r = .23) \). In contrast, correlation between field-independence and the post-test was not found to be statistically significant \( (r = .14) \). The PAI had a significant correlation with the pronunciation pretest \( (r = .31) \) and the posttest \( (r = .31) \), indicating that students who were concerned about the accuracy of pronunciation had a higher score at the end of the semester than those who did not concern themselves much about pronunciation accuracy. Although the PAI was significantly related to pronunciation accuracy, a regression analysis, predicting posttest from pretest and the PAI scores, revealed that the PAI scores did not significantly correlate with improvement in pronunciation accuracy \( (R^2 \text{ change was } .006) \). Overall, the results indicated that although the PAI scores and field-independence were moderately correlated with pronunciation accuracy, neither of the two variables was a significant predictor of improvement in pronunciation accuracy.

Another study investigating the relationship between field-independence cognitive style and various subject areas including second language achievement was conducted by Riding and Agrell (1997). The data were collected from two hundred five students who were enrolled in two high schools in Canada. The students were administered the Canadian Tests of Cognitive Skill and the Cognitive Style Analysis; and their grade-ninth scores in French and some other subject areas were obtained. The cognitive style test assessed two style dimensions: wholist/analytic (refers to the degree to which a student approaches information as a whole or parts) and verbal/imagery (indicates whether a person prefers to express information when she/he is verbally thinking or mentally imagining) (Riding & Agrell, 1997). An analysis of variance was
applied to investigate the effects of cognitive style, cognitive skill, and gender on their subject scores. Female students performed better than male students in all subject areas, particularly in French and English. An analysis was performed to estimate the effect of cognitive skills. Thus, students were divided into low (1-60) and high (61-99) achievement groups; then, analysis of variance of gender by cognitive skill (2), verbal/imagery style (2), and wholist/analytic style (2) with five subjects (repeated measures) was applied. The result of the analysis revealed a significant interaction between cognitive style, skill and subject performance. Thus, wholist-imagery students produced higher differences in English and French whereas wholist-verbal students showed higher differences in mathematics and geography.

Although findings of studies investigating the impact of cognitive style on second language learning have been interpreted differently by researchers, methodologies that were applied in those studies have not been as diverse as the interpretations (Tinajero & Paramo, 1998). Studies that examined the effects of cognitive styles on second language learning have focused on the correlation between a cognitive style test and tests that relate to second language learning skills (Tinajero & Paramo, 1998; Jamieson, 1992). These studies have other methodological problems as well. In terms of sample size, with a few exceptions, the studies did not use large samples. Samples consisted only of one or two average classrooms. Also, in many of the studies, measurement properties of instruments assessing language performance of students were not reported. Therefore, validity and reliability of the findings as well as the content of the tests were not known.
Another main concern is that in the studies the assessment format has not particularly been taken into consideration when evaluating a student's language performance.

In sum, studies investigating the effect of cognitive style on second language performance have yielded inconsistent and even contradictory results. How different cognitive styles affect second language performance has not been clarified to date (Jamieson, 1992; Hoffman, 1997; Padilla, 1996; Kyriacou, Benmansour, & Low, 1996).

Statement of the Problem

A variety of cognitive functions and approaches toward thinking and problem solving in all subject areas as well as second language learning require new and complicated teaching strategies as well as assessment techniques. In general, all kinds of assessment instruments that we use in school settings can result in favor of certain types of intellectual and cognitive styles (Ascher, 1990b). Thus, in order to conduct unbiased assessment of student performance, we need to have a comprehensive understanding of the interaction between a variety of assessment approaches and different cognitive styles. Interaction between cognitive styles and test formats has become an important concern for researchers and educators. The concept of field-dependence/independence has been identified as a critical variable in test format (Lu & Suen, 1995; Dwyer & Moore, 1995; Dovey & Lasasso, 1984).

The studies reviewed above indicate that there is an interaction between cognitive styles and assessment format. However, these studies suffer from a variety of methodological problems. One of the main problems is related to the internal validity
concerns of the findings revealed from these studies. Also, the degree to which the findings of these studies can be generalized to different grade-level students, subject domains, and assessment formats is not known.

Some of the problems in previous research are as follows:

a) The interaction between the cognitive styles classified as field-dependence/independence and various test formats has not been clearly understood to date (Lu & Suen, 1995). The literature reviewed above does not provide a clear direction regarding how the particular testing formats (multiple-choice and performance-assessment tests) interact with field-dependent/independent cognitive styles to impact student performance. In a majority of the previous studies, data were collected from college-level students. Thus, generalizability of the findings to lower grade-levels of students is not known. Performance-based assessment in addition has largely begun to be applied in many state-wide assessment programs. Thus, it is important to detect the possible affects of cognitive style on such measures across different age and grade levels. Understanding the issue will contribute to efforts aimed at providing fair assessment of student performance.

b) Performance-based assessment consists of various formats. Although some forms (e.g., projects and take-home assignments) of PBA and their relation with cognitive style have been investigated to some degree, the relation with various forms of PBA and cognitive style has not been empirically determined (Summerville, 1997; Dwyer & Moore, 1995; Lu & Suen, 1995). New research is essential to comprehending relations between different forms of PBA and the field
dependence/independence cognitive style. Such studies would provide detailed information that would be useful for addressing rules of performance-based assessment in educational systems since performance-based assessment has increasingly become an important part of many large-scale state-wide assessment programs.

c) Even though a significant number of studies investigating the impact of test formats on student performance have been conducted, the literature reveals a scarcity of studies concerning students' assessment attitudes and preferences (Birenbaum, 1997). The extent to which students with different cognitive styles prefer one or another test format is not known. It is conceivable that liking or disliking a test format is related to students' achievement on tests.

d) The research regarding the relationship between assessment formats and the cognitive style suffers from lack of qualitative information. A qualitative study would provide a better insight regarding variations in students' preferences for different assessment formats and how these preferences interact with student performance and their cognitive style. The review of the literature did not identify qualitative studies that have investigated how students with different cognitive styles approach different assessment formats. It is necessary to conduct qualitative studies that examine individual difference variables such as cognitive styles and student achievement. The result of the qualitative investigation will provide a deeper understanding about student achievement on different testing formats and whether students with different cognitive styles are aware of their tendencies toward one or the other extremes of the cognitive dimension and particular testing format.
e) Finally, since cognitive style may be task related (Lu & Suen, 1995), an interaction found between a specific test format and the cognitive style in a particular subject domain may not hold for another subject domain. A number of studies investigated the relationship between field-dependence/independence and second language acquisition. However, the findings of these studies are not consistent with each other. Thus, the hypothesis that there is a relationship between cognitive style and second language performance has neither been confirmed nor rejected because there is not enough empirical evidence for supporting either side. How field dependence/independence cognitive style affects second language performance is not understood. More empirical studies are essential for addressing the issue related to second language learning (Hoffman, 1997; Padilla, 1996; Jamieson, 1992; Elliott, 1995).

In sum, according to field-dependence/independence cognitive style theory, field-dependent and field-independent students are not expected to perform very differently when they are dealing with a structured question or task (Witkin & Goodenough, 1981; Lu & Suen, 1995) for example, a multiple choice item. However, when the task at hand is ill-structured or unstructured and students need to restructure it in order to successfully perform it, the field-dependent students are less likely to complete the task successfully. On the other hand, field-independent students are expected not to have any difficulty on this type of test or task. Performance-based assessment, unlike multiple-choice tests, is one of the tests that require structuring skills for successful completion of the task.
Although test format is an important factor for determining student achievement, studies on the relationship between second language learning and cognitive style have focused on correlations between the cognitive style and student achievement (Tinajero & Paramo, 1998; Hoffman, 1997), not paying particular attention to interaction between assessment format and cognitive style.

Objectives of the Study

The primary purpose of this study is to investigate the degree to which cognitive style impacts students' achievement on different types of assessment formats as well as student attitudes regarding these test formats. Specific objectives of the study are as follows:

1. To investigate the relationship between cognitive style and academic performance of students as measured by a French proficiency test.

2. To investigate the relationship between cognitive styles of students and their attitudes and preferences toward two assessment formats: multiple-choice and performance-based assessment.

3. To investigate the relationship between cognitive style and the students' reported strategies for learning and preparing for different test formats.

The following research questions are set forth.

1. Is there an interaction between the cognitive style of students and assessment approaches?

There has been empirical evidence suggesting that there is an interaction effect of assessment format and cognitive style on student performance (Lu & Suen, 1995).
Field-dependent and field-independent students perform differently depending upon the format of test they took.

2. Is there a difference between performances of field-dependent and field-independent students on a multiple-choice test?

According to the field dependence/independence theory, neither field-dependent nor independent students should have a particular problem with a structured test or task (Witkin & Goodenough, 1986). Since multiple-choice items are structured tasks, performance difference resulting from variation in cognitive style should not exist between the two types of learners.

In a study, Lu and Suen (1995) compared performance differences of FD and FI students on multiple-choice formats and found no significant difference that supported the validity of the theory.

3. Is there a difference between performances of field-dependent and field-independent students as measured by performance-based assessment?

Witkin et al.'s cognitive style theory suggests that field-independent students are more likely to perform better than field-dependent students when the task at hand is unstructured or ill-structured (Witkin & Goodenough, 1981). Performance-based assessment is considered to be a less-structured or semi-structured format since it does not have an exact and pre-determined way of answering a question.

There has been empirical evidence confirming the claims of the cognitive style theory (Lu & Suen, 1995; Tinajero & Paramo, 1998). On the other hand, it is suggested that second language performances of field-dependent and field-independent students
may differ depending upon the particular language skills that need to be performed (Tinajero & Paramo, 1998).

4. Is there a difference between performance-based assessment and multiple-choice test performances of field-dependent students?

The cognitive style theory suggests that field-dependent students do not have difficulty when they encounter a problem that is structured (Witkin & Goodenough, 1986). Lu and Suen (1995) examined field-dependent students' performances on a college-level psychology course and found that they performed considerably lower on the performance-based assessment than they did on the multiple-choice format that was measuring the same content.

5. Is there a difference between performance-based assessment and multiple-choice test performances of field-independent students?

Although there has not been enough empirical evidence regarding performance of field-independent students on various test formats, Lu and Suen (1995) found that field-independent students performed considerably higher on performance-based assessment than they did on the multiple-choice test in a college level psychology course. Studies that compared performance-based assessment and multiple-choice test performances of field-independent students were not found in the literature.

6. What are the assessment preferences of field-dependent and field-independent students and what reasons do they offer for these preferences?

7. Do field-dependent and field-independent students use different strategies to prepare for taking different types of tests?
8. Did teachers perceive differences in performance and preferences of field-dependent and field-independent students on various testing formats?

Research questions 6, 7, and 8 will be investigated by qualitative research methods. The purposes of these questions are (1) to investigate whether the students' preferences are consistent with their performances resulting from the two different test approaches, (2) find out how students approach different assessment formats and (3) investigate whether FD/I students apply different study techniques before taking a test.

Research Hypotheses

The present study consists of five hypotheses.

- Hypothesis-1

  There is an interaction effect of students' cognitive style as measured by the Group Embedded Figures Test and assessment approaches (multiple-choice and performance-based assessment) on students' second language scores.

  Hypothesis-1 was answered by examining the potential interaction effect of the cognitive styles of students and assessment approaches on student test scores.

- Hypothesis-2

  There is no difference between the average listening and reading scores of field-dependent and field-independent students. The listening and reading tests are multiple-choice components of the Eighth Grade Proficiency/Credit Exam: French I.

  Hypothesis-2 was answered by comparing the performances of field-independent and field-dependent eighth-grade students on listening and reading tests of the Eighth Grade Proficiency/Credit Exam (EGPE) for French I. The listening and
reading tests were multiple-choice tests and aim to assess student proficiency on
listening and reading parts.

- **Hypothesis-3**

  Field-independent students will have higher mean scores than field-dependent
  students on the speaking and writing tests. The speaking and writing tests are
  performance-based components of the Eighth Grade Proficiency/Credit Exam: French I.

  Hypothesis-3 was addressed by comparing the performances of the two groups
  on speaking and writing parts of the EGPE. Both of these tests were performance-
  based tests and assessed the students' proficiency levels on an eighth-grade French
  course.

- **Hypothesis-4**

  Field-dependent students will perform better on the listening/reading tests than
  they will on the speaking/writing tests of the Eighth Grade Proficiency/Credit Exam:
  French I.

  Hypothesis-4 was answered by comparing the field-dependent students' achievement on the listening, reading, speaking, and writing tests. The same procedure
  was applied to field-independent students for addressing Hypothesis-5 which
  investigated the same issue regarding field-independent students.

- **Hypothesis-5**

  There are no differences in performances of field-independent students on the
  listening/reading and the speaking/writing tests of the Eighth Grade Proficiency/Credit
  Exam: French I.
Question 6 through 8 are qualitative/exploratory questions in nature and requires qualitative investigations. Hence, hypotheses are not formulated for them. The questions are as follows:

6. What are the assessment preferences of field-dependent and field-independent students and what reasons do they offer for these preferences?

7. Do field-dependent and field-independent students use different strategies to prepare for taking different types of tests?

8. Did teachers perceive differences in performance and preferences of field-dependent and field-independent students on various testing formats?

Question 8 was answered by conducting interviews with French teachers of the field-dependent and field-independent students. For addressing Questions 6 and 7, interviews were conducted with the same field-dependent and field-independent students.

In addition to investigating the above research questions, the present study took the following precautions in order to consider possible effects of intelligence on the study: In the case of finding significant differences between performances of field-dependent/independent students in favor of those who are field-independent, one may argue that the differences would be found simply because field-independent students are more capable of solving difficult problems than those who are field-dependent and performance-based tests are more difficult than multiple-choice tests. In order to investigate this possible competing hypothesis, the relationship between cognitive style and item difficulty was investigated.
In addition to that, contents of the performance-based and multiple-choice assessments of the French Proficiency Exam were investigated in order to assure that the both components of the test measured the same content and the same level of thinking skills.

**Operational Definitions**

**Socio-economic Status (SES)** Student's socio-economic status was defined in terms of enrollment in the free/reduced lunch program. Enrollment in the federally funded free/reduced lunch program is based on family income.

**Cognitive Style** Cognitive style is theoretically defined as a dimension of individual differences in the way people think, solve problems, perceive, learn and relate to others (Witkin et al. 1977). Individuals who are classified as field-dependent are those who cannot separate an item from the surrounding field. Field-independent students are more capable of differentiating a figure from its background. Also, field-independent individuals have "greater" skills in cognitive restructuring than field-dependent individuals. Cognitive style was operationally defined as scores on the Witkin et al.'s Group Embedded Figures Test (GEFT). Based on their scores on the GEFT, students were classified as field-dependent or field-independent.

**Performance-Based Assessment** Performance-based assessment consists of tasks that are highly "authentic" and similar to real-life situations.

Performance tests are techniques that try to establish what a person can do (the examinee makes some type of motor or manual response, e.g., adjusting a microscope) as distinct from what he knows (e.g., who was the fifth U.S. President?) (Mehrens & Lehmann, 1991; p.175).
Students are required to solve problems that they may encounter in their daily lives.

Performance-based assessment consists of different forms, such as essays, projects, lab experiments, demonstrations and dramatizations.

**Multiple-Choice Assessment** Multiple-choice tests are the most frequently used structured assessments in which the test-taker is asked to choose the correct answer from a list of possible responses.
CHAPTER 2
REVIEW OF LITERATURE

Introduction

Understanding of human cognition has made a substantial contribution to the field of educational and psychological measurement. Cognitive style of individuals has been considered an important aspect of their performance and achievement in school settings. One of the common issues concerning researchers and educators in the field of both psychology and educational measurement is how cognitive style and different assessment formats interact and affect second language performance of students.

This chapter reviews research in four areas relevant to the current study. First, effects of cognitive style on academic achievement will be discussed. Second, the impact of the assessment format on student achievement will be reviewed. Third, second language achievement and its relation to the cognitive style and assessment format will be discussed. The final section of this chapter includes a brief review of the literature regarding the measurement of cognitive style.

Impact of Cognitive Style on Academic Achievement

Numerous studies have focused on the effect of cognitive style on student achievement. The effect of cognitive style gained particular importance when it started being used to explain performance differences of students resulting from different test formats such as multiple-choice and performance-based assessment (Lu & Suen, 1995). Differences between the outcomes of performance-based assessment (PBA) and multiple-choice tests of an individual might be caused by various factors. The main
difference between PBA and multiple-choice formats is that PBA provides students with a realistic problem context. Hence, individuals' sensitivity to context might be a critical factor causing the difference between outcomes of the two test formats. Cognitive style of individuals is one of the context-related factors that may explain the difference between the two test formats (Lu & Suen, 1995). This section will review selected studies examining the effects of the cognitive style on academic performance.

Riding and Agrell (1997) examined the relationship between cognitive style and cognitive skills of students. A total of 205 14-16 year-old students were selected from two Canadian high schools. The cognitive styles and cognitive skills of the students were assessed by the Cognitive Styles Analysis and the Canadian Test of Cognitive Skills, respectively. Correlation between the two tests was found to be close to zero indicating that the two tests were independent. The results indicated that interaction between cognitive style, skill, and subject area was also significant.

The relationship between cognitive style and academic performance of students in several subject domains (Spanish, Galician, English, mathematics, natural sciences, social sciences) was investigated by Tinajero and Paramo (1997). Subjects of the study consisted of 408 students aged between 13 to 16. A multivariate analysis of covariance was conducted, using Cattell's Culture-Fair Intelligence Test as a covariance. Results of a multivariate analysis revealed that field-dependence/independence was an important source of variation in overall performance of the students (F (7,82)=2.31; p<.05). Even after removing the effect of intelligence, field-independent students outperformed the field-dependent students in all domains. Also, the result indicated that male field-
independent students performed better than male field-dependent students in Spanish. This difference did not hold for female students. Female field-independent students outperformed field-dependent students in English and Galician. This finding also did not hold for male students. Considering the overall performance, field-independent students outperformed the field-dependent students (F(1,88)=5.65; p<.05).

In a similar study, Murphy, Casey, and Young (1997) investigated the relationships among cognitive style, program, gender, and academic performance. Their sample consisted of 63 undergraduate students (23 male and 40 female) who were enrolled in a 4-year information management program. The ages of the students ranged between 18 to 48. The cognitive styles of the students were assessed by the Groups Embedded Figures Tests (GEFT). The students' scores were obtained from four information-management courses, two of which were technical courses and were taught in a computer lab. The other two courses were nontechnical and theory based. Analysis of the data revealed that there wasn't a significant difference between GEFT scores of male and female students. The results also indicted that field independent students outperformed field dependent students in only one technical course (IMD 125). In the other three courses (IMD225, IMD154, and IMD254), field independent students and field dependent students performed similarly. One consideration that should be taken into account about the study is that since field-dependence of an individual is known to increase as the age of the individual increases, it would be more adequate to collect data from individuals that have similar ages. However, in the study the range of student ages is very large, from 18 to 48.
Atkinson (1998) conducted a study examining the effects of cognitive style, teaching strategy, and teacher and student motivation on student performance in a technology project. The subjects were 112 15-16-year-old students (85 boys and 27 girls) from eight different schools. Cognitive style of the pupils were determined by the Cognitive Style Analysis. Results of data analysis indicated that cognitive style of the students affected their performances in the technology project work. That is, students who were imagers and wholists performed lower than whose who were analytic. The results also indicated that students with different cognitive styles were affected differently by the teaching strategies. Thus, (1) in schools that employed a collaborative approach, students who did not have a strong tendency toward either extremes of the cognitive style performed higher than those who were found at either extremes of the cognitive dimension, and (2) in schools that used an interventionist approach, analytic students performed better than wholistic students and than those who were analytic but in the schools that applied the collaborative approach. The cognitive styles of the students were found to have effects on the motivations of the students and teachers.

Effect of cognitive style as well as linking structure on performance of students in a hypertext course, and their attitudes toward the course was investigated by Linn & Shivers (1996). Participants of the study who were 139 college students were administered five different instructions on different strategies. Following the instructions, the students were administered a multiple-choice exam. A regression analysis was conducted between cognitive style, test performance, and type of
structuring. The result indicated a statistically significant correlation ($r=.97, p<.05$) between the cognitive style scores and performance on multiple-choice exams. Overall, field-independent students performed higher than field-dependent students. Also, results of an attitude questionnaire revealed that field-dependent students favored an instruction type that was less structured whereas field-independent students had positive attitudes toward more structured types of instruction. The study pointed out that cognitive style and student attitudes toward the type of instruction were important factors for explaining variations in student performance.

Griffin and Griffin (1996) investigated the effects of cognitive style and situated cognition on short- and long-term acquisition of map reading skills. The sample of the study consisted of fourth-grade students. Two different instructions were prepared: cognitive apprenticeship instruction, which requires applying the skills in real-life situations, and conventional-instruction, which was a typical classroom instruction. The students were assigned to one of the instruction groups. Map skills of the students were measured by two instruments: immediate postwritten measure of map skills and corresponding delayed measure. Results of the study indicated that the conventional-instruction group outperformed the situated-cognition group on the immediate postwritten measure. However, the two groups did not perform differently on the immediate postperformance assessment. The results also indicated that there wasn't a significant interaction of type of instruction and cognitive style on the performance of map skills by the students. However, it was found that cognitive style had a direct effect on performance. Field-independent students outperformed FD students only on
immediate written and performance assessment but not on post measures of the performance. The effect of prior knowledge (recalling some information from immediate tests) might be the factor causing the disagreement between results of immediate and delayed assessments of FD and FI students (Griffen & Griffen, 1996).

Padilla (1996) investigated the effects of field dependence and formal instruction on acquisition of the Spanish prepositions (por and para). The sample of the study consisted of students who were taking advanced Spanish courses as a second language at a university. Cognitive styles of the students were measured by the Embedded Figures Test. Three different instructions were provided: 1) grammar-based instruction, which was teacher centered; 2) meaning-based instruction, which was learner-centered; and 3) a control group who were not receiving any instruction. It was hypothesized that FI students would learn better in grammar-based instruction whereas FD students would learn better in meaning-based instruction. Three tests were administered to the students: pre-test, immediate post-test, and delayed post-test. Results of the study indicated that there was no interaction effect of cognitive style of the learners and type of instruction on acquisition of the Spanish pronunciation. It was also found that formal instruction had a positive effect on Spanish acquisition. The findings also indicated that FD students performed better than FI students in the immediate post-tests. This finding contradicted the findings of the Griffin And Griffin (1996) study, which indicated that FI students outperformed FD students on immediate performance assessments. However, lack of performance differences in delayed post-tests of FD and FI students in both of the studies support the hypothesis indicating that
prior-knowledge might cause the lack of between group differences of FD and FI students in delayed post-tests.

Brenner (1997) examined cognitive styles of students who were enrolled in distance education courses at Southwest Virginia Community College. Since teaching of the courses was mainly based on video-based presentations of course materials, student-teacher interaction was limited. Thus, the students needed to rely on self-discipline, self-organization and self planning for learning. Therefore, it was hypothesized that field-independent students would be more successful than field-dependent students in such learning environments. The cognitive styles of the students were measured by the Group Embedded Figures Test (Witkin et al., 1971). After taking the GEFT, 71 percent of the students were identified as field-dependent. At the end of semester, students who passed with a C or a better grade were determined as successful. According to that criterion, 67 percent of the students successfully passed the courses. The findings of the study did not support the hypothesis. That is, field-independent students were not more successful than field-dependent students in distance education. This result contradicts the findings of many other studies suggesting that FI students outperform FD students in various academic subjects.

Griffin and Franklin (1996) investigated whether the Group Embedded Figures Test (GEFT) scores contribute to prediction of academic performance as measured by ACT. Subjects were 103 female and 40 male students who were enrolled in the "Psychological Foundations of Education" course at University of West Florida. The SAT and ACT scores of the students were obtained from their university. At the
beginning of a semester the GEFT was administered to the subjects. For determining the measures that add significant variance, exploratory forward selection regression analysis was conducted. The number of correct answers on the achievement test was used as the criterion variable. Even though both the GEFT and ACT were found to have relatively small but significant correlations with test performance (.20 and .29, respectively), only the contribution of the ACT to the variance of achievement scores was found to be significant. A principal component factor analysis was applied to the ACT, GEFT, and test score. The analysis revealed that GEFT and ACT were related constructs whereas the test score was not related to these two measures. The findings of the study suggest the similarity of the GEFT and some other analytical standard-tests (e.g., ACT) that were applied in school settings.

Martinetti (1994) investigated the effect of cognitive processing on the overall academic performance of students. The participants of the study consisted of 36 undergraduate students. Three student groups with 12 students in each, were formed based on their overall grand point average (GPA of low, middle, and high). The cognitive processing of the students was assessed by Cognitive Processes Survey, which has three sections: Imaginal Life, Origination Toward Imaginal Life, and Degree of Suppression. Results of the analysis of variance revealed that there was a significant interaction effect of GPA and cognitive processing on students' overall academic performance ($F(4,99)=23.34; p<.05$) as well as a significant main effect of GPA ($F(2,99)=3.09; p<.05$). The results indicated that students with high GPA tended to perform better on Degree of Imaginal Life and Origination Toward Imaginal Life.
whereas they performed lower on Degree of Suppression. On the other hand, students with low GPA tended to perform opposite to high achievers: High on Degree of Suppression and high on the other two sections. The study demonstrated the positive influence of imaginal life on students' overall achievement. The result indicated the significance of imaginal life as a cognitive processing in student achievement.

Overall, studies reviewed above have suggested that the cognitive style is a critical factor for understanding how students perform and how their performance differs under various conditions. As the studies indicated, cognitive style of an individual may operate differently under different conditions and may interact differently with different subject domains. These findings suggest that the ways cognitive style interacts with the other school variables (e.g., test formats, type of instructions, teaching methods, study methods) should be investigated for clear understanding of these issues.

Impact of Assessment Format on Academic Performance

Multiple-choice assessment has been the most commonly applied test format among other objective formats. These test formats can be applied to a wide range of content domains as well as to various objectives. Because of these features, multiple-choice tests are also the most frequently used test formats for developing commercial tests (Mehrens & Lehmann, 1991). However, multiple-choice tests have some drawbacks. For example, they require more time for test construction, it is difficult to develop good items, and they require recognition of correct answers instead of generating or creating the answer.
Recently, several assessment methods have been introduced for complementing and even replacing multiple-choice assessment (Hassmen & Hunt, 1994; Lu & Suen, 1995). Performance-based assessment (PBA), one of the methods that seem to promise to assess high order thinking, allows students to perform in a personal way, describe themselves through various activities, and help improve curriculum (Asher, 1990a; Lu & Suen, 1995). PBA consists of various assessment formats and these formats, do not restrict the way students should respond to tasks at hand. Students with different learning styles may have more flexibility for expressing their knowledge about the task or subject domain.

Since the use of performance-based assessment has rapidly increased in the last decade (Asher, 1990a), a number of controversial issues has been put forth. One of the issues is the fairness and test bias. Simmons and Resnick (1993) discussed the fairness of performance-based assessment. They stated that compared to multiple-choice type exams, performance-based assessment is more fair in terms of not measuring test taking skills (e.g., speed). Specifically that some minority students (such as African Americans) might not have. As an indication, they stated that African American students usually are disadvantaged when assessed by multiple-choice formats, and the results are lower test scores.

Another issue to which researchers draw attention when using performance based assessment is generalizability. For example, Brennan & Johnson (1995) have indicated that as with any other assessment format, performance-based assessments has its limitation in terms of generalizability of the results. It was suggested that when
applying this format, researchers need to be aware of factors that affect the
generalizability of the assessment. One of these factors is time required to complete the
tasks. Since the student has limited time, it may not be possible to assess a large
variation of tasks. Qualification of the rater who grades student performance is another
issue that needs special attention. The last issue is that characteristic of the task that
needs to be chosen properly so as to provide adequate information about student
performance on a context of interest.

In a similar study, Burger and Burger (1994) investigated the criterion validity
of two performance-based assessments: the Essential Skills Reading Test of Michigan
State Board of Educations and a writing assessment. The tests were administered to
642 sixth-grade students. Significant correlations were observed between the two tests
and sections of a norm-referenced test. The correlations ranged between moderate to
high:.37 to .94. Also, interrater reliability was found for the assessments. The results
pointed to the criterion validity of the two performance-based assessments. Besides the
validity coefficient, the results indicated a .69 interrater reliability coefficient for the
writing assessment, which demonstrated a moderate reliability indication for the
assessment. KR-20 reliability coefficients of other tests ranged between .82 and .97.
Reliability coefficients of the assessments were not as high as validity coefficients.
This indicates that assuring reliability of performance-based assessments is more
difficult than assuring validity. The reason might be that these assessments are not as
objective as multiple-choice type assessments in terms of grading and assessing the
skills.
Boodoo (1993) discussed how performance-based assessment and multiple-choice relate to each other in terms of reliability and validity. He stated that use of performance-based assessment in high-stake testing improves the field of measurement since researchers felt the need for reviewing several issues: test-development, models, applications, theories, and monitoring student achievement. It was concluded that deciding on an appropriate assessment format for use depends upon specific measurement needs we have in hand. Performance-based assessment enables educators to assess a large variation of student skills and, therefore, provide more information about the students that may not be possible with multiple-choice assessments. However, the two formats can provide different information about student ability and potential. Therefore, either of the test formats can be appropriate for a specific circumstances if it meets the needs of the circumstances more properly.

Recently, in addition to multiple-choice tests, performance-based assessment started to be used in large-scale state-wide testings. This brings grater attention to the use of test formats and how students perform on these formats. In a study, Strong & Sexton (1996) compared students’ performance on the Kentucky Instructional Results Information (KIRIS), which is a state-wide test consisting of essay and open response format and an ACT reading test, which was a multiple-choice format. Participants were high school students. The two tests produced different results in terms of the performance level of students. Thus, KIRIS could not monitor mastery and nonmastery levels of students. For example, 23.50 percent of the students were described as low performers in reading tests on the KIRIS but as a high achievers on the ACT reading
test. KIRIS produced different results than ACT did in terms of classifying students to different proficiency levels. The result pointed out doubts regarding validity and reliability features of the state test and whether the testing would be worth the time and money when there are questions about its psychometric properties.

Another study (Chung, 1997) examined the student performances on two objective type assessments and the psychometric properties of these tests. The tests were developed to assess English structure skills of 144 college and 95 high school students. One of the tests consisted of 20 items gathered from TOEFL and that were fill-in-the-blank type items. The other test consisted of the same questions with the same sentences as the first test items but in multiple-choice format. The results indicated that students performed better on the fill-in-the-blank test than they did on the multiple-choice type. The results pointed out that although the sentencing of the items are the same, the format of the test still makes a difference on student performance, even within objective type tests.

Birenbaum (1997) examined the relationship between assessment preferences of students and their learning strategies and orientation. The sample included 85 engineering and 87 education students who were enrolled in a university. The Motivated Learning Strategies Questionnaire (MSLO) was administered for determining the learning strategies of the students. Assessment preferences of students were measured by the Assessment Preference Inventory (API). A canonical correlation analysis was conducted for examining the relationship between the set of assessment preferences and the set of learning strategies and orientations. The results suggested
that learning strategies and orientations of students were important factors for determining student's preferences toward different test formats. The analysis revealed that differences in assessment preferences were significantly correlated with learning strategies and orientations. Compared to education students, engineering students stated higher preferences for conventional tests. It was concluded that individual differences in assessment preference was mainly related to learning strategies and orientations rather than disciplinary group differences (education and engineering).

The findings of the study suggested that assessment preferences of students may have significant effects on their scores on different assessment formats. Another outcome of the study is that various personal characteristics of students and their assessment preferences are important factors that should be investigated in conjunction with student performances on these assessment formats.

Performance-based assessment, in addition to multiple-choice tests, has become a dominant testing format in several state-wide testing programs. This assessment format seems to offer a lot of advantages for educational settings. However, since both the multiple-choice format and performance-based assessment have advantages and disadvantages, which of these approaches is more useful depends upon a special need or problem at hand. Thus, either or both of the test formats may be useful and efficient if they respond and offer effective solutions to our needs and problems.

Cognitive Style and Performance on Different Test Formats

A large number of studies have examined the effect of assessment formats on student performance. However, only a few of them have investigated the issue related
to student characteristics, for example cognitive styles (Birenbaum & Feldman, 1998; Lu & Suen, 1995). Whether students who have tendencies toward either extreme of the field dependence continuum actually perform better in some types of settings, lessons, and tests than in others may have important implications for education. Therefore, it is important to determine if field-dependent and independent students perform differently on various assessment formats. This section will focus on two assessment formats: multiple-choice and performance-based assessment and their effects on student performance, particularly on performance of FD and FI students.

In a study, Lu and Suen (1995) examined student performance on multiple choice tests and performance-based assessments related to cognitive styles that were classified as field-dependent and field-independent. The result revealed that compared to field-dependent students, field-independent students performed better on performance-based assessment. However, there was no significant difference between the performance of groups on multiple-choice tests. The researchers concluded that the extent to which the results of the study are generalizable to other forms of performance-based assessment is not known and should be further investigated.

Armstrong (1993) examined the effects of multiple-choice items that were constructed according to different item writing guidelines on performances of individuals who have different cognitive styles. The purpose of the study was to determine whether different item writing guidelines have different impacts on students with different cognitive styles. The study also examined how individuals with different cognitive styles performed on items when nonsalient cues of the items were eliminated.
The subjects of the study were 47 graduate students and 35 public school and college teachers (59 females and 23 males). A team of experts developed two items for each (language arts, literature, reading comprehension, and history). The items were written in two forms: (1) the first form of the items was written according to item writing guidelines, and (2) the second form of the items did not follow the guidelines. The Group Embedded Figures Test was administered for determining the cognitive styles of the individuals. Results indicated that field-independent (FI) individuals performed better than field-dependent (FD) individuals on the test form that was written without the guidelines. No statistically significant difference was found between performance of FD and FI individuals on the test that was consistent with the guidelines. The results also indicated that elimination of nonsalient clues did not significantly affect the performance of FD students since nonsalient cues are not parts of the FD individual's perception. However, performance of FI individuals on all items significantly decreased when nonsalient clues were eliminated from the items. The findings of the study supported the Witkin et al.'s cognitive style theory, which suggests that:

In a testing environment, a person who is field dependent will perceive the test item as the field. That field is defined as a test question of specific content knowledge. Cues that are salient to the defined field will be perceived, but cues embedded in context that are not relevant to the defined field (i.e., grammatical cues or response length) will not be readily perceived (Armstrong, 1993, p.18).

Dwyer and Moore (1995) investigated the performances of field-independent and field-dependent students in various multiple-choice formats that were prepared in different testing modes (verbal and visual). The subjects of the study were 183 college students who enrolled in an educational psychology course. Each of the students
received an instructional booklet on the subject. Some of the booklets were prepared in white/black form, and for others various colors were used to highlight information related to the subject. Then the students were administered four multiple-choice exams (terminology, drawing, comprehension, and identification) in either visual or verbal format. Results of $2 \times 2 \times 2$ analysis of variance indicated that field-independent students performed significantly higher than field-dependent students on the drawing test, in color code, and verbal format. Overall, the test scores of field-independent students were higher than that of field-dependent students. In addition, color coding positively impacted mean scores of field-independent students but was not related to the performance of field-dependent students. This suggest that color-coding made some cues more obvious to field-independent students but not to others. Field-dependent students were also found to view visual items as more complicated making the "stimula field" more obscure. Overall, the study pointed out that the two types of students used different approaches toward perceiving the information and performing on different test formats. The study also confirmed the field-dependent/independent theory regarding the way both types of students experience the item as a field and the way they separate relevant cues from the unrelated background, or field.

In another study, Wagner, Cook, and Friedman (1998) investigated the performances of field-dependent and -independent students on a multiple-choice exam and how frequently they change their answers. The subjects of the study were 41 fifth-grade students. The students took a multiple-choice exam in science class. The study indicated that although statistically significant, field-dependence and independence was
not correlated with the answer-changing tendency of the students \( (r=-.07) \). On the other hand, the study revealed that answer-change positively related with student performance, that is, approximately 60 percent of the time students changed wrong answers to correct answers. Overall, field-independent students tended to perform higher than field-dependent students. Field-dependence was correlated with overall performance.

Overall, research seems to suggest that the type of assessment format impacts academic performances of students in various subject domains. However, there are some issues that should be taken into consideration when studying the impact of test formats. One of these issues is personal characteristic of an individual such as cognitive style. Although test formats seem to impact academic performances of students, this impact may differ depending upon the cognitive style of the individual.

**Second Language Performance, Test Format and Students' Cognitive Style**

Developments in the field of cognitive style have been applied to second language learning through investigating the function of field-dependence/independence construct in second language learning (Skehan, 1998). Field-dependence/independence style may influence the way individuals perceive linguistic tasks, for example, distinguishing different parts of the task, determining the relationships between the parts, and using communicative skills (Hoffman, 1997; Skehan, 1998). A number of studies have been conducted to investigate the relationship between the cognitive style and second language learning. The majority of these studies are correlational,
examining whether cognitive style is related to second language. Some of these studies will be reviewed in this section.

In a study, Carter (1988) compared the performances of FD and FI college students on various second language learning tasks in a Spanish course. It was hypothesized that FD students would perform higher in "functional communicative proficiency" tests and FI would perform higher in "linguistic achievement" tests. However, the study indicated that in both tests FI students outperformed the FD ones.

Ehrman and Oxford (1995) investigated the relationship among performance on speaking, writing, and learning style, learning strategies, cognitive aptitude, motivation, personality, and anxiety. The subjects of the study consisted of 855 individuals most of whom were working at the Department of State. The subjects were administered several questionnaires related to the factors mentioned above. Result of correlation analysis revealed that among all the factors, cognitive aptitude had the highest correlation with speaking and reading performances of the subjects (r=.51; p<.05). Cognitive strategies had significant correlation with speaking scores (r=.21; p<.05) but not with reading performance. The other factors also found to be correlated with speaking and writing performances, ranging between -.44 to .93. Overall, the findings suggested that personality variables can explain variation in students writing and speaking performance.

Steves (1997) conducted a case study for investigating the foreign language learning of 13 second- and third-grade students. The subjects of the study, six girls and seven boys, were taught Spanish as a second language once a week for 30 minutes.
Learning style, motivation, approach to vocabulary learning, classroom behavior, listening and pronunciation skills, expectations, age, gender, second language (L2) learning success were taken into consideration in the study. The researcher operated as a participant-observer by teaching and recording. The data were collected through video-and audio-taping and a number of observations. The findings of the study revealed that peer group influence, classroom management, and emotional climate were closely related factors with second language learning. For the female students, cooperativeness and supportiveness were found to be highly related with L2 learning. Steves concluded that there was not enough evidence to suggest that one of the personality variables was more critical than another in the long term. It was also concluded that overall classroom success was the best predictor of L2 learning.

Jamieson (1992) investigated the relationships between two cognitive style measures (reflection/impulsivity and field dependence/independence) and second language acquisition (SLA) of students. The sample consisted of forty-six foreign students who were enrolled in an intensive English course in the United States. The subjects were from sixteen different countries. The English proficiency of the students was measured by the Test of English as a Foreign Language (TOEFL), which consisted of three multiple choice parts: listening, grammar, and reading. First, the TOEFL was administered to the students. The Group Embedded Figures Test (GEFT) (Witkin et al., 1971) and the adult version of the Matching Familiar Figures Test (MFFT) were administered two and three weeks later respectively. Pearson-product moment correlations were computed between the cognitive style measures and language
All the correlations among the cognitive style measures and the parts of the TOEFL were found to be significant, ranging from .37 to .45 (p < .05). Results of multiple regression analyses indicated that field dependence was a more important cognitive style than reflection/impulsivity for explaining the language proficiency. Reflection/impulsivity significantly predicted the variance of TOEFL only for the listening pretest and only when it was entered into equation in the first step. On the other hand, field dependence was a significant predictor for all sub tests. That is, reflection/impulsivity did not provide any variance over and above the one contributed by field independence. It was concluded that field independence was an important factor for understanding second language achievement of students and should be investigated.

Hoffman (1997) reviewed studies that were conducted for investigating possible relationships between field dependence/independence (FD/I) and second language acquisition (SLA). Hoffman emphasized the fact that research findings related to FD/I and its relation to SLA have not been consistent to date, and there are not enough empirical studies addressing the impact of FD/I on SLA.

Elliott (1995) examined eleven variables: field independence (FI), hemispheric specialization, attitude or individual concern for pronunciation, hemispheric specialization, gender, total number of years of formal instruction in Spanish, overall Grade Point Average (GPA), GPA in Spanish, having Spanish-speaking relatives, foreign travel, and other languages learned/spoken) in order to determine their effects on pronunciation accuracy in Spanish as a foreign language. The sample of the study
consisted of sixty-six intermediate students who were studying Spanish at Indiana University. Correlation of all variables with scores on a pronunciation test were calculated. Results indicated that field independence and attitude had small but statistically significant correlations, ranging between .22 to .37 with all sections of the test except the word repetition exercise. A multiple regression analysis revealed that degree of field independence was a significant predictor of the pronunciation accuracy for the entire test. R-square change was between .06 to .07, depending upon which step it entered into the equation. Field independent individuals tended to have better pronunciation. Overall, among all the variables, attitude or concern for pronunciation was the best predictor of pronunciation accuracy. That is, students who were more concerned about their pronunciation had higher GPA's in Spanish. Field independence and right hemisphere specialization were the second and third best predictors of pronunciation accuracy. FI and right hemispheric students performed better on the pronunciation test.

In a study, Burstein (1993) investigated the correlations between cognitive style (field-dependence/independence), chronological age, gender, and reading performance of 101 kindergarten students. The students took Metropolitan Readiness Tests-Level II (MRT-II). Results indicated that in all four sections of the test (auditory, visual, language, and composite scores), both male and female field-independent students outperformed the field-dependent students. The study corroborate with findings of other studies indicating the superiority of field-independent students in various subject area.
A number of social and psychological factors were examined by MacIntyre and Noels (1996) in order to determine whether these variables can predict use of fifty different language learning strategies. Participants of the study were 139 college students who enrolled in Italian or Spanish courses and aged between 17 to 52. The students were asked to evaluate their writing, speaking, understanding and reading skills on a likert-type scale. Result of multiple regression indicated that language anxiety and motivation have significant impact on strategy use and on some outcomes students experience during strategy use for example, difficulty, effectiveness, and anxiety (correlation ranged between -.47 to .49 for motivation and -.28 to .44 for language anxiety). It was found that 60 percent of variation in strategy use can be explained by three factors; difficulty, effectiveness and knowledge of strategy use. The study pointed the importance of motivation and anxiety in language learning as factors that may be important for understanding cognitive processing of field/dependent and independent students (Birenbaum, 1997).

Measurement of Cognitive Style

Synder (1997) examined the validity and reliability of scores received from six well-known learning style inventories which were Group Embedded Figures Test, Grasha Riechmann's Student Learning Style Test, Productivity Environmental Preferences Survey, Learning Style Inventory, Edmonds Learning Style Identification Exercise, and Learning Styles Profile. The result indicated that the Group Embedded Figures Test had a high test-retest reliability. For the other five instruments, test-retest reliability was found to be moderate. For each of the instruments, construct validity
was found to be highly satisfactory, suggesting that each instrument measures a unique learning style construct. On the other hand, convergent and discriminant validity results suggested that the instruments either do not measure the same constructs or measure the learning style constructs in different ways. The study supported the adequacy of the GEFT as a measure of cognitive style.

Thompson and Melancon (1987) investigated the psychometric characteristics of the GEFT. The instrument was administered to 175 undergraduate students who enrolled in mathematics courses in an urban university. The average age of the students was 21.4 with a standard deviation of 4.0. Generalizability theory, which is more sophisticated than classical test theory, was applied in order to examine measurement characteristics of the GEFT. The reliability, which is identified (by the theory) as the degree to which the GEFT score of an individual represents his/her accurate score, of the GEFT was found. Results of the study revealed that the instrument had a reliability coefficient of .88 for this group of the students. The analysis also indicated that most variance in test scores resulted from persons and interaction between persons and items, which is a result expected from an adequate instrument. Thus, the test format was not the main source of variance. Thompson and Melancon (1987) also found that the GEFT had desirable measurement characteristics. Thus, it has adequate test and item difficulty, and difficulty indices were close to mid-point of true item difficulty range in addition to having adequate item discrimination coefficients. The findings were consistent with Synder's (1997) study, suggesting that the GEFT has desirable measurement characteristics.
In a study, De Sanctis and Dunikoski (1983) investigated the psychometric characteristics of the Group Embedded Figures Test (GEFT). The test was administered to 70 female and 115 male students. Spearman-Brown formula was applied to compute parallel-forms reliability of the test scores for male and female students. The analysis indicated reliability of .87 for male and .83 for female students.

Internal consistency of the test scores was also computed. The analysis indicated coefficient alpha of .86 for female and .88 for male students. Overall, the analyses revealed satisfactory levels of reliability and internal consistency of the test scores.

Murphy, Casey, Day, and Young (1997) also investigated the psychometric features of the GEFT. The sample of the study consisted of 40 female and 23 male undergraduate students. Parallel-forms reliability was computed by Spearman-Brown formula. The analysis reveal reliability of .84 for female and .92 for male students. Coefficient alpha values were also found for the sample. The analysis indicated internal consistency of .89 for female and .95 for male students.

Overall, studies reviewed above have suggested that the GEFT as a measure of cognitive style particularly appeals to be an adequate measure and has some advantages over other cognitive style tests, for example better test-retest reliability.

Summary

In sum, cognitive style has become an important factor affecting students' academic performances. Field-dependent/independent cognitive style, which indicates students' preferences toward perceiving information, has received the most attention. Although it has been known that cognitive style of an individual impacts his/her
performance, how this effect changes under different circumstances has not been known. For example, how it affects the academic performance in different subject domains for different grade and age level students and for different testing formats has not been understood to date.

The impact of cognitive style on performance and how it interacts with other factors have received growing attention. One of these factors that may interact with the cognitive style is type of assessment format. How the impact of cognitive style on students' scores differs depending upon various test formats is an important issue and understanding of this issue would have many implications in the field of education. Although there have been a few studies addressing this issue (Dwyer & Moore, 1995; Lu & Suen, 1995; Birenbaum, 1997), it is far from being completed, considering the number of various test formats that needs to be investigated in conjunction with cognitive styles.

Performance-based assessment is one of the testing approaches that needs to be investigated in order to specify how it interacts with the cognitive style. Considering the fact that this type of assessment format has become dominant in many state-wide testing programs, it is necessary to determine the effects of this type testing as well as multiple-choice testing on the performances of students who have different cognitive styles.

The cognitive style may be task related. This fact suggest that the effects of the cognitive style on student performance may differ depending upon a specific subject domain. Second language learning is one of the domains that has not been investigated
in depth to understand how it relates to cognitive style. Although there have been some studies investigating the issue (as summarized earlier in this chapter), they suffer from some methodological problems. Basically, most of these previous studies have focused only on the correlation between the cognitive style and second language achievement of individuals without investigating the issue from different methodological aspects. There has not been an agreement on whether or not there is a relationship between the cognitive style and second language learning. Although the studies have failed to provide consistent results regarding the issue, cognitive style seems to be a critical factor affecting second language achievement of students. Since intelligence is not considered as the main factor that affect successful language learning of students, other factors, including the cognitive style, need to be investigated in order to determine and understand the possible factors that affect second language achievement of individuals.
A mixed model design was applied in order to investigate both the qualitative and quantitative aspects of the present study. Mixed model designs integrate the qualitative and quantitative methods in order to investigate the same phenomena by using both approaches in all levels of the study process: Formulating research questions/hypotheses, data collection, analysis, and conclusion and inference (Tashakkori & Teddlie, 1998; Gray & Densten, 1998). Various mixed model designs can emerge depending upon use of three dimensions in the process of the study. Tashakkori & Teddlie (1998) summarize the three dimensions as follows: "(a) the type of investigation (exploratory or confirmatory investigation) dimension, or stage, of the research process; (b) the type of data collection and operations (qualitative or quantitative data collection and operations) dimension, or stage, of the research process; and (c) the type of analysis and inference (qualitative versus statistical analysis and inference) dimension, or stage, of the research process" (p. 56). Eight different mixed model designs are revealed by cross-classifying these three dimensions. The current study has both exploratory and confirmatory components in nature, utilizes both qualitative and quantitative data and will have qualitative (emergent, grounded, inductive) and quantitative (hypothetico-deductive) inferences. Hence, the study utilized a "sequential mixed model" design, consisting of two phases. In the first phase, the quantitative data was collected and analyzed. Following the first phase, qualitative
data was gathered and analyzed as a second phase of the design. Different but related questions or hypotheses were investigated at each phase of the study. That is, the quantitative phase tested pre-determined hypotheses that involved gathering data related to field-dependent and independent students' scores on multiple-choice and performance-based assessments. Following this, qualitative data was collected in order to explain factors that might contribute to performance differences of the two groups that might be observed in the first phase of the study.

The present study was classified as a "Type VIII mixed model design" (Tashakkori & Teddlie, 1998) based on the following characteristics of the study. The study

(1) applied qualitative and quantitative approaches in the phase of determining the research questions and hypotheses (confirmatory and exploratory),

(2) administered both qualitative and quantitative data collection methods and instruments,

(3) applied both statistical and qualitative analysis and inference,

(4) used both approaches for conclusion of the study, and

(5) applied qualitative and quantitative approaches sequentially. The quantitative phase was followed by the qualitative phase.

Sample

The sample of this study consisted of all schools that participated in the French Proficiency Testing in Sunshine (pseudonym) district in south. This school district was one of the three districts that required testing for eighth-grade French in all schools with
French-8 classes. In the entire state, participation of districts in the program was voluntary. A total of 1944 tests were administered in the state, 258 of which were in Sunshine school district.

The participants of the study consisted of all eighth-grade students who were enrolled in French courses during the 1998-1999 school year in public high schools in Sunshine parish. Sunshine parish was selected for the study because of the following characteristics of the parish: a) Sunshine school district is relatively large in terms of the number of students who are taking French as a second language; b) it requires all schools with 8th grade French to participate in the testing program (hence, the degree of selectivity is smaller than some of the other school districts in which testing is voluntary); c) it has a heterogeneous set of schools representing different socioeconomic status (SES) and ethnic structures.

A second school district was also intended for inclusion in the sample. However, the district could not grant permission due to its own testing during the month of May, when the French testing was also in progress.

The participants of the study were all students who took the French Proficiency Tests in Sunshine Parish. The total number of the students was 258 eighth-grade students enrolled in French courses in public schools (n=13) during the 1998-1999 school year. Table 3.1 shows the distribution of the sample in terms of demographic characteristics of the students. The Group Embedded Figures Test (GEFT) was administered in the sample during the first week of May. The French proficiency testing was done in April.
Table 3.1 Demographic Characteristics of the Students

<table>
<thead>
<tr>
<th></th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>89</td>
</tr>
<tr>
<td>Female</td>
<td>166</td>
</tr>
<tr>
<td>Missing</td>
<td>3</td>
</tr>
<tr>
<td>RACE</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>149</td>
</tr>
<tr>
<td>African American</td>
<td>66</td>
</tr>
<tr>
<td>Other</td>
<td>34</td>
</tr>
<tr>
<td>Missing</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>258</td>
</tr>
</tbody>
</table>

As will be discussed later, different numbers of students were included in different types of analyses. For correlation analysis and for some other analyses, the total sample was used (N=258). In all analyses comparing the two extreme groups (field-dependent and field-independent), only the students who were in the lower or upper 27% of the cognitive style distribution and not in the free/reduced lunch program were included (N=107).

Table 3.2 shows the distribution of students in terms of their cognitive style and demographic characteristics (gender and ethnicity).

For the qualitative phase of the study, 18 field-dependent and 18 field-independent students were sampled in order to conduct the interviews. The students
Table 3.2 Distribution of the Cognitive Style Test Results in the Sample

<table>
<thead>
<tr>
<th></th>
<th>Group-1 (lower 27%)</th>
<th>Group-2 (mid 46%)</th>
<th>Group-3 (upper 27%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Field-dependent</td>
<td>Field-independent</td>
<td></td>
</tr>
<tr>
<td>Score range</td>
<td>0-6</td>
<td>7-14</td>
<td>15-18</td>
</tr>
<tr>
<td>Range</td>
<td>25.8%</td>
<td>29.7%-69.1%</td>
<td>74.2%</td>
</tr>
<tr>
<td>N</td>
<td>61</td>
<td>102</td>
<td>74</td>
</tr>
<tr>
<td>Mean</td>
<td>3.34</td>
<td>10.68</td>
<td>16.5</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td>33</td>
<td>35</td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
<td>66</td>
<td>39</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>27</td>
<td>60</td>
<td>54</td>
</tr>
<tr>
<td>Black</td>
<td>27</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

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were selected based on their scores on the Group Embedded Figures Test (GEFT). For the sampling procedure, a stratified purposeful sampling (Patton, 1990) was applied. An advantage of this sampling technique is that it allows us to demonstrate characteristics of each subgroup and compare the findings from those groups. This sampling strategy, based on extreme scores on the GEFT, was utilized to maximize the differences (MAXMINCON principals, see Tashakkori & Teddlie, 1998, p. 33) between the field-dependent and field-independent students. Also, in order to control for possible mediating effects of gender and ethnicity, a matched sampling procedure was used. In each school, four students (two field-dependent and two field-independent) were selected as follows:

a) The student with the highest score on the GEFT (a FI student) was selected. Then, from the other extreme end of the distribution of the GEFT, a FD student of the same gender and ethnicity was selected. Selection of a match started from the lowest score and continued until a match was found. If a match was not found in the low score group, then a student with the lowest score regardless of his/her gender and ethnicity was selected.

b) The student with the lowest score on the cognitive style test (GEFT) (a FD student) was selected. Then, from the other extreme end of the distribution of the GEFT, a FI student of the same gender and ethnicity was selected. Selection of a match started from the highest score and continued until a match was found. If a match was not found in the high score group, then a student with the highest score regardless of his/her gender and ethnicity was selected.
This procedure was repeated for each school in Sunshine Parish with the exception of two schools, one of which did not grant permission for interviews and the other of which had only two eighth-grade French students. As mentioned above, the students were extreme members of each group; that is, in each group students who were on either extreme of the field-dependence/independence continuum were selected. The purpose of this approach was to provide detailed information about members of the field-dependent/independent style who are more informative and rich in information than typical members of the groups (Patton, 1990) considering the fact that there is almost no qualitative information regarding assessment preferences and study habits of field-dependent and independent students.

The main purposes of the questions were to determine the differences between the two groups in terms of their assessment preferences and study methods in a personal manner, that is, giving them a chance to express themselves regarding these issues. This information was intended to provide some knowledge about the characteristics of the two groups that might impact their performances on various test formats. The data collection was accomplished through interviews conducted with each of the thirty-two selected students. The sample for the qualitative phase was planned to consist of 36 students. However, three students did not bring the parental permission letters, and one student did not show up for the interview. The interviews were tape-recorded. Table 3.3 presents the distribution of the students who were interviewed.

In order to obtain detailed information about student performance on various test formats, interviews were conducted with teachers of the 33 selected students as...
Table 3.3  Distribution of the Students Who Were Interviewed:

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive Style</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field-dependent</td>
<td>18</td>
<td>54.5%</td>
</tr>
<tr>
<td>Field-independent</td>
<td>15</td>
<td>45.5%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>39.4%</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>60.6%</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>13</td>
<td>39.4%</td>
</tr>
<tr>
<td>Black</td>
<td>13</td>
<td>39.4%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>21.2%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

well. The total number of the teachers who were interviewed was 9. The teachers were asked to provide documents and examples of tests they used in teaching French throughout the year. The materials and examples of the tests were obtained from the teachers. The purpose of collecting these materials and tests was to obtain extra information about types of tests the teachers administered to the students. One of the purposes of the teacher interviews was to provide information about the students in order to improve the knowledge gathered through the student interviews. Another
purpose was to identify the teacher factors (e.g., using different methods to prepare students before an exam and the type of test they used for evaluating students) that might explain possible differences between the field-dependent and independent students.

The student and teacher interviews were conducted May 14 to May 28, 1999.

Variables and Measures

1. Cognitive Style Test

The first independent variable of the study was cognitive style. Cognitive style is conceptually defined as a dimension of individual differences that consists of two components: perceptual and intellectual activities. The individual differences refer to the way people think, solve problems, perceive, learn and relate to others (Witkin et al. 1977). Cognitive style was operationally defined as scores on the Witkin et al.'s Group Embedded Figures Test (GEFT). Based on their scores, students were classified as field-dependent or field-independent. The cognitive styles of the students were measured by the Group Embedded Figures Test (GEFT).

Consistent with previous studies (Lu & Suen, 1995; Cureton, 1957), scores on the GEFT was used to classify students into two groups -- field-dependent and field-independent. The instrument consists of 25 items of which 7 are used for practice (Witkin et al., 1977). The total time required to complete the GEFT is 12 minutes. For each of the items, students are asked to identify a specified simple figure that is embedded in a more complex figure. The total number of correctly found simple figures forms the raw score of examinees. The range of the raw score is between 0 and
18, indicating the lowest and the highest possible scores a student can get from the test. Witkin et al. (1977) do not indicate clear cut off scores for discriminating field-dependent and field-independent students. However, one common procedure for classification (Cureton, 1957) is to label the upper 27% of students as field-independent and the lower 27% as field-dependent based on their scores on the instrument. Students who are classified as field-dependent are those who cannot separate an item from the surrounding field. Field-independent students tend to be comfortable with these types of problems.

The parallel forms' reliability of the GEFT has been reported as .82 (Witkin et al., 1971) for college students. Since the GEFT is a speed test, the reliability was estimated through calculating correlations between the first and the second sections of the test and correcting them by the Spearman-Brown formula. The two sections were parallel, having the same number of items and time limits. The test-retest reliability of the GEFT has been reported to be .80 for middle-school and .84 for college students (Synder, 1997).

Concurrent validity of the GEFT has also been reported as .82 for male and .63 for female college students. The Embedded Figures Test, which is an individually administered test, was used as a criterion measure. For construct validity, scores on the GEFT was correlated with another learning style test, the Learning Style Profile. The construct validity of the GEFT has been found to be moderate: .47 for middle-school and .51 for college students (Synder, 1997). The results indicate satisfactory validity coefficients for the instrument.
Although some validity information is available among the middle school students (e.g., Synder, 1997), no reliability estimation is available for that group. In the current study, the reliability was determined by correlating the first and second sections of the test similar to the original Witkin's et al. (1971) study among college students. The Spearman-Brown correlation indicated a reliability estimate of .78 for male (n=85) and .80 for female students (n=153).

2. French Proficiency Exam

The assessment format was the second independent variable in the present study. It refers to the type of test that was used to assess students' competency in French as a second language. The Louisiana Eighth-Grade Proficiency/Credit Exam: French I (EGPE) was used for this purpose. Two types of assessment formats were used: a multiple-choice achievement test consisting of reading and listening tasks and a performance-based assessment format consisting of speaking and writing tasks.

The performance-based assessment refers to a testing format that requires each student to demonstrate skills and knowledge in a personal way (Archbald & Newmann, 1988). Performance-based assessment consists of different forms, such as essays, projects, lab experiments, demonstrations and dramatizations.

Multiple-choice (MC) and performance-based tests (PBA) were administered as parts of the Louisiana Department of Education's (LDE) testing program, which aims to assess student performance in foreign languages in schools across Louisiana (Sines & Tashakkori, 1998). Both the PBA and MC items intend to measure student performance in four language skills (listening, writing, speaking, and reading). Each
test requires students to demonstrate their skills and knowledge related to 1) vocabulary use, 2) language control, 3) communication strategies, 4) comprehensibility, and 5) comprehension in the same subject material or in content that allows us to compare a student's performances from different test formats (MC and PBA). In terms of content, the four tests were constructed to measure the same content and general topics, in accordance with Louisiana Department of Education French as Second Language Program Curriculum Guidelines (Louisiana Department of Education, Grade 8 Teacher Manual: Developing Stage French, 1999). Appendix A presents the main content and topics covered by each test. The tests were also constructed with attention to the level of thinking skill (Bloom's Taxonomy). Speaking and reading parts of the test measure all six levels of thinking skills (knowledge, comprehension, application, analysis, synthesis, and evaluation). The writing part measures the first five and the listening part measures the first four skills. (See Appendix A for the Bloom's Taxonomy for the four parts of the test.)

Format of the Test Administration and Scoring: The Eighth Grade Proficiency/Credit Exam: French I (EGPE) is part of the Louisiana Foreign Language Standards-Based Assessment Program in the Elementary Schools. In June, each school and the supervisors of participating school districts received a report providing feedback about their students' performance.

The EGPE consists of four parts: Reading, listening, writing and speaking. The reading and listening parts of the test are in multiple-choice formats whereas the writing and speaking parts are in performance-based formats. The reading part 25 and
The listening part consists of 35 items. The listening, reading and writing parts of the EGPE are administered in three consecutive class days by the foreign language teachers. For the listening part, items are "presented in a context—the international Festival of Louisiana—through functional activities, using redundancy and local expressions" (Egea-Kuehne & Tashakkori, 1994, p.6). Different conversations, voices, and accents are audio-taped. Before presenting each activity, an example is given to students. After the example, the teacher stops the audio-tape and assures that students understand the examples and what to do next, then continues with the items. For the speaking part, approximately five minutes is devoted to an oral assessment of each student. The writing and speaking parts of the test are scored by the teachers (see Appendix B) whereas the reading and listening parts are scored by computer (Louisiana Department of Education, Grade 8 Teacher Manual: Developing Stage French, 1999).

The Eighth Grade Proficiency/Credit Exam: French I has been revised since its last administration in 1998; that is, some of the old items have been replaced with new items based on item characteristics revealed from analysis of the 1998 administration of the test. The content of the items, skills that the items assessed, and percentages assigned to each section of the test (listening, reading, writing, and speaking) were decided by a team consisting of the LDE staff that consisted of middle- and high-school French teachers, curriculum/evaluation specialists, and Communaute' Francaise de Belgique staff personnel (Tashakkori & Sines, 1997). The same team also developed the test. In order to develop the test, the objectives of the state curriculum were followed. Test questions were constructed so that they would represent real-life
situations that an eighth-grade student would experience daily. The same logic was followed for deciding the context of oral and written performance of students (for example, a series of conversations a student would need to perform during a class trip to one of French-speaking countries) (Tashakkori & Sines, 1997).

The content validity of the Eighth Grade Proficiency/Credit Exam: French I has been established by the Louisiana Department of Education (LDE) with the assistance of the team mentioned above. The test items of the 1997 administration reported to have a satisfactory content validity (Tashakkori & Sines, 1997). The test items were reported to have high correlations with the overall test indicating that items were satisfactory in terms of their validity. (That is, they were measuring the same construct that the test intended to measure.) The items that did not have satisfactory characteristics (e.g., validity, item difficulty, item discrimination index) were revised or excluded from the test. The revision of the items was done by the same team that had constructed them.

The reliability of the tests was also established. Results of test administrations in the 1996 and 1997 school years indicated that the tests had satisfactory reliability. Internal-consistency reliability ranges from moderate to high (Sines & Tashakkori, 1997). For listening part, internal-consistency reliability ranged from .25 to .50.

The writing and speaking sections of the test are evaluated based on students' overall performances in these sections. Scoring rubrics are provided for the writing and speaking tests. For the speaking part, the scoring rubric consists of six criterions: comprehensibility, comprehension, language control, vocabulary use, communication...
strategies, and cultural awareness. Each student receives a score on each of these criteria depending upon his/her performance in this section. Each of these criteria consists of five performance levels: no performance, minimal performance, beginning stage, developing stage, and expanding stage. Students receive a score based on their performance level on each criterion. (See Appendix B for the scoring rubric.) Writing performance of the students are also evaluated based on a scoring rubric that consists of four criteria; comprehensibility, language control, vocabulary use, and communication strategies.

Depending upon a student's performance, his/her score is assessed to one of four performance levels (no performance, minimal performance, beginning stage, developing stage, and expanding stage) for each criteria (See Appendix B for the scoring rubric.)

3. Student Interviews

In order to obtain detailed information regarding students' assessment preferences and thoughts toward different types of testing formats, an open-ended interview schedule was developed. The students were interviewed by the researcher. All the participants were asked the same questions in the same order. The instrument covered questions about the students' feelings and thoughts toward the two test formats as well as study techniques they apply for preparing themselves for exams. One of the main reasons for selecting this format is to prevent interviewer effect and to ask exactly the same types of questions to all students. Another advantage of this format is that data analysis can be done easier and save time. Because each informant is asked
exactly the same question, it is be easy to compare answers to the same question. (See Appendix D for the interview format).

Pilot data were collected from 5 field-dependent and 5 field-independent students as a process of developing the instrument. First, the students were administered the GEFT to classify them as FD or FI. After a week, an interview was conducted with each of the ten students. The data helped improve some of the interview questions or cancel the ones that were not clearly understood by the students. The interview schedule was revised on the basis of the pilot study. The purposes of the interview questions and the questions addressing them are represented on Table 3.4.

4. Teacher Interviews

In order to gather information about teacher observations and opinions toward students' performances and preferences for various testing formats, an open-ended teacher interview was constructed. The teachers of the students who were selected for the qualitative data collection were interviewed. The questions were developed by the researcher. The teachers were asked the same questions in the same order in order to get the same type of information about each of the 33 students. The purpose of the interview was to gain detailed information regarding performance of FD/I students on different test formats, how they interact with various test formats, assessment preferences of students, and teacher related factors that may affect student performance. (See Appendix D for the interview format.) Teacher perceptions and observations about these issues related to the students may provide deeper understanding about achievements of the students.
Table 3.4 Purposes of the Student Interview and Interview Questions

**Purpose I.** What are the assessment preferences of FD and FI students?

Q1. Do you prefer your French knowledge to be tested by multiple-choice type exams or by other techniques (e.g., essay, individual/group project, and oral exams)? Why? Please explain.

**Purpose II.** Do FD and FI students use different strategies to study for exams?

Q2. How do you prepare or study for exams?

Q3. How did you prepare for the French Proficiency Exam during the last few weeks?

Q4. Do you change your study methods depending upon the type of exam (Test format) will you will take? For example, do you change your study methods when studying for multiple-choice or essay or oral or project?

If yes, what changes do you make? Please explain.

Q5. Did you know how you were going to be tested for the French Proficiency Exam?

Q6. Did you change your regular study method to prepare for taking the French Proficiency Exam?

Q7. a) Do you spend different amounts of time studying for different types of exams (e.g., multiple choice, oral exam, and projects)?

If yes, why?

(table cont.)
b) How many hours do you spend studying for each major type of exam (multiple choice, oral exam, and projects)?

Q8. How many hours did you spend studying for the French Proficiency Exam during the two weeks before the test?

Pilot data were collected from two teachers who taught the ten students that were selected for the student interview. The questions were related to teacher perceptions about the students' performances on the two test formats (performance-based and multiple-choice assessments) and how they prepare students for exams. The interview results were utilized to improve and revise the interview questions for the actual data collection. The interview questions and their specific purposes are presented in Table 3.5.

**Dependent Variable**

The dependent variables of the study were students' scores resulting from the closed-ended test and performance-based assessment. Two types of scores were constructed for each student: a) a criterion-referenced score consisting of percentage attained on each of the three tests and b) a norm-referenced score consisting of standard scores (z-score) calculated on the basis of the mean and standard deviation of all eighth-graders who took the tests in the sample. In order to make comparisons across the tests (writing, speaking, listening, and reading sections of the French Proficiency Exam), the present study used the norm-referenced scores. Details regarding the French tests were presented above.
<table>
<thead>
<tr>
<th>Purpose I.</th>
<th>What are the teacher observations and opinions about the performances and preferences of FD and FI students on various testing formats?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. a)</td>
<td>Based on your experiences during the current academic year, on which type of exams (e.g., multiple-choice, essay, oral, and project) does he/she usually perform better?</td>
</tr>
<tr>
<td></td>
<td>b) In your opinion, why does this student perform better on this type of exam?</td>
</tr>
<tr>
<td>Q2. a)</td>
<td>Based on your experiences during the current academic year, do you think she/he prefers a certain type of exam (multiple-choice, essay, oral, and project) over others? If yes, what are they?</td>
</tr>
<tr>
<td></td>
<td>b) In your opinion, why does this student prefer that type of exam?</td>
</tr>
<tr>
<td>Purpose II.</td>
<td>How do teachers affect performances of FD and FI students on the exams?</td>
</tr>
<tr>
<td>Q3.</td>
<td>During the current year, what kind of test (multiple-choice, essay, oral-exam, project) did you give to students?</td>
</tr>
<tr>
<td></td>
<td>Can I have some of these tests or materials as examples?</td>
</tr>
<tr>
<td>Q4. a)</td>
<td>During the current school year, do you have methods for preparing students before an exam? If yes, how do you prepare them? and</td>
</tr>
<tr>
<td></td>
<td>b) How many hours do you spend in the preparation for a major test?</td>
</tr>
</tbody>
</table>

(table cont.)
Q5. a) Did you have methods for preparing students for the French Proficiency Exam? If yes, how did you prepare them?

b) How many hours did you spend in the preparation for the French Proficiency Exam?

Q6. Did you clarify what would be on the French Proficiency Exam and how students could prepare for it? Please explain.

Q7. Do you teach test taking strategies or methods to students?

If yes, what are they?

Q8. Did you teach test taking strategies or methods to students for the French Proficiency Exam? What are they?

Data Collection Procedures

Data was collected in the spring semester of 1999. The data collection procedure was completed in two phases. In the first phase, all performance data (both MC and PBA) were collected during April, in collaboration with the LDE, office of foreign languages. In March, each school district that requested testing received the test packet to be reproduced and sent to the schools. Each packet consisted of a) a tape, b) a teacher manual, c) tests, and d) a performance assessment package. In the school district under study, approximately two weeks after the collection of performance data, the cognitive style test was administered to the students.

In order to prevent students from being affected by the presence of the researcher, teachers were asked to administer the cognitive style test. The researcher
provided the cognitive style test and necessary information to the teachers about administration of the test.

After the completion of the first phase, based on the data analysis results that were obtained in the first phase, 18 students were selected on each side of the field-dependence/independence continuum. Permission letters were sent to parents of these students for the interviews. (See Appendix C for Parental Permission Letter.) Permission from the Institutional Review Board (IRB) was also obtained in order to collect data from educational settings and from minors.

After taking the GEFT, MC and PBA tests, thirty-two students were interviewed with the open-ended interview format. To minimize researcher effects, the field-dependent and field-independent status of the students were determined by a third party other than the interviewer so that the interviewer (the researcher) did not know the cognitive scores of the students that were interviewed. The student interviews were followed by teacher interviews. The teacher interviews were also conducted by the researcher. For purposes of the study, in addition to the GEFT, MC, PBA, and the interviews, some demographic questions were also asked of all students. These questions were about students' gender, age, and ethnicity.

Data Analyses

Consistent with previous research, cognitive style was defined as a dichotomy: Field-dependent or field-independent (top and bottom 27% on the cognitive style score distribution). Cognitive style was assessed by the Group Embedded Figures Test. In order to determine whether cognitive style and test format affect student performance
as assessed by the multiple-choice and performance-based formats the following procedures were utilized.

As mentioned above, for the analysis purpose of the study, raw scores from the two multiple-choice tests (listening and reading) were converted into standard z-scores. Then, the two standard scores were summed in order to form a single score, which was treated as the outcome of MC test. Scores from the performance-based assessments (speaking and listening) were also converted into standard z-scores and then summed to form a single score for each student.

Multivariate analysis of variance (MANOVA) was conducted in order to examine whether gender, ethnicity, socio-economic status, and cognitive style had an impact on students scores on performance-based and multiple-choice assessments. Also, the correlations among the four parts of the French Proficiency Exam and cognitive style scores of the students were found.

The analysis continued with a two-factor split-plot design (2×2). It was utilized to test the research hypotheses-1 concerning the interaction effect of cognitive style and test format on students' scores. In the split-plot design, one factor was cognitive style with two levels (field-dependent and field-independent). The second factor was test format with two levels (MC and PBA). Multiple-choice scores were the standard z-scores obtained from the two multiple-choice tests. PBA scores were the z-scores obtained from the two performance-based tests.

A series of independent and paired t-tests were also conducted to test specifically hypothesis-2 through 5. In these analyses, students' average scores on
multiple-choice and performance-based assessments of the French proficiency were compared in order to define whether the students performed differently on different test formats.

In case of finding performance differences between the FD and FI students on the PBA or MC tests in the above analyses, one may argue that the differences found between the two groups are simply because field-independent students are more capable of solving difficult problems than field-dependent students. This might be true if performance-based tests are more difficult than multiple-choice tests. In order to investigate this possible competing hypothesis, relationship between cognitive style and item difficulty was investigated. For this purpose, item difficulty (p-values) was computed for each multiple-choice question. Then, the items were divided into two groups: easy (p>.50) and difficult items (p<.50). The analysis was conducted through a two-way ANOVA. Field-dependence and independence were the between subject factor, and easy/difficult items were the within subject factor.

In order to test the impact of assessment format on performance of students who were in the middle of the field-dependent/independent continuum, (students who were between top and low 27% of the cognitive style distribution) a dependent t-test was also conducted with multiple-choice and performance-based scores of the students as the dependent variables. These student were approximately 46% of the total sample. For the qualitative data analysis, Lincoln and Guba's constant comparative method was utilized. This technique is useful for determining the commonalities and differences between the two different groups (field-dependent and independent.
students). The first step for the analysis of the data consisted of taking all the answers
to the same questions and breaking responses into units after looking through all the
responses (Lincoln & Guba, 1985). The units were heuristic (aimed at some
understanding or action that researchers should take) and were able to stand by
themselves when the only other information present was the general understanding
about the study of interest.

The units were issues and activities that would help to develop categories
regarding assessment preferences and study habits of the field-dependent and field-
independent students. These units then were written on index cards and coded to
indicate their sources and types (e.g., whether a participant was field-dependent or
field-independent, whether a participant was a teacher or student, or whether
information was related to study methods, study materials, or whether the information
was related to some other specific issues).

Categories were formed for these units based on certain inclusion rules, titles,
and homogeneity within but heterogeneity without. The categories were established in
order to understand different aspects of the issues that investigated through interview
questions. The emerging categories were examined to uncover basic relationships and
processes.

Limitation of the Study

The present study is subject to the following limitations:

1. The subjects of the study were 8th grade students taking French as second
language and 8th grade French teachers during the 1998-99 school year.
2. Measurement of French performance was limited to the *Louisiana Eighth Grade Proficiency Exam for French I*.

3. Only one school district was included in the study.
CHAPTER 4
QUANTITATIVE FINDINGS AND RESULTS

Overview of the Study

The present study investigated the impact of cognitive style and assessment approaches on the second language performance of students. In addition to that, study habits of students who had different cognitive styles and teachers' opinions toward performance differences of the students were examined.

The current study utilized a mixed model design, which consisted of both quantitative and qualitative methods. The study consisted of two phases. Phase I involved quantitative investigations. The main issues investigated by Phase I were existence of a performance difference between field-independent and field-dependent students and whether or not the difference was consistent under different test formats (multiple-choice and performance-based assessments). First, a possible interaction between the assessment formats and cognitive styles was examined. Then, within each cognitive style group, student scores resulting from the two assessment approaches (multiple-choice and performance-based assessments) were compared with each other. Correlations among the cognitive style and achievement tests were also examined. The data analysis was conducted using the SPSS for Windows.

In Phase II, qualitative data were examined and presented. The qualitative data consisted of both student and teacher interviews. The results and discussion of Phase II will be presented later in Chapter Five. Phase I only involves the quantitative results that resulted by examining the following research questions:
• Is there an interaction between the cognitive style of students and assessment approaches?
• Is there a difference between the performance of field-dependent and field-independent students on a multiple-choice test?
• Is there a difference between the performance of field-dependent and field-independent students as measured by performance-based assessment?
• Is there a difference between performance-based assessment and multiple-choice test performances of field-dependent students?
• Is there a difference between performance-based assessment and multiple-choice test performances of field-independent students?

In this section, quantitative outcomes that resulted from the above research questions were presented.

This section will continue with a summary of the sampling procedure applied for Phase I, the hypothesis that was tested in Phase I, and discussion of statistical results revealed from Phase I.

Sampling Procedure

The sample of Phase I consisted of all schools that participated in the French Proficiency Exam in Sunshine school district. The participants of the study were all eighth-grade students who were enrolled in French courses during the 1998-1999 school year (n=258). All participants were administered the French Proficiency Exam, which consisted of four sections (listening, reading, writing, and speaking) and the cognitive style test (Group Embedded Figures Test, Witkin et. al., 1977).
Table 4.1 reveals the number and percentage of eighth-grade students in the sample as well as those who took the French Proficiency Exam in Sunshine. Table 4.1 also presents the number and percentage of students by gender, ethnicity and free/reduced lunch status. The state data were obtained from Louisiana Department of Education (Sines & Tashakkori, 1999). As Table 4.1 demonstrates, the proportion of females in the sample was slightly greater than the proportion of the state. However, the percent of students on free/reduced lunch was smaller than the corresponding proportion in the state.

In order to test whether the sample and state data were similar in terms of proportion of gender, free/reduced lunch and ethnicity, a series of chi-square tests were conducted. The result of the chi-square test for gender (male/female) indicated that the populations were similar in terms of the proportion of male and female students $\chi^2 (1) = 2.23$, $p > .05$. However, the sample proportions were different from the state population in terms of the proportion of free/reduced lunch and ethnicity; $\chi^2 (1) = 33.77$, $p < .05$ and $\chi^2 (3) = 27.36$, $p < .05$, respectively. Despite this statistical significance, the magnitude of $\chi^2$ is relatively small for such a large sample size. With large samples, the value of $\chi^2$ goodness-of-fit is usually large enough to reach statistical significance despite the relative fit of the observed data to the expected distribution (Hayduk, 1996; Joreskog & Sorbom, 1988). There was a statistical fit between the sample and the population proportions. Therefore, for large sample sizes, the alpha is reduced from .05 to a relatively small level such as .001 (Hayduk, 1996). An alternative solution is obtained by a measure of "magnitude fit" through dividing the $\chi^2$ by the number of
Table 4.1 Demographic Information Regarding the Sample and the Total Population of Students in the State Who Took the French Proficiency Exam

<table>
<thead>
<tr>
<th></th>
<th>Sample (n=258)</th>
<th>State (N=1944)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>Free Lunch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>50</td>
<td>19.4%</td>
</tr>
<tr>
<td>No</td>
<td>203</td>
<td>78.7%</td>
</tr>
<tr>
<td>Missing</td>
<td>5</td>
<td>1.9%</td>
</tr>
<tr>
<td></td>
<td>160</td>
<td>8.2%</td>
</tr>
<tr>
<td></td>
<td>1764</td>
<td>90.7%</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>1.0%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>166</td>
<td>64.3%</td>
</tr>
<tr>
<td>Male</td>
<td>89</td>
<td>34.5%</td>
</tr>
<tr>
<td>Missing</td>
<td>3</td>
<td>1.2%</td>
</tr>
<tr>
<td></td>
<td>1158</td>
<td>59.6%</td>
</tr>
<tr>
<td></td>
<td>764</td>
<td>39.3%</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>1.1%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>149</td>
<td>57.8%</td>
</tr>
<tr>
<td>Black</td>
<td>66</td>
<td>25.6%</td>
</tr>
<tr>
<td>Asian</td>
<td>32</td>
<td>12.4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2</td>
<td>0.8%</td>
</tr>
<tr>
<td>Missing</td>
<td>9</td>
<td>3.5%</td>
</tr>
<tr>
<td></td>
<td>1442</td>
<td>74.2%</td>
</tr>
<tr>
<td></td>
<td>319</td>
<td>16.4%</td>
</tr>
<tr>
<td></td>
<td>136</td>
<td>7.0%</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>0.8%</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

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observation (i.e., \( \chi^2 / n \)). Following this procedure, the lack of fit is negligible both for ethnicity and free/reduced lunch (33.77/253 = .13 for free/reduced lunch and 27.36/249 = .11 for ethnicity). Therefore, it can be concluded that ethnicity and the free/reduced lunch structure of the sample of the current study did not deviate from the population of all students who took the French test in the state in 1999.

**Hypotheses Tested in Phase I**

Following are the hypotheses tested in Phase I:

**Hypothesis-1**

There is an interaction effect of students' cognitive style as measured by the Group Embedded Figures Test and assessment approaches (multiple-choice and performance-based assessment) on students' second language scores.

**Hypothesis-2**

There is no difference between the average listening and reading scores of field-dependent and field-independent students. The listening and reading tests are multiple-choice components of the Eighth Grade Proficiency/Credit Exam: French I.

**Hypothesis-3**

Field-independent students will have higher mean scores than field-dependent students on the speaking and writing tests. The speaking and writing tests are performance-based components of the Eighth Grade Proficiency/Credit Exam: French I.
Hypothesis-4

Field-dependent students will perform better on the listening/reading tests than they will on the speaking/writing tests of the Eighth Grade Proficiency/Credit Exam: French I.

Hypothesis-5

There are no differences in performances of field-independent students on the listening/reading and the speaking/writing tests of the Eighth Grade Proficiency/Credit Exam: French I.

In the following section of the study, a number of descriptive statistics related to achievement and cognitive style scores of the students will be presented.

Descriptive Analyses

Correlations between cognitive style scores of the total sample (n=258) and the four French Proficiency Exam scores are presented in Table 4.2. As the table shows, correlation coefficients between cognitive style scores and reading and listening scores were found to be relatively small but statistically significant (.31 and .28, respectively). On the other hand, the correlations between the cognitive style scores and the speaking and writing scores were not found to be statistically significant (r=.06 and .12, respectively).

As Table 4.2 indicates, the four sections of the French Proficiency Exam had relatively strong and statistically significant correlations with one another ranging from .34 to .68.
Table 4.2 Correlation Matrix for the Cognitive Style and the Four French Achievement Scores

<table>
<thead>
<tr>
<th>Variables</th>
<th>CS</th>
<th>W</th>
<th>S</th>
<th>R</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive style (CS)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing (W)</td>
<td>.12</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking (S)</td>
<td>.06</td>
<td>.68*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading (R)</td>
<td>.31*</td>
<td>.34*</td>
<td>.39*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Listening (L)</td>
<td>.28*</td>
<td>.36*</td>
<td>.40*</td>
<td>.65*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*P < .05

For the analysis purpose of the study, raw scores from two multiple-choice tests (listening and reading) were converted into standard z-scores using the mean and standard deviation of the full sample (n=258). Then the two standard scores were summed in order to form a single score, which represented outcomes of multiple-choice (MC) format. The same procedure was applied to raw scores (writing and speaking) of performance-based assessment for forming the outcomes of performance-based assessment (PBA). Consistent with previous research (Lu & Suen, 1995), cognitive style was defined as a dichotomy: Field-dependent or field-independent (top and bottom 27% on the cognitive style test).

1. Descriptive Statistic Regarding Student Achievement

Mean z-scores resulting from MC and PBA sections of the students by free/reduced lunch program, gender, and ethnicity are presented in Table 4.3 and Table 84.
4.4. As Table 4.3 displays, the number of students who were enrolled in the free/reduced lunch program, in each cell, is very small.

Table 4.3  **Mean z-scores of the Students on the Multiple-Choice Section of the Proficiency Exam**

<table>
<thead>
<tr>
<th>Field</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td>2.30</td>
<td>1</td>
<td>-0.35</td>
<td>4</td>
</tr>
<tr>
<td>FD</td>
<td>-0.46</td>
<td>2</td>
<td>-0.40</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td>-1.89</td>
<td>1</td>
<td>1.43</td>
<td>2</td>
</tr>
<tr>
<td>FD</td>
<td>-1.19</td>
<td>2</td>
<td>-0.69</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: FI=Field-independent  
FD=Field-dependent

Table 4.4  **Mean z-scores of the Students on the Performance-Based Section of the Proficiency Exam**

<table>
<thead>
<tr>
<th>Field</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td>-1.10</td>
<td>1</td>
<td>-0.09</td>
<td>4</td>
</tr>
<tr>
<td>FD</td>
<td>-1.26</td>
<td>2</td>
<td>-0.56</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td>-2.99</td>
<td>1</td>
<td>1.48</td>
<td>2</td>
</tr>
<tr>
<td>FD</td>
<td>0.14</td>
<td>2</td>
<td>-0.90</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: FI=Field-independent  
FD=Field-dependent

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Therefore, the analysis regarding the hypothesis testing was conducted only for those students who were not in the free/reduced lunch program.

2. Descriptive Statistics Regarding Cognitive Style

Based on theoretical considerations, no difference in gender or ethnicity was expected in cognitive style scores of the students. Descriptive statistics regarding the cognitive style scores by ethnicity, gender, and free/reduced lunch are presented in Table 4.5.

Table 4.5  Mean Cognitive Style Scores of Students by Gender and Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Free/reduced lunch</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>mean</td>
<td>S</td>
<td>N</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>31</td>
<td>8.16</td>
<td>5.51</td>
<td>120</td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
<td>8.75</td>
<td>5.15</td>
<td>70</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>14</td>
<td>10.36</td>
<td>5.96</td>
<td>127</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>7.34</td>
<td>4.85</td>
<td>63</td>
</tr>
</tbody>
</table>

* S= standard deviation

A 2×2×2 ANOVA indicated that the main effects of free/reduced lunch status and ethnicity on the cognitive style scores of the students were statistically significant (F(1,225)= 4.58, p< .05; F(1,225)=3.99, p< .05, respectively) while the main effect of gender on the cognitive style scores was not statistically significant (F(1,225)=.62, p=.43. These results are contrary to expectation and pointed to the necessity of a change in subsequent analysis:
a) Due to the significance of free/reduced lunch and also the small number of students in the free/reduced lunch group, hypothesis testing was only performed in the not free/reduced lunch group.

b) Gender and ethnicity were added to the design as factors in a multivariate analysis of variance (see below).

**Hypotheses Testing**

A multivariate analysis of variance (MANOVA) was utilized to test whether gender, ethnicity, and cognitive style of the students had significant effects on the two types of test scores. As mentioned above, the effect of gender and ethnicity were not the main concern of the present study. However, since cognitive style was found to vary by ethnicity, this variable and also gender were included in the analysis along with field-dependence/independence. Also, due to the very small number of observations in each cell for those who were in the free/reduced lunch program (as seen in Table 4.4 and Table 4.5), these students were not included in the analysis. There were 107 students who were not receiving free/reduced lunch. Among them, 61 percent were field-independent (n=65), and 39 percent were field-dependent students (n=42). The research hypotheses were tested separately for this group. Alpha of .05 was used for all analyses.

Before utilizing the analysis, a number of assumptions were tested. Homogeneity of variance was tested for the four listening, reading, writing, and speaking parts of the proficiency tests and the cognitive style scores. The result indicated that for cognitive style (Levene Statistics=18.16, df=227, p<.05) and the
listening part (Levene Statistic=4.26, df=227, p<.05), homogeneity assumption was
mildly violated. The other three tests were homogenous (Levene Statistics were .354,
p=.70 for reading; .150, p=.86 for speaking; and .054, p=.95 for writing.) However,
since the sample size was large, the effects of unequal variance were assumed to be
small.

1. Inferential Statistics Regarding Students Who Were Not on
Free/Reduced Lunch Program

Results of the multivariate analysis indicated that except for cognitive style
(F(1,95)=10.99, p<.05), none of the factors had significant main effects on student
performance resulting from the two tests (F(1,95)=.42, p=.66 for gender; F(1,95)=.66,
p=.52 for ethnicity). Also, none of the double interaction effects was found to be
significant [F(1,95)=1.08, p=.34 for gender by race; F(1,95)=.38, p=.69 for gender by
cognitive style; F(1,95)=.31, p=.74 for race by cognitive style]. The three way
interaction effect was also non-significant (F(1,95)=.78, p=.46). Univariate ANOVA
revealed that there was a significant main effect of cognitive style on the multiple-
choice test results (F(1, 102)= 21.33; p < .05). However, no significant difference was
found between the two groups in performance-based assessment results (F(1, 105)= .04;
p=.84).

In sum, the field-independent group performed significantly better than field-
dependent group on the multiple-choice test, while the two performed the same on the
performance-based assessment. These results are further supported in more specific
tests of hypotheses, as presented below.
Following the MANOVA results, since gender and ethnicity did not have a significant effect on the dependent variables, specific tests of the hypotheses were continued without regard for minority status or gender.

The first hypothesis was tested by a two-factor, split-plot design (2×2), which was utilized to investigate main effects of assessment format (two levels: multiple-choice and performance-based assessment) and cognitive style (two levels: field-dependent and field-independent) as well as a potential interaction effect between the two factors. Since the number of observations in each cell was not equal, unbalanced design was applied.

A series of independent and dependent t-tests was also conducted following the two-factor split-plot design in order to test the research hypotheses two through five.

This section will continue with presentation of results of hypothesis testing for the students who were not on the free/reduced lunch program. Then, the section will continue with result of some axillary analysis that are related to the present study.

- **Hypothesis- 1**

  "There is an interaction effect of students' cognitive style as measured by the Group Embedded Figures Test and assessment approaches (multiple-choice and performance-based assessment) on students' second language scores."

  A 2×2 split-plot ANOVA with cognitive style as the between-subject factor and test format as the within-subject factor pointed to a statistically significant interaction between cognitive style and assessment approaches (F (1,101) =19.44, p <.05) as seen in Table 4.6.

89
Table 4.6  Analysis of Variance for Cognitive Style and Assessment Approach

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between-Subject Effect</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive Style (CS)</td>
<td>1</td>
<td>25.82</td>
<td>6.68*</td>
</tr>
<tr>
<td>Error</td>
<td>101</td>
<td>3.87</td>
<td></td>
</tr>
<tr>
<td><strong>Within-Subject Effect</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment Format (AF)</td>
<td>1</td>
<td>1.81</td>
<td>1.08</td>
</tr>
<tr>
<td>CS\times AF</td>
<td>1</td>
<td>32.58</td>
<td>19.43*</td>
</tr>
<tr>
<td>Error (AF)</td>
<td>101</td>
<td>1.676</td>
<td></td>
</tr>
</tbody>
</table>

Note: *P < .05
CS\times AF = Interaction between Cognitive Style and Assessment Format

The significant interaction suggests that effects of cognitive style differ depending upon the type of test format. As Figure 4.1 shows, field-independent and field-dependent students performed substantially different on the multiple-choice format (mean z-score of .73 and -.81, respectively). On the other hand, on the performance-based format, the two groups did not differ considerably with the mean z-score of .21 for field-independent and .29 for field-dependent students.

Also, as Table 4.6 shows, the main effect of students' cognitive style on their French performance was also significant (F(1,101) = 6.68, p<.05). However, the effect of the assessment format (the within-subject factor) was not significant (F (1,101) = 1.08, p=.301).
Figure 4.1 A Graphic Presentation of the Means for Cognitive Style and Assessment Approach

Note: FI= Field-Independent
FD= Field-Dependent
MC= Scores Resulting from Multiple-Choice Assessment
PBA= Scores Resulting from Performance-Based Assessment

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Overall, the significant interaction effect leads to the rejection of the null hypothesis. Presence of significant interaction supports Hypothesis 1.

Furthermore, the significant main effect of cognitive style points to higher average scores of the field-independent students than to the scores of the field-dependent ones on the multiple-choice. This will be elaborated below when testing hypothesis 2.

- **Hypothesis-2**

"There is no difference between the average listening and reading scores of field-dependent and field-independent students. The listening and reading tests are multiple-choice components of the Eighth Grade Proficiency/Credit Exam: French I."

Following a main effect of cognitive style in the 2x2 ANOVA mentioned above, the mean scores of the groups were compared by independent t-tests. There was a significant difference between the performances of the field-independent and dependent students (t(102)=4.95, p<.05) with mean z-scores of .73 versus -.81, respectively. Field-independent students performed substantially higher (1.5 standard deviation) than field-dependent students on the multiple-choice format (Figure 4.1).

- **Hypothesis-3**

"Field-independent students will have higher mean scores than field-dependent students on the speaking and writing tests. The speaking/writing tests are performance-based components of Eighth Grade Proficiency/Credit Exam: French I."

Consistent with the results depicted in Figure 4.1, the independent t-test did not indicate a significant difference (t(105)= -.20, p=.84) between mean scores of the field-
independent and dependent students. Mean z-scores were .20 and .27 for field-independent and field-dependent students, respectively.

- **Hypothesis-4**

  "Field-dependent students will perform better on the listening/reading tests than they will on the speaking/writing tests of the Eighth Grade Proficiency/Credit Exam: French I."

  The paired t-test was utilized to test the hypothesis. The result of the analysis revealed a significant difference between the mean scores of the students ($t(40) = -4.9$, $p < .05$). However, the direction of the results were opposite to the one expected. In other words, these students performed better on the performance-based part than they did on the multiple-choice part (mean z-scores of .30 and -.81, respectively).

- **Hypothesis-5**

  "There are no differences in performances of field-independent students on the listening/reading and the speaking/writing tests of the Eighth Grade Proficiency/Credit Exam: French I."

  The test revealed a statistically marginally significant ($t(62) = 2.03$, $p = .047$) difference between the two mean scores of the field-independent students. The magnitude of the difference was approximately 1/2 of a standard deviation (z score of .73 and .21).

  The results were in the opposite direction to expectation. In other words, field-independent students performed better on multiple-choice than they did on performance-based test of the French Proficiency Exam.
Axillary Analyses

In order to verify the question regarding impact of assessment format on second language scores of students who are not extreme in their cognitive styles, effect of test format on these students are tested in this section. In addition, some analysis was conducted to assure the internal validity of the conclusions resulted from hypothesis 1. The analyses are presented in the following section.

1. Effect of Assessment Format on Achievement of Students Who Were in the Middle Section of the Cognitive Style

As mentioned in Chapter 3 (Table 3.2), approximately 46 percent (n=102) of the eighth-grade students were classified in the middle group according to the grades they had received from the cognitive style test (Group Embedded Figures Test (GEFT), Witkin et al.,1971). In order to investigate whether or not the students who were classified as field-dependent (lower 27% of GEFT) and field-independent (upper 27% of GEFT) according to the cognitive style test displayed different performance than the students who were in the middle 46 percent of the cognitive style, effect of assessment format on student performance was re-examined for the middle group. Only the students who were not on free/reduced lunch program (n=80) were included in the analysis in order to be consistent with previous analyses in the current study.

In order to examine whether the students performed differently on multiple-choice and performance-based parts of the French Proficiency Exam, dependent t-test was applied. As mentioned before, student scores on multiple-choice (listening and reading) and performance-based assessment (speaking and writing) were converted into
standard z-scores since the two assessment formats did not have the same scale. The mean scores for multiple-choice and performance-based assessments were .24 and .36, respectively. The results indicated that the difference between multiple-choice and performance-based assessment was not significant (t(80) = -0.54; p = .60). The results suggest that the assessment approach did not have a significant association with students' French performance in this group.

2. Interaction Between Task Difficulty and Cognitive Style

In order to confirm that the interaction found between cognitive style and assessment approaches is attributable to cognitive style and not to some other extraneous variables, other analyses were performed. One possible extraneous variable was difficulty of the test. Thus, it is possible to speculate that the two groups performed significantly differently on the multiple-choice part because the items in the multiple-choice test were more difficult than their performance-based counterparts and field-independent students were more competent in terms of solving difficult questions. The two-way analysis of variance (ANOVA) examined the interaction of cognitive style and item difficulty of multiple-choice exam on students' scores on multiple-choice part. The items that had difficulty levels of p = .50 and smaller were labeled as difficult items, and those that had difficulty levels larger than .50 (p > .50) were labeled as easy items. As Table 4.9 indicates, the interaction of the item difficulty and cognitive style was not significant (F(1,130) = .004). Findings of the analysis did not reveal evidence suggesting that the difference between the two groups is attributable to difference on level of task difficulty. Table 4.7 summarizes the results of the analysis.
Table 4.7  **Analysis of Variance of Cognitive Style by Item Difficulty of Multiple-Choice Test**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between-Subject Effect</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive Style (CS)</td>
<td>1</td>
<td>35.571</td>
<td>25.926*</td>
</tr>
<tr>
<td>Error</td>
<td>130</td>
<td>1.372</td>
<td></td>
</tr>
<tr>
<td><strong>Within-Subject Effect</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty Level (DL)</td>
<td>1</td>
<td>.285</td>
<td>.849</td>
</tr>
<tr>
<td>CS×DL</td>
<td>1</td>
<td>1.476</td>
<td>.004</td>
</tr>
<tr>
<td>Error (DL)</td>
<td>130</td>
<td>.336</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**  *P < .05  
CS×DL = Interaction between Cognitive Style and Difficulty Level

**Summary**

For the students who did not enroll in the free/reduced lunch program, it was found that cognitive style affect student performance differently depending upon the type of assessment format (multiple-choice and performance-based assessments). Specifically, field-independent students scored substantially higher on multiple-choice than field-dependent students did (mean z-score of .73 versus-.81, respectively). However, no evidence of difference was found for performance-based assessment. The two groups performed similarly on the performance-based part of the proficiency exam.
When within group differences were examined, field-dependent students scored significantly higher on performance-based assessment than they did on the multiple-choice exam (mean z-score of .30 versus -.81, respectively). On the other hand, field-independent students performed lower on the performance-based assessment than they did on the multiple-choice test (mean z-score of .21 versus .73, respectively).
CHAPTER 5

QUALITATIVE FINDINGS AND RESULTS

Introduction: Attitudes of Field-Dependent/Independent Students
Toward Different Test Formats and Their Study Habits

As noted in Chapter 3, both students and teachers were interviewed. During student interviews, all the participants were asked the same questions in the same order. The student interviews (Appendix D) consisted of questions regarding the students' feelings and thoughts toward the two assessment formats (multiple-choice and performance-based assessments) as well as study techniques they applied for preparing themselves before exams. Another issue the interview questions were set to investigate was whether the students changed their study techniques depending upon the formats of the exam they were supposed to take. The student interviews were content analyzed separately for field-dependent and field-independent participants and compared with each other in order to detect similarities as well as differences between the two groups. For the analysis of the data, Lincoln and Guba's (1985) version of the constant comparative method was utilized.

The teachers' teaching styles (e.g., assessment formats they administer to students) might mask student differences in cognitive style. Hence, the teachers were asked detailed questions regarding their teaching styles, especially as pertained to assessment formats they applied throughout the semester although these results were not directly related to students' cognitive styles. These results were analyzed and are reported in the last section of this chapter.
The teacher interviews were also analyzed through the constant comparative method (Lincoln & Guba, 1985). The interviews were also analyzed separately for each cognitive style group, and comparisons were made between the groups. Thus, the teachers' reports regarding field-independent (FI) and field-dependent (FD) students were analyzed separately and compared for the two groups. The purpose of the interviews was to gain detailed information regarding performances of FD/FI students on different test formats; how they interact with various test formats; and assessment preferences of those students. Teacher perceptions and observations toward these issues provided better understanding of student achievement, their study habits and assessment preferences. Also, the knowledge gained from the teacher interviews helped in comprehending whether the student responses to various interview questions were in fact influenced by various teacher factors (e.g., assessment formats used by the teachers during the semester). This teacher information also triangulated the student responses regarding their performances, assessment preferences, and the reasons reported for them.

In addition to the teacher interviews, the teachers were asked to participate by providing some samples of exams and materials regarding the assessment formats they applied through the semester. These materials were taken into consideration when analyzing the data gathered from the teachers regarding types of test formats they administered throughout the semester.

The sample of materials and tests were reviewed in terms of their formats, and the data was combined with other information revealed from teacher interviews.
regarding the test formats they applied throughout the semester. Results of the analyses are presented in the following section.

In addition to the qualitative data analysis, Chapter 5 provides a review of the sampling procedure utilized in the qualitative part of the study. This section starts with the sampling issue and continues with analysis of student and teacher interviews.

**Sampling Procedure**

For the qualitative phase of the study, 18 field-dependent and 18 field-independent students were sampled in order to conduct the interviews. The students were selected based on their scores on the Group Embedded Figures Test (GEFT, Witkin et al., 1971). For the sampling procedure, a purposeful sampling (Patton, 1990) was applied. An advantage of this sampling technique is that it allows us to demonstrate the characteristics of each subgroup and compare the findings from those groups. This sampling strategy, based on extreme scores on the GEFT, was utilized to maximize the differences (MAXMINCON principles, see Tashakkori & Teddlie, 1998, p. 33) between the field-dependent and field-independent students. Also, in order to control for possible mediating effects of gender and ethnicity, a matched sampling procedure was used for selecting students. In each school, four students (two FD and two FI) were selected as follows:

a) The student with the highest score on the GEFT (an FI student) was selected. Then, from the other extreme end of the distribution of the GEFT, an FD student of the same gender and ethnicity was selected. Selection of a match started from the lowest score and continued until a match was found. If a match with the same gender and
ethnicity was not found in the low score group, then a student with the lowest score regardless of his/her gender and ethnicity was selected.

b) The student with the lowest score on the GEFT (an FD student) was selected. Then, from the other extreme end of the distribution of the GEFT, an FI student of the same gender and ethnicity was selected. Selection of a match started from the highest score and continued until a match was found. If a match was not found in the high score group, then a student with the highest score regardless of his/her gender and ethnicity was selected.

This procedure was repeated for each school in Sunshine Parish except two schools, one of which did not grant permission for interviews and the other that had only two eighth-grade French students. As mentioned above, the students were extreme (or deviant) members of each group; that is, in each group, students who were on either extreme of the field-dependence/independence continuum were selected. The purpose of this approach was to provide detailed information about members of the field-dependent/independent style who are more informative than typical members of the groups (Patton, 1990). Considering the fact that there is almost no qualitative information regarding assessment preferences and study habits of field-dependent and independent students.

The main purposes of the questions were to determine differences between the two groups in terms of their assessment preferences and study methods in a personal manner, that is, giving them a chance to express themselves regarding these issues. This information was intended to yield some knowledge about the characteristics of the
two groups that might impact their performances on various test formats. The data collection was accomplished through interviews that were conducted with each of the thirty-three selected students. The total sample was planned to consist of 36 students; however, two students did not bring the parental permission letters, and one student did not show up for the interview. The interviews were all audio-taped.

Table 5.1 contains the distribution and characteristics of the students who were interviewed.

<table>
<thead>
<tr>
<th>Table 5.1</th>
<th>Distribution of the Students Who Were Interviewed About Their Assessment Preferences and Study Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive Style</strong></td>
<td><strong>N</strong></td>
</tr>
<tr>
<td>Field-dependent</td>
<td>18</td>
</tr>
<tr>
<td>Field-independent</td>
<td>15</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>13</td>
</tr>
<tr>
<td>Black</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
</tr>
</tbody>
</table>
In order to obtain detailed information about the students' performances on various test formats, interviews were conducted with teachers of the 33 selected students as well. The total number of the teachers who were interviewed was 9. The teachers were asked to provide documents and examples of tests they used in teaching French throughout the year. The materials and examples of the tests were obtained from the teachers. The purpose of collecting these materials and tests was to obtain extra information about types of tests the teachers administered to the students. One of the purposes of the teacher interviews was to provide information about the students in order to improve the knowledge gathered through the student interviews. Another purpose was to identify the teacher factors (e.g., using different methods to prepare students before an exam, on the type of test they use for evaluating students) that might explain possible differences between the field-dependent and independent students.

The student and teacher interviews were conducted during May 14 to May 28 of 1999.

Analysis of Student Interviews

This sections introduces the findings revealed from student interviews. Each question was analyzed and is presented separately.

- Interview Question-1: Do you usually prefer your knowledge of French to be tested by multiple-choice type exams or by other techniques (such as essays, individual/group projects, and oral exams)? Why? Please explain.

The purpose of the above question was to investigate whether or not field-independent and -dependent students differ in terms of their assessment preferences and the reasons they reported for such choices. The question was analyzed separately for
the two groups (field-independent and field-dependent), and comparison was made between findings of the two groups in order to detect the similarities and differences between the groups.

Field-independent students:

Assessment preferences of the field-independent and -dependent students were investigated. In field-independent group, the majority of the students (13 out of 15; 86.7%) favored multiple-choice type exams over any other assessment format. Only one student stated that he preferred his French knowledge to be tested by projects and oral exams. He commented, "I like multiple-choice and projects too, creative projects. Like we had a calender, and I decorated it. Do all that kind of stuff." Still, another field-independent student indicated that he preferred composition of essays, projects and oral exams. He stated, "I prefer essays, projects, and oral exams although I assume multiple-choice would be the easiest one."

The students were asked to identify the reasons why they favor a certain assessment format over others. Two themes emerged from the constant comparative method: student-level reasons and test-level reasons. In the field-independent group, students reported the reasons for favoring the multiple-choice format. The test-level category included the following units:

- "easy to eliminate the choices,"
- "I can guess,"
- "answer is already given,"
- "easy to eliminate the choices."
The student-level category included the following units:

- "dislike toward writing,"
- "don't have to write the answer,"
- "seeing choices reminds me of the correct answer,"
- "multiple-choices are easier."

The majority of the students favored multiple-choice exams because of the guess factor, (i.e., being able to guess if the correct answer was not known). One student said, "Because I might not know the correct answer, but I have choices, so I can guess." Still another one commented, "In multiple-choice, even if you don't know the correct answer, you have four choices, and you can guess. And, you have 1/4 chance to be right." What the above two students commented upon seem to express the common thought that many of the students had about this type of assessment. One student also said, "Because it gives you an option in case if you are not sure about the right answer." Many other students expressed their feelings with words similar to those of the students quoted above.

After the "guessing factor," "easiness of eliminating bad choices to reach the correct answer" was the second common factor reported by the students. Many of the students seemed to feel that it was easy to eliminate the choices in multiple-choice exams in order to reach the correct answer in case of not knowing the correct answer. One student commented, "Because I think multiple-choice is easier for me to pick up the right answer. Another reason is that there are not many choices that you need to eliminate down in multiple-choice." Another student stated the following. "Like if you
don't know the word or anything, like you have a choice, and you eliminate the ones that you know aren't right."

The third reason was "being able to remember the correct answer after seeing the choices." One of the field-independent students expressed the feeling that "because sometimes I know the words, but I cannot remember, and when I see it, it is much easier for me to remember." Another student shared the same thoughts with the following, "Maybe if I see the answer down, it will reflect my mind, and I remember."

For the "student-level" category, field independent students indicated various factors. Many of the students described the multiple choice-format as an easy format compared to other assessment formats. One student commented, "I guess because it is easier." Another student stated "Because you just look at the answers and decide which one is correct. Some questions are easy not all multiple-choice." Still another student agreed, "Because it is just easier for me to pick up the right answer." It seems that the students liked multiple-choice exams because they had to spend minimum effort in terms of just reading and circling the right answer.

A few students reported that they did not like writing, so they preferred multiple-choice exams over the others. One student commented on that as follows, "You don't have to actually write.... Because in multiple-choice, it gives you an option in case if you are not sure about the right answer. But in essay you have to write."

The students who preferred other types of assessment formats revealed various thoughts. One student who favored combination of essays, projects, and oral exams commented, "Because they allow you to learn more. In multiple-choice, even if you
don't know the correct answer, you have four choices and you can guess." The student felt that the combination of the assessment formats would help them learn better.

Another student who preferred the essay exam in addition to multiple-choice shared the same thoughts and stated that "For essay, it helps us know more stuff, and it prepares us for other levels in French to write." One student who preferred multiple-choice and essay commented, "Since we are French-1, we only learn in kindergarten level. So it is fine writing what you know. ...I also like multiple-choice because it gives you the answers already. So if it is fill-in-the-blank, it is easier to put in a sentence. And if you are not exactly sure what the answer is, if you can see it you remember it."

It appeared that what the above student said about multiple-choice tests was consistent with thoughts of the other students who expressed their views earlier. Overall, the field-independent students seemed to like multiple-choice exams better than other assessment formats, specifically performance-based assessments.

Field-dependent students:

In the field-dependent group, responses were similar to what the field-independent group said. A majority of the field-dependent students (14 out of 18; 77.8%) favored multiple-choice exams over the other assessment formats. Only one student preferred projects and another one favored both projects and oral exams. Another student favored combination of all types of assessment formats (e.g., multiple-choice, projects, oral exams).

Again students were asked to specify reasons for favoring certain assessment types over others. The student responses revealed similarities. The majority of the
students indicated that they preferred multiple-choice exams because these exams allowed them to guess when they didn't know the correct answer. One student commented, "Because it is easier to guess if you don't know the answer." Many other students shared the same thought. Another student stated, "If you don't know the answer, you can choose."

The "guessing factor" was followed by a common thought that multiple-choice format was easier compared to other formats. One student commented, "Because I think it is easier and gives you samples with different choices." Another student stated, "Because it makes it easier. You know more about topics than you have to write about it." The student seemed to think that in terms of amount of information required, multiple-choice exams required less effort, and that was what made them easier than the other test formats. One student expressed the idea that "It gives you choices. If you don't have the answer, it gives you the structure of the answer."

The third most frequently reported reason was easiness of eliminating wrong choices to reach the correct answer. The students felt that it was easier for them to eliminate incorrect choices and reach the correct answer when they were not sure about the correct answers. One student commented, "It is easier. If you don't know the answer, you can cancel out some and make the best choice." Another student agreed, "If you don't know the answer, then you can use elimination." Another student stated that, "It gives you choices. You can eliminate answers if you are not sure about the right answer." Only one student reported that he did not like writing, so he preferred the multiple-choice format. He commented as follow, "Also, it is usually better to
answer because in essay you have to write long, but in multiple-choice you just have to put it down."

The only student who favored a mixture of all types of assessments explained that students had different understanding levels on different subjects in French, and different assessment formats required varying degrees of understanding and difficulty in these subjects. Therefore, by having a mixture of different tests, students could make use of information they had in their mind. The student expressed the idea that, "in some areas you know more than you know in other areas. So you have more to say in some areas and not in others. If I have a mix of many methods, I can guess."

The only student who favored both projects and oral exams seemed to feel that the formats allowed him to have more enjoyment. The student expressed his feelings as follows, "With projects you get to do more things. You get to have fun, like you get to dress up, you do your presentations orally instead of writing them down and forgetting all the words."

**Comparison of the Two Groups:**

The findings of the above question suggest that regardless of their cognitive styles, the majority of the students (86.7% and 77.8% for field-independent and field-dependent students, respectively) favored their knowledge of French to be tested by multiple-choice type assessment (Table 5.2). The two groups were not very different in their preferences. Only a small proportion of field-independent and field-dependent students favored some form of performance-based assessment (e.g., essays, projects, oral exams) or some combination of these formats. The result suggested that the main
reasons why both student groups found multiple-choice exams attractive was that they felt that this assessment format was easier than other formats because they always had a chance of guessing the correct answer in case they did not know the answer.

Table 5.2 The Frequency Distribution of Responses to "Do You Usually Prefer Your Knowledge of French to Be Tested by Multiple-Choice Type Exams or by Other Techniques (Such As, Essay, Individual/Group Projects, and Oral Exams)?

<table>
<thead>
<tr>
<th>Assessment Approaches</th>
<th>Field-Independent</th>
<th>Field-Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple-choice</td>
<td>13 (86.7%)</td>
<td>14 (77.8%)</td>
</tr>
<tr>
<td>Fill-in-the-blank</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Essay</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Projects</td>
<td>0 (0.0%)</td>
<td>1 (5.6%)</td>
</tr>
<tr>
<td>Oral exam</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Project, &amp; Oral exam</td>
<td>0 (0.0%)</td>
<td>1 (5.6%)</td>
</tr>
<tr>
<td>Project &amp; Multiple-Choice</td>
<td>1 (6.7%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Essay, Projects,&amp; Oral exam</td>
<td>1 (6.7%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Mixture of all of the above</td>
<td>0 (0.0%)</td>
<td>1 (5.6%)</td>
</tr>
<tr>
<td>No preference</td>
<td>0 (0.0%)</td>
<td>1 (5.6%)</td>
</tr>
</tbody>
</table>

Interview Question-2: How do you usually prepare or study for your exams?

The second question was an attempt to gain information regarding the study habits of students. Another purpose of the question was to investigate whether field-independent and field-dependent students vary in terms of their study habits.

Responses to this question were grouped into three categories: "study techniques,"
"study materials" and "individual/group study." The reported study techniques used by
the students during preparation for an exam were categorized as follows in terms of
different aspects of the issue:

1. Reading over the material
2. Memorization
3. Both reading and memorization
4. Other techniques (e.g., writing down)

The students also reported that they mostly used one of the following "study materials"
when they prepared for exams:

1. Study guides/ work sheets and notes
2. All materials (textbooks, notes, and study guides)

The students also were categorized into the following categories in terms of their habits
of studying alone or with a group:

1. Group study
2. Individual study

Field-independent Students:

Approximately half of the field-independent students (46.7%), as seen in Table
5.3, reported that the majority of the time, they only went over and read the material
that was covered by the exam or their teachers told them they would be required to
know for the exam. One of the students stated, "Normally, I just read the chapters
because whenever I read it, usually it sticks with me. Also our teacher normally gives
us a study guide to look at, and I go over the study guide." Another student reportedly
<table>
<thead>
<tr>
<th>Categories</th>
<th>Field-Independent</th>
<th>Field-dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Percent</td>
</tr>
<tr>
<td><strong>Study Techniques:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading over notes</td>
<td>7</td>
<td>46.7%</td>
</tr>
<tr>
<td>Memorization</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>Reading &amp; memorization</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>13.3%</td>
</tr>
<tr>
<td><strong>Study Materials:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study guide/worksheets &amp; notes</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>All materials (textbooks, notes, &amp; study guides)</td>
<td>8</td>
<td>53.3%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>26.7%</td>
</tr>
<tr>
<td><strong>Individual/Group Study:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group study</td>
<td>6</td>
<td>40.0%</td>
</tr>
<tr>
<td>Individual study</td>
<td>9</td>
<td>60.0%</td>
</tr>
</tbody>
</table>
read the notes and other materials several times until he understood them. The student reported, "I just go over the works, notes and stuff the teacher gives me. I read it once or twice or whatever and prepare for it." Another student reported that he just reads over notes and tries to picture the structure of the material in his mind during the exam. He stated that "I just read I don't memorize it. I sometimes picture the paper in my head and see how it was done, the way it looks like."

Only 20 percent (n=3) of the field-independent students indicated that most of the time they used memorization as a study technique and memorized materials before taking an exam. One student expressed it as follows, "I just look and memorize it." Another student also commented in the same way, "I usually memorize stuff."

Three students (20.0%) indicated that although they only went over and read materials before taking a exam, sometime they memorized some of the materials, especially meanings of French words and different forms of the words. For example, one of the students reported, "For vocabulary, most of the time, I make flash cards. For the rest, mostly I just read through my notes and books. I read it, and sometimes I memorize, but mostly I read." Another student reported, "I read materials or notes. I usually study for vocabulary, words, or nouns. I just go over and read them and memorize their meanings and words." One student stated that he usually did not study for exams, but when he did, he both went over and read the material and also memorized them. The student stated, "I don't really study. I just try to concentrate on having a good night's rest the night before. I don't worry. I just try to remember what I have already learned. But when I am studying, I read and memorize too. I do both."
Two students (13.3%) did not indicate a specific study method that they used when studying for an exam. One of them reported, "I just study guides. So...."

Field-independent students tended to show a variation in terms of the study materials they used in preparing for an exam. For category study materials, three field-independent (20.0%) students reported that they usually reviewed class notes, study-guides or work-sheets given by their teachers to get ready for an exam. One student reported that "she (teacher) gave us a study guide, and I studied it. Some of them I already know because I took it last year. So I just know it. It is quite easy actually."

Another student said, "If we have a study-guide or work-sheet, I go over it. We usually don't work or read a lot of books. So it is mostly work-sheets, and I am using them to help myself." One student commented, "I usually go over the notes and stuff the teacher gives me. I read it once or twice or whatever and prepare for it."

On the other hand, eight students (53.3%) reported that they went over their notes and study guides and read the text books to get ready for exams. One of the students commented, "I just read the chapter because whenever I read it, it usually sticks with me. Also, our teacher normally give us a study guide to look at and I go over the study guide." Another student indicated that he goes over work sheets and studies over work sheets. "And I look in the book, and she gives us basic ideas about what will be on the test." One student said, "I bring books home and study all of the capital words that we need to know. And I review work-sheets and all exercises and stuff." The interviews suggested that the students tended to review all the materials they had for exams.
For students who were classified into "other" (26.7%), one student told the interviewer that she prepared flash cards to study French words before an exam, but the other three students did not specify the sources they studied.

In regard to the "individual/group study" category, six (40%) field-independent students indicated that they got help from their friends, parents or siblings when they were studying for exams. The help they received as having help givers quiz them or explain some of the materials. One student commented, "I tell my mom to call up French words, and I tell their English meaning." Another student also stated that "I just go over stuff and get my parents to try it out." One other student also reported that she received help from her mother when studying for an exam: "Sometimes I get my mother to ask stuff out of the book, and I answer her." Another student indicated that, first, she usually studied with a friend then read it over again by herself. "Usually, I'll study with a friend or something and read it out, and then I would just study like that or go over it and read all my stuff over again." The other field-independent students (60%) studied by themselves for exams.

Field-Dependent Students:

In terms of the "study techniques," only five (27.8%) field-dependent students, as seen in Table 5.3, reported that they usually read over materials for getting ready for an exam. One student commented, "I write down and just read over it." Another student reported that he read over the material several times until he comprehended it well enough. He commented as follow "I just go over the material like four or five times."
Three field-dependent students (16.7 %) reported that although they usually just read over the material, they use memorization for some parts (for example, for the meaning of French words). One student reported, "Sometimes I listen in class, and sometimes I try to memorize words. At home, sometimes I use flash cards and read over material. I read it, and sometimes I memorize it. " Another student commented, "I read it. Depending upon what it is on, what I have to study, I may memorize. I usually read over and work stuff." Another student reported similar study habit: "I read over all my material. I memorize some of it." It seems that the students switch their study method from just reading over material to memorizing it depending upon the content of the materials. For example, they tended to memorize words and meanings of the words in English.

Six of the field-dependent students (33.3 %) reported that they usually memorized the materials before getting ready for an exam. One student commented, "I review French words and just learn the stuff. I memorize it." Another student indicated that "she (teacher) gave us work sheets which have vocabularies and works. I memorize the sheets she gave us to study." Two of the students indicated that they wrote down materials and memorized them as they wrote. One of them commented, "I go over the key terms of the subjects. I write them down and memorize them as I write down." The second student agreed, "I read over previous stuff. I memorize and also write down like in putting notes. But more than writing, I memorize mostly." It seems that the two students used writing as a part of the memorizing process more than a study method itself. The interviews with the above students suggested that they tended
to memorize everything that they were planning to study on, regardless of the contents or topics of the materials. The students who were classified into "other" (Table 5.3) (22.2%) did not specify their study methods.

Considering the "study materials" category, seven of the field-dependent students (38.9%) indicated that they usually studied from study guide/work sheets and notes for exams. One student stated, "She (teacher) gave us a study guide. I usually study the study guide. If she gave it to us a week earlier, I study it 30 minutes every day." Another student commented, "I just go over what she (teacher) gave us. I read it."

Six students (33.3 %) reported that they used all the materials (e.g., text books, study-guides and notes) they had to get ready for an exam. One of the students said, "I read over all my material." Another student commented that he tended to study everything he was supposed to know. "I study whatever we have to study" he said. One of the students reported that she usually studies from the textbook and projects: "We have a text book, and I study over my text book and stuff that we have for projects." It seems that the students tended to study almost all the materials that would be covered by an upcoming exam.

Among the five students (27.8) who were classified into "other," one told that he only studied his notes for an exam. The two other students reported that they usually reviewed questions before an exam, but they did not specify whether the questions were included in work sheets or in their textbooks. The other three students also did not reveal information related to sources they studied for exams.
Considering the category "individual/group study" (Table 5.3), among field-dependent students, only five (27.8%) reported that they asked their parents or friends to help them when they were studying. One student reported that she, first, studied materials and then was quizzed by her brother. "I write down and just read over it." she said. "I have my brothers or someone else to quiz me." Another student described how she studied with her mother: "I usually study with my mother because she is teaching French in high school, so she can help me to go over it. She asks me to repeat the notes orally with her." Another student indicated that he usually studied by himself and then got help from his parents. "I study myself; then, I hand it to my parents." Another student commented, "I go home, then read questions and have my mom to ask me questions about materials that would be on the test. So mom helps me."

Majority of the field-dependent students (72.2%), on the other hand, reported that they mostly studied by themselves and did not receive help from others.

Comparison of the Field-Independent and -Dependent Students:

Overall, the data indicated some variations between the two student groups. The most obvious contrast was study techniques used by the two groups. The findings suggested that compared to field-dependent students (27.8%), more field-independent students (46.7%) tended to just read over the material as a main study method before an exam. Compared to field-dependent students, field-independent students tended to concentrate on "reading over notes" when studying. Although reading over the material was the most frequently used study method among field-independent students, the most frequently applied study method among field-dependent students was memorization.
(33.3%). Only 20.0 percent of field-independent students favored memorization as a main study technique. It appeared that more field-dependent students adapted "memorization" as their major study technique whereas field-independent students tended to use "reading over notes" as a major study technique.

Another interesting finding was that among the field-independent, 20 percent of the students indicated that they used both memorization and reading over as study methods before exams. The findings suggested that almost the same percentage of field-dependent students (16.7%) also tended to use both methods. These students, in both groups, seem to switch their study methods from memorizing to reading over or vice versa depending upon the material they were studying. They usually preferred to use memorization when they studied for words or meanings of the words in English and used reading over for other materials. The findings suggested that these two types of students tended to have different study habits in terms of the methods they used to comprehend materials.

Considering the materials they used to study for exams, the findings suggested that the two groups might differ. More students in the field-independent group used multiple sources to study (e.g., study sheets, notes and books) than field-dependent students used.

In terms of the individual/group study habits, the results suggest some variations. Unlike field-dependent students, more field-independent students preferred to study with a group or ask help from others, for example family or friends (40.0%). On the other hand, most of the field-dependent students preferred to study alone and
didn't ask for help from others (72.2%). However the difference between the two groups was not deep. In both groups majority of the students preferred to study alone.

Interview Question-3: How did you prepare for the French Proficiency Exam during the last few weeks?

The purpose of the above question was to gain detailed information about how students got ready for the French Proficiency Exam so as to understand whether there was a variation regarding ways the field-independent and -dependent students applied themselves to get ready before the proficiency exam. Two categories were found to compare responses of the two types of students. The categories were "class activities" and "sources." The categories were investigated separately for the field-independent and -dependent students, and then the findings were compared between the groups.

Field-Independent Students:

For the category "class activities," seven field-independent (46.6%) students reported that their teachers prepared them for the French Proficiency Exam. Some of the activities they did in class were reviewing previous materials; taking several listening, reading, writing, and oral exams as rehearsal for the proficiency exam; having students make oral presentations in front of the class; and going over some common questions that were asked by students. One student (female/other) reviewed the preparation they did in class. "Our teacher prepared us," she said. "She gave us all these works: oral test, oral speaking, writing on computer, essay.... We got everything that was asked in the test." She added how much her teacher gave homework as part of the preparation for the exam. "At home she gave us much homework, and we have to do it
every day." One of the students (male/white) told the interviewer that they reviewed materials that would be on the exam: "Our teacher went over the stuff that she said might be on the test and we took notes." Another student (female/other) reported that she used class notes and asked her sister to help her for the preparation. "She (teacher) reviewed from French-A and French B and I took some notes. Because I have a sister in French-B, I took some notes from her. I studied them and it helped me." One student (male/black) reported that except for class activities, he did not do anything at home. "I did not really do that late charges. I did class work. That is about it." Another student reported that he did not study at all.

Some other students stated that they only went over their notes and textbooks at home to get ready for the exam. One of them reported, "I kind of looked over through the chapters, kind of reviewed. I did not really study. I did not know what stuff would be on the test. I kind of went through the chapters and reviewed over them and hoped for the best."

For the category "sources," among field-independent students, six (40%) reported that they reviewed their class notes. One student reported, "In class we played games and prepared. And I looked over my notes." Another student (male/white) also reported that, "our teacher went over the stuff that she said might be on the test, and we took notes. And I just studied my notes. I mostly knew the stuff, but I just read and refreshed my memory and tried to memorize a few." However, one student (male/other) commented that he basically repeated everything they did in class. "At home, I did basic things that we did in class. We went over a lot of vocabulary and
fresh memory on stuff like that, went back to earlier chapters to review, and went over basic questions that people asked in French. I did them at home too."

Two students (13.3%) reported that they reviewed only their text books to get ready for the exam. One of them said, "I just flip through the French book. And I took a test in French at Louisiana State University, so I had a lot of stuff in my head. I had to memorize some vocabulary and terms" Only one student stated that he studied from study-guides. He (male/white) said," I looked over and read the study guides my teacher gave me."

Field-Dependent Students:

Similarly, nine out of eighteen field-dependent students (50%) reported that they were prepared by their teachers by applying the similar activities reported for field-independent students; reviewing previous materials in class, taking several listening, reading, writing, and oral exams as rehearsal for the proficiency exam, having students to make oral presentations in front of the class, and going over some common questions asked by students. Five out of the nine students reported that they also studied at home through reviewing the notes they took in class during the preparation. One student (female/black) told the interviewer that she would get ready in class and then ask someone in her family to help her for studying. "We prepared some in class. She (teacher) gave us things, like words, we have done over the year. I just looked over that and made sure I knew how to use them properly. With vocabulary, I would write down different stuff and make sure they were right. Then, I asked someone in my household if it was right." Another student (female/black) reported "We went over the material in
class. We had lots of notes to take, so I went over it with my older sister. She just helped me with it. They were like basic things that we went over in class." Another student (male/other) described his method of preparation as follows: "She made us do some oral talking in front of the class. I just write down some topic about what it was going to be and just memorized it. I also write down some terminology and translated them."

On the other hand, one student (male/black), unlike the others, told the interviewer that he went the library specifically for studying the exam. He stated, "I went to the library and looked at French textbooks and studied stuff like that." Also, another student (male/other) commented that besides class activities, he did not study at home. He stated, "We went over it in the class. We used the book. We read over some usual things that should be in the proficiency test. At home, I did not study." Two students reported that they did not study for the French proficiency exam in any way. One of them (female/black) reported that, she did not know about the exam.

Considering the category "sources," among the field-dependent students, as among the field-independent students, only six students (40%) used their previous class notes to get ready for the exam. One of them commented, "We went over stuff in class. At home, I read over the stuff that she used for preparing us." Only one student indicated that she studied from text books. Two students (13.3%) used their study guides to get ready for the exam. One of them (male/white) said, "I just look at the study guide and read and memorize it." Three field-dependent students (16.7%) reportedly studied from several sources (books, notes, study guides) for exams.
Comparison of the Field-Independent and Field-Dependent Students:

Overall, both field-independent and field-dependent students reported that they were prepared for the French Proficiency Exam by their teachers in class (46.6% and 50%, respectively). In both groups, 40 percent of the students indicated that besides classroom activities, they reviewed their class notes as a preparation for the proficiency exam. As evident from the results, the findings did not suggest a difference between the two groups in terms of preparation for the proficiency exam.

• Interview Question 4: Do you change your study methods depending upon the type of exam (test format) you will take? For example, do you change your study methods when studying for multiple-choice or essay or project or oral exams? If yes, what changes do you make? Please explain.

The purposes of the above question were to investigate whether students changed their regular study habits depending upon the format of exams they were going to take and whether responses would change depending upon cognitive styles (field-independent and field-dependent) of the students. Table 5.4 summarizes the findings obtained from both field-independent and field-dependent students related to changes they made for different assessment formats.

Field-Independent Students:

A summary of responses appearing in Table 5.4 shows that field-independent students tended to adjust their study methods depending upon the type of exam they took (40%). Six field-independent students (40%) reported that they only studied meanings of different words for multiple-choice and some other type of objective tests.
Table 5.4  The Frequency Distribution of Responses to "Do You Change Your Study Methods Depending upon the Type of Exam (Test Format) You Will Take? For Example, Do You Change Your Study Methods When Studying for Multiple-Choice or Essay or Project or Oral Exams?"

<table>
<thead>
<tr>
<th>Cognitive style</th>
<th>Yes</th>
<th>No</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field-independent</td>
<td>6 (40%)</td>
<td>9 (60%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Field-dependent</td>
<td>4 (22.2%)</td>
<td>11 (61.1%)</td>
<td>3 (16.7%)</td>
</tr>
</tbody>
</table>

(e.g., fill-in-the-blank). One student (female/white) reported that, "For multiple-choice, since it is easier for me, I would not study much. If it is a multiple-choice test on vocabulary, I would just review the meaning of words to know what I am doing." Another student (male/white) stated that for multiple-choice exams he changed topics that he would study, "For multiple-choice I don't study a whole big idea," he said. "I just study certain things like what different words mean, stuff like that." Another student (female/other) stated that she would only study words for this type of assessment. She said, "If it is multiple-choice, I study words from books." One student (male/white) told that he would use memorization as a study technique for multiple-choice type exams. He stated, "I usually memorize stuff when I have multiple-choice exams."

Four other students (26.7%) indicated that they did not spend much time studying for multiple-choice type exams. One of them (female/other) stated that "if I have multiple-choice, I already know the words. So all I need to do is look on it and
answer. If it is fill-in-the-blank I study meanings." Another student said, "For a multiple-choice test, it is easier because you can just look at the word and find the definition." As a reason for not studying for multiple-choice type exams, students indicated that they found objective tests easier than other types.

For essay exams, students indicated that they spent more time on essay than multiple-choice exams for preparation. One student commented, "For essay, I would study sentences and work on how to put them together just to make sure that I am using correct grammar and all that stuff." The students also reported that they mostly studied how to form different sentences with different words when studying for essay exams. One student agreed, "If it is essay, I study how to form the sentences with some words and see what kinds of words to use to make better sentences." Another student (male/white) told the interviewer that he would try to understand the main idea for essay exams. The student commented, "For essay exams, I study whole idea, and try to get comprehension about stuff."

Field-independent students also reported that, as in essay type exams, they would spend more time studying for oral exams than they would for multiple-choice exams. One student (female/white) said that she would study oral exams the same ways she was studying for essay exams. She stated that "For essay I would study sentences and work on how to put them together just to make sure that I am using correct grammar and all that stuff. For oral, I would do the same thing as for essay."

Three field-independent students (20%) told the interviewer that they practiced pronouncing various words and sentences before an oral exam. One of the students
(male/white) commented, "For oral and essay exams, I try to read them and talk with my brother." Another student (female/other) commented in the same way: "For oral, I say the words aloud, and I read some questions from the book and try to answer them."

Two students reported that they memorized materials that they would have to present during oral exams. Another student (male/other) said, "For oral exams, I review the book."

For project type exams, students did not report different study habits. Only two field-independent students reported that they would use the computer or internet to prepare projects. One of them (female/other) commented, "For projects, we get it on the computer and do it on the computer."

Overall responses suggested that rather than study techniques, students changed topics they studied and the amount of time they spent on preparation for different formats of exams.

**Field-Dependent Students:**

Only 22.2 percent (Table 5.4) of the field-dependent students (four students) reported that they changed their study techniques depending upon the assessment format. Three field-dependent students (16.7%) indicated that they did not invest time for studying multiple-choice exams. One of them (female/black) commented, "I don't study for multiple-choice at all because I choose what is the best goal for the sentence. So I let the answers help me. I study for other types." Another student (female/black) described how she found multiple-choice exams to be convenient: "For multiple-choice, you can go to the answer, and you just pick." Similar to field-independent students,
field-dependent students indicated as a reason of not studying for multiple-choice that they found objective tests easier than other types. On the other hand, three field-dependent students reported that when preparing for multiple-choice exams, they read over all the materials since this type of exam requires exact answers. One student (male/white) commented that "if it is multiple-choice, since it will be an exact answer, I go over things and read everything." Another student (male/other) agreed, "Like, if it is multiple-choice, I just study what she gave us, if she gave us anything."

For essay exams, similar to field-independent students, field-dependent students indicated that they invested more time on essay than multiple-choice exams for preparation. The students also indicated that they mostly studied how to form different sentences with different words when studying for essay exams. One of them (male/white) commented, "If it is essay, I practice making sentences." One student (male/other) told the interviewer that he would concentrate on understanding the general idea about topics, "If it is essay, I would go over the main topics that we probably went over." One student (female/black) reported that she would memorize materials before an essay exam.

Considering oral exams, as the field-independent student did, two field-dependent students also reported that they memorized what they would have to talk about during oral exams. One student stated, "For oral exams, I memorize what I am going to say." The field-dependent students also told the interviewer that they tended to study more for oral exams than they would for multiple-choice exams. One student (female/white) commented, "If I know it was going to be a test where you had to say
things out loud versus multiple-choice, I would study more for an oral test than the multiple-choice."

For projects, the students did not indicate any specific study technique. Overall, the responses suggested that rather than study techniques, students tended to change topics they studied and the amount of time they invested in preparing for exams.

Comparison of the Field-Independent and -Dependent Students:

Overall, the data indicated that compared to field-dependent students, more field-independent students attempt to make some kind of adjustment in their study habits when studying for different test formats (40% versus 22.2%, respectively). However, responses to the questions above suggested that both field-independent and dependent students who reported that they adjust their study habits depending upon the test format, changed the amount of time they spent on exams and specific topics (e.g., word meanings or comprehending general ideas they were studying when taking various type of exams). Only a few students in both groups reported that they used specific techniques (e.g., memorization, writing down) depending upon each assessment format. For oral exams, a few students reported that they practiced pronouncing various words. Both groups spent the most time on projects and then essay and oral exams. They invested the least time on multiple-choice type exams because they found them easier than other formats, and they knew that they always had a chance to guess. On the other hand, compared to field-dependent students, more field-independent students (22.2% versus 40%) tried any form of change (e.g., amount of time) in their study habits depending upon the assessment format.
Overall, responses to the questions above indicated that more field-independent students did make some changes in their regular study methods. However, both field-independent and -dependent students only change the amount of time they spent on exams and topics they would study (e.g., word meanings or comprehending general ideas they were studying when taking various types of exams). Both groups spent the most time on projects and then essay and oral exams. They spent the least time on multiple-choice type exams because they found them easier than other formats and they knew that they could use guessing.

- Interview Question-5: Did you know how you were going to be tested for the French Proficiency Exam?

The purpose of the above question was to examine whether students who took the French Proficiency Exam were aware of general knowledge with regard to sections, formats, and contents of the proficiency exam that might help them to get ready for the exam. This information was important in terms of explaining and justifying any existing performance differences between field-dependent and independent-students. A summary of responses appears in Table 5.5.

**Field-Independent Students:**

As Table 5.4 shows, approximately two-thirds of the students reported that they had some knowledge regarding the way they would be tested by the French Proficiency Exam. One student (female/white) explained what she knew about the exam as follows: "Yes. I knew that we would go to a room with the teacher and talk a few minutes about anything out of the blue. She would just give something, and you
Table 5.5 The Frequency Distribution of Responses to "Did You Know How You Were Going to Be Tested For the French Proficiency Exam?"

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field-independent</td>
<td>10 (66.7%)</td>
<td>5 (33.3%)</td>
</tr>
<tr>
<td>Field-dependent</td>
<td>7 (38.9%)</td>
<td>11 (61.1%)</td>
</tr>
</tbody>
</table>

would have to talk about it. Also, I knew that there would be a listening part. But I didn't know anything else except listening and oral." Another student (female/other) described her expectation for the exam based on what she heard about it: "I expected a standardized test includes multiple-choice, oral, and writing parts." One student (female/white) expressed her concern about the different accent that she would be expected to encounter during the French Proficiency Exam: "I knew there would be written work and oral work, but I did not know if there would be multiple-choice or not. I knew French people have different accents." One student (male/other) reported that he had a clear idea what to expect from the exam. He said, "I had a pretty good idea what it would be about. We had to write sentences and stuff. We had been doing a lot of general writing. She (teacher) gave us a topic to write on." Another student (female/other) seemed to have disappointment about the difficulty level of the exam. She commented, "I didn't know it would be that difficult. I was expecting it to be easier. The way she (teacher) was explaining it was easier. But I know the sections in detail. She told us." Another student (female/other) told the interviewer that she heard
from a friend about the exam. "I heard from a friend who took the test last year that there would be a multiple-choice part and a written part, and I have to make up something and write about it." The interviews suggested that more than the content of the tests, the students knew about the sections (e.g., writing, listening) of the exams.

**Field-Dependent Students:**

As appears in Table 5.5, only 38.9 percent of the field-dependent students reported that they had some knowledge about the contents or sections of the French Proficiency Exam. Another 61.1 percent of the students told the interviewer that they did not know how they would be tested by the exam. One of them (male/other) stated that he thought most of the test would be oral. One student (female/white) reported that she did not know about the exam because until the last few days before the test, her teacher was not sure whether the testing was mandatory or optional. Another student (female/black) told the interviewer that she heard from a friend a few days before the testing.

Among the students who replied that they were aware of the details of the exam, one student (female/white) reported that their teacher informed them about the exam, "Yes our teacher told us we would have to write and listen," he said. "And she told us there would be multiple-choice questions." Another student (female/black) also commented that her teacher informed the students in class that there would be multiple-choice, oral, and other sections. One student (female/black) stated that although she was told about the sections of the proficiency exam, she did not know about the topics or contents that would be on the test. "I knew that we would have
comprehension, reading, and multiple-choice parts. But I wasn't exactly sure what type of things would be in the test."

The interviews suggested that less than half of the students had a clear idea about the exam in terms of the sections (e.g., writing, oral) of the exam. Only a few students said that they had some ideas about the topics that would be covered by the French Proficiency Exam.

**Comparison of the Field-Independent and -Dependent Students:**

The findings indicated a contrast between the two groups. As Table 5.5 shows, the majority of the field-independent students knew how they were going to be tested by the French Proficiency Exam in terms of sections included in the exam. The students from both cognitive style groups told the interviewer that they were informed by their teachers about the test and which sections would be included. More than contents or topics of the proficiency exam, students had information about which sections (e.g., listening, writing) would be covered by the exam.

In comparison to field-independent students, a majority of the field-dependent students (61.1%) reported that they did not know about the proficiency exam considering the sections and the content of the exam. Some students reported that they did not know about the exam because their teachers were not sure whether the testing was mandatory.

Motivation level of the students may be one reason why the most of field-dependent students reported that they did not know about the exam since both types of students were sampled from the same classes.
Interview Question-6: Did you change your regular study method to prepare for taking the French Proficiency Exam?

The purpose of the question above was to probe whether students attempted to modify their regular study habits before taking the French Proficiency Exam. Another purpose was to seek whether the field-independent and -dependent students behaved differently related to the issue that would suggest if one group tended to modify their study habits in contrast to the other group. Table 5.6 summarized the responses to the question, asking if they did any change in their study methods to prepare for the proficiency exam.

Table 5.6 The Frequency Distribution of Responses to "Did You Change Your Regular Study Method to Prepare For Taking the French Proficiency Exam?"

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field-independent</td>
<td>0 (0.0%)</td>
<td>15 (100%)</td>
</tr>
<tr>
<td>Field-dependent</td>
<td>1 (5.6%)</td>
<td>17 (94.4%)</td>
</tr>
</tbody>
</table>

Field-Independent Students:

As it appears in Table 5.6, none of the field-independent students attempted to change his/her regular study habits in order to prepare for the French Proficiency Exam. However, although they did not modify their study habits, three students reported that they studied longer and harder for the exam. One student (female/other) reported, "I studied longer. But I wrote stuff down and read it, read stuff in the book. I did not
really change my method. I read it once, and then if it was important I read it again. Then it sticks." Another student (male/white) reported in the same way, "I studied harder and more, but I did not change my way of studying."

Field-Dependent Students:

Among the field-dependent students, only one (female/black) reported that she changed her study habits for taking the proficiency exam. She told the interviewer that regularly she would study with a friend, but for the French Proficiency Exam she preferred to study alone. She commented, "I changed my study technique just a little bit. I did not study with a partner because I was going to take the test alone. I just did the same thing. The book, answers and trying to remember things."

Other students said that they did not change their study methods. Three of the students stated that the only thing they changed was that they only studied harder. One student commented, "I just went over more, but I did not change the method." Another student commented, "I just studied more and in detail."

Comparison of Field-Independent and -Dependent Students:

Responses to the question above recommend that regardless of their cognitive styles, except for one student, none of the students changed his/her study method for taking the French Proficiency Exam.

Only one of the field-dependent students indicated that she changed her study method because although she usually preferred to study with a friend for her regular exams, she choose to study alone for the exam since she had to take the proficiency exam by herself.
On the other hand, four students in the field-dependent group and three students in the field-independent group said that they studied harder and in greater detail than they tended to do for regular exams.

Interview Question-7: a) Do you spend different amounts of time studying for different types of exams (e.g., multiple-choice, essay, oral exam, and project)? If yes, why? 
b) How many hours do you spend studying for each major type of exam (multiple-choice, essay, oral, and projects)?

The purpose of the above question was to investigate whether field-independent and field-dependent students tended to change the amount of time they invested depending upon the type of test format (multiple-choice and performance-based assessments) they were going to take. As it appears in Table 5.7, in both field-independent and field-dependent students (86.7% and 88.9%, respectively), the majority of the students reported that they adjusted the amount of time they spent when studying for different test formats (e.g., multiple-choice, essay).

Table 5.7 The Frequency Distribution of Responses to "Do You Spend Different Amounts of Time Studying For Different Types of Exams (e.g., Multiple-Choice, Essay, Oral Exam, and Project)?"

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field-independent</td>
<td>13 (86.7%)</td>
<td>2 (13.3%)</td>
</tr>
<tr>
<td>Field-dependent</td>
<td>16 (88.9%)</td>
<td>2 (11.1%)</td>
</tr>
</tbody>
</table>
Field-Independent Students:

a) Among the field-independent students, many of them (13) tended to adjust the average time they spent studying for various test formats. One student (female/white) said that she usually studied less on multiple-choice type exams compared to essay exams. She said, "Yes. I study less for multiple-choice. Multiple-choice is easy and quick because for essay, I would try to work more on it. Because it is harder for most people. If you are writing, you have to make sure that it is good because, like, our teacher takes off if something is not right. I need to know what I am writing, the subject I am writing about, and try to present it." Another student (male/white) commented in the same way, "Yes, because for multiple-choice you don't have to study that hard because the answers are on the paper. You just don't know which one is the correct answer. But for essay, you have to write something."

One student (male/white) commented that he would study more for all types of exams except multiple-choice exams. "Yes. In multiple-choice I usually spent less time because it is just like memorizing it. And in multiple-choice, I usually get a pretty good idea what we will need to look at. I can usually get it from that. In essay and others, I spend more time because I need to better comprehend it. Then I can write about it. And in essay usually there are more materials to look at." On the other hand, another student (female/other) commented that she would study less for essay exams than she would for some objective type exams. She commented, "Yes, for essay I study less, because I know the words in the back of my mind. For fill-in-the-blank, I study more because they don't give the words for me, and I have to know the meanings of..."
words. If multiple-choice, it is easy with options. Fill-in-the-blanks, sometimes I don't know the words."

Similarly, another student (male/white) stated that, he would study less for essay exams than for multiple-choice exams. He commented, "Yes. I usually study more for multiple-choice than for essay. Because for essay, you can write whatever you learn. In oral, we usually try to memorize whatever we need to know." Another student (male/white) told the interviewer that he adjust the amount of time he spent on studying depending on how long the material takes to study.

b) The students were also asked about the average amount of time they spend on each assessment format. Table 5.8 summarized the responses to the question.

Table 5.8 Averages Amount of Time Spent by Field-Independent and Field-Dependent Students For Various Test Formats

<table>
<thead>
<tr>
<th>Test Format</th>
<th>Field-independent</th>
<th>Field-dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hour: minute</td>
<td>hour: minute</td>
</tr>
<tr>
<td>Multiple-choice</td>
<td>0:54</td>
<td>0:56</td>
</tr>
<tr>
<td>Essay</td>
<td>1:16</td>
<td>1:13</td>
</tr>
<tr>
<td>Projects</td>
<td>2:20</td>
<td>3:00</td>
</tr>
<tr>
<td>Oral exam</td>
<td>1:05</td>
<td>0:57</td>
</tr>
</tbody>
</table>

As seen in Table 5.8, the average time the students spent studying for exams ranges from 54 minutes to 2 hours and 20 minutes for field-independent students. From the student responses, it seems that the students they spent most of their time for project-type exams. They reported that projects required extra research and longer
time to complete. One student (female/white) stated that she studied more for projects because her teacher gave higher grades for the projects. She continued, "For projects, I spend two days because I know they earn bigger grades." Another student commented, "Project: It depends upon how long the project is but at least 2 hours." The students displayed similarities in their responses.

The data suggested that following the projects, students spent most of the time on essay exams (1 hour and 16 minutes). The students reported that essay exams took longer time to comprehend and in order to write an essay, they had to know exactly what they were supposed to write. One of the students (female/other) reported, "I spend more time on studying tests like essays. Because in multiple-choice, I just memorize it, and my parents cover up. I spend more time on essays, just to make sure I know in case whatever kind of question comes up."

After essay exams, students reported that they invested most of their time for oral type exams. They spent an average of one hour and 5 minutes on oral exams. One student reported, "Sometimes it is hard for oral exams because you don't know what to expect. Sometimes it pops up out of the blue. So I spent 30 to 45 minutes." Another student (female/black) commented that although she spent the same time on all types of exams, sometimes she invested more time on oral exams. "I usually spent the same time," she said. "Sometimes I spent a little more time for oral exams because I may need to know more words to know what to say." Field-independent students reported similar reasons about why they invested the reported amount of time studying for oral type exams.
Field-Dependent Students:

a) Similar to the field-independent students, many (88.9%) of the field-dependent students reported that they tended to change the amount of time they invested on exams depending upon the format of the exams (Table 5.7). One student (female/black) reported that she would spend the same amount of time for both essay and multiple-choice exams because multiple-choice exams like essay exams, require a long time for one to get ready for them. She commented, "Yes. Because if it is multiple-choice, you can think it is one answer, but in a way it can be another one. So you have to study more for multiple-choice because they can confuse you. For essay, I use about the same amount of time I study for multiple-choice." Another student (male/white) told the interviewer that he would study longer for multiple-choice exams compared to essay exams. He commented, "I usually study more for MC than for essay. Because for essay, you can write whatever you learn. In oral, we usually try to memorize whatever we need to know."

However, more students reported that they invested longer time for essay exams because they required longer preparation and detailed comprehension to get ready, and they also found essay exams harder than the other formats. One student (female/black) commented, "If it is an essay exam, I would spend more time so that I can get support or whatever the main idea is that I would be writing on. It also depends on if I have trouble on one type of exam. Then I would spend more time on that exam. Some types are more difficult than others." Another student also agreed that some type of exams are harder than the others when he said, "I change a little bit. I spend more time on
some since some of them are harder, and I need to know better. I think essay is the hardest one." Some other students said that they decided on the time they would spent on exams depending upon how long the material was and how hard the material was for them. Also, they told the interviewer that some assessment formats were harder than others. This was why they invested different amounts of time on each assessment format.

b) The students were also asked about the average amount of time they spent on various test formats. As appears in Table 5.8, they spent the most time on projects (3 hours). They reported that projects took longer time to complete. That was followed by essay exams with one hour and 13 minutes. Many of the students felt that essay exams were hard, and they needed to have a clear understanding regarding the topics for which they were responsible. One student (male/other) commented, "Probably for essay I would spend more time than any others. Because essays are much harder, and you have to know what to write down."

Following the essay exams, the field-dependent students invested the most time on oral and multiple-choice exams. Reportedly, as seen in Table 5.8, students spent approximately the same average amount of time for both assessment formats: 57 minutes for oral and 56 minutes for multiple-choice exams.

**Comparison of the Field-Independent and -Dependent Students:**

The data suggest similarities between the two groups in terms of order of test formats for spending most or least time. As seen in table 5.8, the time students spent studying for exams ranged from 54 minutes to 2 hours and 20 minutes for field-
independent students, and 56 minutes to 3 hours for field-dependent students. As the
above table shows, students from both cognitive style groups spent approximately the
same amount of time for multiple-choice type exams (54 versus 56 minutes). A
majority of the students indicated that among the other test formats, they spent
minimum time on multiple-choice exams.

As a reason for that, both groups indicated that they found multiple-choice
exams easier than other types since they already had options, and they did not have to
originate the answers for themselves.

For essay exams, which was a form of performance-based assessment, both
field-independent and field-dependent students spent approximately the same amount of
time (1 hour and 13 minutes versus 1 hour and 16 minutes). In the field-independent
group, eight students (53.3 %) described essay exams as harder than multiple-choice
tests. Responses to essay exams were similar in both groups. Thus a majority of the
students indicated that they spent more time on essays because there was more material
to study, they had to form the answer and they had to comprehend the material in
greater detail. On the other hand, for multiple-choice tests, they did not feel the same
pressure on them; therefore, they tended to study less for those tests.

Table 5.8 suggests that among all the assessment formats, students spent most
of their time on projects (which was a form of performance-based assessment). Field-
dependent students invested relatively more time than field-independent students (2
hours and twenty minutes versus 3 hours, respectively). Field-independent and field-
dependent students indicated that they spent more time on project type exams because
projects took a long time to complete and they required extra research for collecting materials.

However, the two groups differed in terms of amount of time they spent for projects. Field-dependent students spent more time on projects than their field-independent pairs did. This variation may be explained by study habits of students (reading or memorization types) or may suggest that field-independent students were more comfortable studying for projects.

Both groups indicated that following the projects, they spent the second longest time on essay exams. Both groups seemed to invest approximately the same time on essays: 1:16 for field-independent and 1.13 for field-dependent students suggesting that the groups did not differ in terms of the time they invested on essay exams.

In both cognitive style groups, oral exam was in the third order in terms of the amount of time spent by students. Field-independent students invested an average an hour and 5 minutes while field-dependent ones spent only 57 minutes for oral exams. Both groups seem to be comfortable with an oral type exam in terms of time they invested in it.

Overall, students in both groups tended to agree in the same way regarding reasons for spending different amounts of time on exams. "Amount of material which needs to be studied" and "difficulty of the test" were the two most important reasons why both field-dependent and field-independent students invested different amounts of time for exams that had different formats. The two groups did not show variations in terms of the issue.
Interview Question-8: How many hours did you spend studying for the French Proficiency Exam during the two weeks before the test?

The purpose of the above question was to investigate how much time the field-independent and -dependent students invested preparing for the French Proficiency Exam and if it varied for the two cognitive style groups. The question revealed an aspect of study habits of field-independent/dependent students in terms of the time they were willing to spend for a major examination.

The question was included to help in deciding whether a possible difference between the performances of field-independent and -dependent students was caused by their study habits (e.g., amount of time they were willing to study for a major test) or simply because of their sensitivity toward certain types of assessment formats (e.g., essay, multiple-choice, oral exam).

Table 5.9 displays the average amount of time both groups spent studying for the French Proficiency Exam.

Table 5.9  

<table>
<thead>
<tr>
<th></th>
<th>Field-independent</th>
<th>Field-dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average (hour: minute)</td>
<td>6:00</td>
<td>8:52</td>
</tr>
</tbody>
</table>

The average amount of time appeared in the table representing the time students spent at home and does not include the time they spent in class with the other students and their teachers.
Field-Independent Students:

As it appears in Table 5.8, field-independent students invested an average of 6 hours getting ready for the proficiency exam. Some of the students reported that besides instruction they received at school, they did not spent much time at home studying for the exam. One student (female/white) reported, "Pretty much it was what I did in class. Because I know I spend 4-5 hours including class periods. They give us some stuff to review in class a couple of days before the test. And one day before the test, over the weekend, I reviewed a little." Another student (female/white) reported, "Not a lot. At home, probably, thirty minutes because I would just. Because we did most of our stuff in class. And I would just go through my book and see stuff that was important."

Field-Dependent Students:

As Table 5.8 reveals, field-dependent students invested an average of 8 hours and 52 minutes studying for the French Proficiency Exam. One student commented, "I studied a total of probably 20 minutes. Twenty minutes because we didn't really know what we would get on the exam. So, I just studied things that we had already been over."

Comparison of the Field-Independent and -Dependent Students:

The above table indicates that compared to field-independent students, field-dependent students spent more time studying for the French Proficiency Exam. Field-dependent students reportedly invested average 8 hours and 52 minutes while field-independent ones invested an only 6 hours for the exam.
The result indicated a significant difference between the two groups in terms of amounts of time they invested for getting ready before the French Proficiency Exam. The observed differences between the groups may be attributable to their study habits. Thus, as appears in Table 5.3, the majority of the field-dependent students reported that they used memorization as a study technique; therefore, this can explain why it took longer for field-dependent students to get ready for the proficiency exam.

Summary

Assessment preferences and study habits of the field-independent and field-dependent students were investigated through several open-ended questions. Findings of the study suggested that in terms of their assessment preferences, the field-independent and -dependent students demonstrated similarities. Thus, in both groups, a majority of the students favored multiple-choice type assessment. As a major reason for such preferences, they indicated that they felt that this format was easier than the others and they always had a better chance of getting the correct answer by guessing in situations in which they were not sure of the right answers.

Field-independent and -dependent students tended to show variations in terms of their study habits. Compared to field-dependent students more field-independent students reported that they only read over the material as a main study method whereas more students in the field-dependent group tended to use memorization as a study approach. This variation can be observed in Table 5.9; that is, the field-dependent students reported that they spent an average of 3 hours more than their field-independent pairs in preparation for the French Proficiency Exam. The difference
between the time they spent may be attributed to study habits of field-dependent students since they mostly used the memorization technique, and it took a longer time than just reading over the material.

Considering source of material they used for studying for an upcoming exam, compared to field-dependent students, the majority of the field-independent students used multiple sources that were available to them: for example, books, handouts, and study guides/sheets. However, most of the field-dependent students tended to use only work sheets and notes.

Another variation observed between the groups was that more students in the field-independent group reported that they preferred to study with a third person (e.g., classmate or a family member). On the other hand, most of the field-dependent students preferred to study by themselves and did not seek help. But variation in this aspect of the study habits seemed to be smaller than the other two aspects (study techniques and study materials).

Another variation between the groups was that more field-independent students reported that they attempted to make some adjustment in their regular study habits when studying for different test formats. However, both groups who did make some changes reported that the main adjustment they did was changing the average amount of time they spent depending upon the format of tests because some test formats are more difficult and require one to review more materials than the others require. Both groups spent more time for performance-based assessments (e.g., projects, essays, and oral exams) than they did for multiple-choice exams.
Some specific questions were asked for determining their preparations before the French Proficiency Exam and whether they differed in terms of this aspect. Both groups showed some similarities as well as differences. That is, both groups reported that they mainly were prepared by their teachers, and they also did some additional work at home. Similarly, both groups reported that they did not attempt to change their study habits specifically for the proficiency exam. They followed their regular study habits.

However, more students in the field-dependent group reported that they did not know how they were going to be tested in the French Proficiency Exam. Since both field-independent and dependent students were selected from the same classrooms, these variations may be explained by motivation levels of students or their level of attention.

Also, a variation was observed in terms of the average amount of time they spent studying for the proficiency exam. That is, field-dependent students invested three more hours for studying for the exam than the field-independent students invested. This variation can be explained by field-dependent students' using memorization as a major study method since memorization takes a longer time than just reading over materials. The analysis result suggested that field-dependent students are likely to use memorization as a major study technique.

Analysis of Teacher Interviews

This section investigated teachers' reports about the performance of field-independent and field-dependent students on various assessment formats and
assessment preferences of those students. For each field-independent and field-dependent student who was interviewed, teachers were asked questions about the performance and assessment preferences of that particular student. Findings were analyzed separately for field-independent and field-dependent students.

Other issues investigated were assessment formats applied by the teachers throughout the semester, whether teachers informed students about details (e.g., sections, contents) of the French Proficiency Exam, which was mandatory for all eighth-grade students, and test taking strategies taught to the students. The findings that emerged from this issue were also analyzed in order to investigate whether the teachers exposed the students to only certain types of assessment formats or to various assessment formats. Such findings would be significant in deciding whether the students were familiar with various test formats before taking the proficiency exam. If all the students were almost equally familiar with various test formats, then possible group differences between the field-dependent and independent students may not be attributable to such teacher factors in terms of using various test formats. Teachers' reports of student performances on various testing formats and their assessment preferences will be presented first.

1. Teachers' Report of Students' Test Performance on Various Assessment Formats

One of the questions of the current study was to probe the degree to which teachers have noticed any differences between the performance of field-independent and field-dependent students on various assessment formats (multiple-choice and performance-based assessment). During the teacher interview, he/she was asked
specifically about each of the students in his/her class that were interviewed in this study. Cognitive style or any other information regarding the students was not revealed. In this section, responses to the related question were analyzed.

**Teacher Question:** Based on your experiences during the current academic year, on which type of exams (e.g., multiple-choice, essay, oral, and project) does he/she usually perform better? In your opinion, why does this student perform better on this type of exam?

Outcomes of this question helped to triangulate the data obtained from the quantitative phase of the study that investigated performance differences of the two groups and provided better understanding about achievements of the students related to different assessment formats through teacher observations. The teacher responses to the question appear in Table 5.10.

**Teacher Reports Regarding Field-Independent Students:**

Distribution of teacher's assessment of the field-independent students on multiple-choice and performance-based assessments indicated that 26.7 percent

<table>
<thead>
<tr>
<th>Assessment Approaches</th>
<th>Field-Independent</th>
<th>Field-Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Percent</td>
<td>N</td>
</tr>
<tr>
<td>Multiple-Choice</td>
<td>4 (26.7%)</td>
<td>7 (38.9%)</td>
</tr>
<tr>
<td>Performance-Based Assessment</td>
<td>8 (53.3%)</td>
<td>10 (55.6%)</td>
</tr>
<tr>
<td>Both</td>
<td>3 (20.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0.0%)</td>
<td>1 (5.5%)</td>
</tr>
</tbody>
</table>

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of field-independent students performed better on multiple-choice type exams. On the other hand, 53.3 percent of the field-independent students were described as performing better on performance-based assessment. These results indicate that teachers perceived field-independent students to be better performers on performance-based formats (e.g., essay, projects, oral). Three field-independent students (20.0 percent) were described as performing equally well on both multiple-choice and performance-based assessments.

Table 5.11 reveals detailed information regarding the distribution of the students on different assessment formats.

Table 5.11  
Number of Students Who Were Described Performing Better on Each Specific Assessment Format by Their Teachers

<table>
<thead>
<tr>
<th>Assessment Approaches</th>
<th>Field-Independent</th>
<th>Field-Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percent</td>
</tr>
<tr>
<td>Multiple-Choice</td>
<td>4</td>
<td>(26.7%)</td>
</tr>
<tr>
<td>Essay</td>
<td>5</td>
<td>(33.3%)</td>
</tr>
<tr>
<td>Oral-Exams</td>
<td>1</td>
<td>(6.7%)</td>
</tr>
<tr>
<td>Projects</td>
<td>0</td>
<td>(0.0%)</td>
</tr>
<tr>
<td>Multiple-Choice &amp; Essay</td>
<td>1</td>
<td>(6.7%)</td>
</tr>
<tr>
<td>Project &amp; Oral</td>
<td>1</td>
<td>(6.7%)</td>
</tr>
<tr>
<td>Essay &amp; Project</td>
<td>1</td>
<td>(6.7%)</td>
</tr>
<tr>
<td>Mixture of All Types</td>
<td>2</td>
<td>(13.3%)</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>(0.0%)</td>
</tr>
</tbody>
</table>
When asked about the reasons why they classified the students into a particular category, the teachers responded differently. In general, all students were categorized into two assessment categories those who were better in the multiple-choice category versus those who were better in the performance-based assessment category. In the field-independent group, teachers specified reasons why some students were found to perform better in the multiple-choice category. One teacher commented, "Because she is a wonderful student and has the ability to reason. 90% of the time she gets the correct answer." Another teacher commented that the reason one of her students performs better on multiple-choice was "because I think she gets nervous and forgets what to say and what she remembers when she is taking short answer tests, oral, etc. But if it is in front of her, then it is OK." Overall, a sample of teacher responses were

- "90% of the time she gets the correct answer,"
- "she had a better chance of recognizing the answer,"
- "it is easier,"
- "it is a lot easier to recognize something than pulling it out of air,"
- "she does not like talking. She is very quite"
- "she gets nervous and forgets what to say,"
- "she would not be intimidated as easily by some of the things as she would when the takes any of the other formats,"
- "they don't feel as pressured,"
- "...don't have to come up with an answer."
For the students who were classified into the performance-based assessment category, the teachers indicated various responses as reasons why they found those students to perform better in these types of assessment formats. One teacher commented on one student: "I think he could be very good with projects if he has those because he has mental ability, but for some reason he does not do any assignments. I caught him cheating. He cheated in some other class. If I gave him a 20 point study quite, he would just fill in the blanks. He does not care what he is filling in; he just wants it to be done and get over with it. I think he could really do well if he applied himself. I think he could be really good with projects and oral projects if he had those." Another teacher commented, "She does better on the essay (written). She gets nervous on the oral test. She could do well on essay, but she gets nervous and forgets vocabulary. Because it makes her think of the answer, she has more time to put her answers. She needs to think about what she needs to answer since questions are in front of her, not just somebody asking questions out of the blue like in oral. Also, students usually get nervous when they are being tested orally whether it is foreign language or native language. So this is why she has more time for putting her answers." One teacher indicated that the reason one of her students performed better on oral exams was that her student enjoyed talking. As she said, "Oral exams. He likes to talk. In writing he is not good. He loves talking. He can express himself well. He seems to like vocabulary, sometimes in essay exam. They have a journal they have to write in French. When it comes to verbal expression, he can express well with gesture, motion. But when it comes to put it down on paper, he is not good. But in speaking
with gestures, charm, and symbols he can express himself. He is likeable but not the most ambitious student.

For the field-independent students, teachers' responses were summarized as,

- "she was very nervous when taking multiple-choice,"
- "He studied and learned the information and got the skill,"
- "he loves talking,"
- "he seems to like vocabulary,"
- "when it comes to verbal expression he can express himself well,"
- "she expresses herself well in essay,"
- "she gets nervous when she is taking exams,"
- "she is going to be nervous on an oral exam,"
- "she is not on spot. She can think,"
- "he is a very good student,"
- "she has more time to put her answers,"
- "she needs to think about what she needs to answer since questions are in front of her,"
- "her sentences are well."

**Teacher Reports Regarding Field-Dependent Students:**

As Table 5.10 indicates, 38.9 percent of field-dependent students were perceived to perform better on multiple-choice type exams by their teachers. On the other hand, 55.6 percent of the field-dependent students were described as performing better on performance-based assessment. The data suggested that, field-dependent
students were viewed to perform better on performance-based assessments than they did on objective-type tests by their teachers. Again, Table 5.11 reveals the detailed information regarding the distribution of the students on various assessment formats.

Among the field-dependent students, one student could not be classified to any of the assessment categories. Three of the field-dependent students were described as performing equally well on more than one assessment format.

When asked about the reasons why they classified the students into a particular category, the teachers revealed different reasons. Again, all the students were categorized into two assessment categories: those who were in the multiple-choice category and those who were in the performance-based assessment category. The teachers specified the reasons why some field-dependent students were found to perform better in multiple-choice type exams. The following is the sample of the teacher responses:

- "because she can sit quietly by herself and work,"
- "she is more comfortable when she has choices,"
- "because her communicative and oral skills are not very good,"
- "he is not very motivated,"
- "he does not attempt to go behind expectations,"
- "it is very difficult for him to construct a sentence or apply critical thinking skills when you have to analyze and put together,"
- "she likes to study things that are concrete. She can concretely study for it and there is one correct answer,"

155

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• "multiple-choice is the easier one,"
• "she does not like to do projects,"
• "she doesn't have to originate the answer,"
• "that gives her some comfort,"
• "she comes with no background,"
• "she has never been in French before."

For the students who were classified into the performance-based assessment category, the teachers indicated various responses as reasons why they found those students to perform better in this type of assessment format. For field-dependent students, teachers responded differently. For one of the students, the teacher described the student as getting nervous when taking multiple choice exams. Examples of teacher responses are as follow

• "she has test anxiety,"
• "she feels confident in herself,"
• "her attention for projects is good,"
• "she would be more comfortable having questions right in front of her,"
• "she has time to answer,"
• "he is very shy,"
• "he is intrinsically motivated,"
• "he is very intelligent,"
• "he is a performer,"
• "he is very creative and loves to create,"
Comparison of the field-independent and -dependent students in terms of teacher opinions toward their performances:

The data suggest that teachers perceive some variations between field-dependent and -independent students. Distribution of teachers' assessment of the field-independent and field-dependent students on multiple-choice and performance-based assessments indicated that 38.9 percent of field-dependent students performed better on multiple-choice type exams. On the other hand, only 26.7 percent of field-independent students were perceived to be better in the multiple-choice category. The teachers seem to perceive more field-dependent students as better performers in multiple-choice type exams (38.9%) although only 26.7 percent field-independent students were described as better performers in this type of exam.

Another difference was that three (20%) field-independent students were described as performing equally well on both multiple-choice and performance-based assessments whereas none of the field-dependent students were described for this category (Table 5.10).

However, approximately the same percentage of the students from both cognitive style groups (53.4 versus 55.6 percent) were characterized as performing better on performance-based assessments (e.g., oral exam, essay, projects). As Table 5.10 reveals both groups were viewed as performing better on performance-based
assessments than they did on objective type tests. The teachers did not seem to observe differences between the two groups in terms of their achievements in performance-based assessment.

In terms of essay exams, the teachers agreed that more field-independent students (33.3%) performed well on essay types whereas the percentage was 05.6 for field-dependent students.

Teachers thought that following multiple-choice exams, the field-dependent students performed well on projects and oral exams.

In sum, field-independent students were described as performing better on performance-based assessment than they did on multiple-choice exams (53.3% versus 26.7%). Similarly, a majority of field-dependent students were also described as performing better on performance-based assessment than they did on multiple-choice exams (55.6% versus 38.9%). The difference observed was that more field-dependent students were characterized as performing better on multiple-choice than field-independent students (38.9% versus 26.7%), and in essay type exams, field-dependent students were found to perform poorly. Only one field-dependent student was described as performing better on essays.

The information gathered from the teachers was important in terms of confirming whether the teacher observation regarding the field-dependent and independent students' performance on the assessment formats matched the outcomes obtained from the quantitative phase of the study regarding performances of two groups resulting from the different assessment approaches.
2. Teachers' Report of Student Preferences Toward Various Assessment Formats

One of the questions of the current study was formulated to determine the degree to which teachers have noticed any differences between assessment preferences of field-independent and field-dependent students. During the teacher interview, he/she was asked specifically about each of the students in his/her class that were interviewed in this study.

Cognitive style or any other information regarding the students was not revealed. In this section, responses to the related question were analyzed.

- **Teacher Question:** Based on your experiences during the current academic year, do you think she/he prefers a certain type of exam (multiple-choice, essay, oral, or project) over others? What are they? In your opinion, why does this student prefer that type of exam?

The purpose of the above question was to reveal teacher observations and opinions about preferences of field-independent and field-dependent students on various testing formats and to investigate whether teachers perceived the two groups differently. The teacher responses to the question appear in Table 5.12.

**Teacher Reports Regarding Field-Independent Students:**

According to the teacher interviews, 66.7 percent of the field-independent students were predicted to prefer multiple-choice type exams over the other test formats (Table 5.12). Following the multiple-choice format, the students were reported to prefer project type assessments. In the field-independent group, 20 percent of the
Table 5.12: Number of Students Who Were Described as Preferring Certain Assessment Formats over Other Formats by Their Teachers

<table>
<thead>
<tr>
<th>Assessment Approaches</th>
<th>Field-Independent</th>
<th>Field-Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percent</td>
</tr>
<tr>
<td>Multiple-choice</td>
<td>10</td>
<td>66.7%</td>
</tr>
<tr>
<td>Essay</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Oral-exams</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>Projects</td>
<td>3</td>
<td>20.0%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

students were predicted to favor project type formats. Only one student was described as preferring oral exams. One student who was placed in the category "other" could not be specified by his/her teacher.

When the teachers were asked to specify how they came to the above conclusions regarding assessment preferences of the students, they indicated various reasons. For the field-independent students who were predicted to be in the multiple-choice category, the teachers revealed different responses. One of them commented, "He would prefer multiple-choice because when he does not particularly know the answer through reasoning, he can make a probabilistical choice." Another teacher commented on one student, "He would prefer multiple-choice, matching or fill-in-blank. Because it will be easier for him. It will require less effort. I recognize he is intelligent. Most of them prefer MC. Sometimes they even do not want to be bothered to write a letter to match. They would rather draw lines. Or if I gave them, for
example, a word, complement, a noun and make sentences, it is too much work for them. They don't want to have to write. They don't want to write a whole sentence."

Another teacher told the interviewer that the students prefer multiple-choice exams because they to be found them easier. Overall, the teachers revealed their thoughts in forms of

- "when he does not particularly know the answer through reasoning, he can make a probabilitical choice,"
- "they figure out that they have a pretty good chance of reasoning out in process of eliminating the incorrect answer,"
- "multiple-choice is less threatening for students,"
- "it gives them a choice,"
- "it requires less effort,"
- "they don't have to write a whole sentence,"
- "always they have a better chance,"
- "because she gets nervous with other types,"
- "they think the answer is there, so they don't have to originate it,"
- "they just have to analyze the question and come with it,"
- "he does not like to be bothered with writing."

Teacher responses to field-independent students who were in the performance-based assessment group were reported. One of the teachers commented why one of her students would prefer oral exams, "Because his speaking ability is really very good. He likes to speak French. He just speaks it constantly. He will correct others who give
incorrect structure." Another teacher commented on one student of hers, "He would prefer projects where he has plenty of time at home. Because he has time to research it. It is not the same pressure essay or MC requires." Teacher responses to field-independent students who were in the performance-based assessment group were as follows,

- "she can misbehave and have fun,"
- "it is more fun,"
- "he is focus on it, he works on it,"
- "he is very social,,"
- "with projects he can have plenty of time at home,"
- "he has time to research it,"
- "it is not the same pressure multiple-choice requires,"
- "his speaking ability is really very good,"
- "he likes to speak French."

**Teacher Reports Regarding Field-Dependent Students:**

The teachers reported that 77.8 percent of the field-dependent students would prefer multiple-choice type exams over other type assessment formats. Following the multiple-choice format, the students seemed to favor project type assessments (11.1%). Only one student reported to favor oral exams. Assessment preferences of one student who was classified in the category "other" could not be specified by her/his teacher.

The teachers reported the following reasons for deciding on students' assessment preferences. For the students who were classified into multiple-choice
category, teachers specified several reasons. One teacher stated why one of her students would prefer this type of assessments: "Because it requires less intense knowledge of subject matter. Probably, it helps him to recognize more rapidly. He does not need to think hard. He will recognize it if he knows, if he does not know, then he would recognize it. This is all in it. It requires just supervisal recognition." Another teacher also commented for one of her students' preference, "Because she likes to study something she can concretely study for like grammar. Something she can say there is one right or wrong answer."

One teacher responded that the students found multiple-choice easier, they can study less for it, and this is why they prefer it. A summary of teacher responses regarding the field-dependent students who were classified into the multiple-choice category was as follow:

- "because she does not do well on essay,"
- "they don't have to write,"
- "they are tired of writing,"
- "requires less thinking on his part,"
- "he can just circle and be done with it,"
- "she would not be expected to speak or express her thoughts in written words,"
- "it requires less intense knowledge of subject matter,"
- "he will recognize that if he does not know he would recognize it,"
- "it requires just supervisal recognition,"

163
Teacher responses for the field-dependent students in the performance-based category consisted of several reasons. One of the teachers commented on why one of the students would prefer project type assessments: "Because, she gets nervous. She has test anxiety and does not feel confident in herself and her French ability as some of the other kids." Overall, a sample of teacher responses to the question was:

- "she has test anxiety,"
- "because it is fun,"
- "he likes to perform."

Comparison of the field-independent and -dependent students in terms of teacher opinions toward their assessment preferences:

As Table 5.12 shows, according to teachers, regardless of their cognitive styles, the majority of the students in both groups preferred multiple-choice type assessments (77.8 percent of field-dependent and 66.7 percent of field-independent students). This finding seems to confirm what the students had said about their preferences during the student interview.

Following the multiple-choice format, students in both groups seemed to prefer project type assessments. In the field-independent group, 20 percent of the students
were predicted to favor project type formats. For field-dependent students, the percentage was predicted to be only 11.1 percent.

In both groups, only one student was characterized to favor oral exams over the other assessment formats. In the category "other," the assessment preference of one field-dependent and one field-independent student could not be specified by their teachers.

In sum, the teachers tended to agree that the cognitive style of students did not seem to impact student preferences toward assessment formats.

**Investigating a Sample of Teacher Related Factors that Might Have Affected Student Performance and Preferences Toward Various Assessment Formats**

In this section of the current study, a sample of teacher related factors were investigated. During the teacher interviews, teachers were asked several questions related to some teacher factors (e.g., whether they taught test taking strategies and type of assessment formats they used during the semester).

The purpose of the questions was to determine whether teachers had a large variation in some aspects of their teaching styles (e.g., type of assessment formats they used during the semester and) that seemed to affect the students in terms of their performance and preferences regarding test formats (e.g., multiple-choice and performance-based assessments). The questions were analyzed in the following section. Each teacher was asked about their teaching styles for example, assessment formats they used during the semester and whether they applied variety of assessment formats.
Teacher Question: During the current year, what kinds of tests (multiple-choice, essay, oral-exam, project) did you give to students? Can I have some of these tests or materials as examples?

The purpose of the above question was to investigate whether the teachers exposed their students to various assessment formats which would help students for taking the French Proficiency Exam since the exam consisted of several assessment formats (multiple-choice and performance-based assessment). Assessment formats that were applied by the teachers during the semester and their frequencies are summarized in Table 5.13.

Table 5.13 The Frequency Distribution of Responses of "During the Current Year, What Kind of Test (Multiple-Choice, Essay, Oral-Exam, Project) Did You Give to Students?"

<table>
<thead>
<tr>
<th>Teacher Number</th>
<th>Multiple-Choice</th>
<th>Essay</th>
<th>Project</th>
<th>Oral Exam</th>
<th>Fill-in-the-blank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Number</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Percentage</td>
<td>55.6%</td>
<td>44.4%</td>
<td>77.8%</td>
<td>66.7%</td>
<td>55.6%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

The above table indicates how many times each assessment format was applied by the teachers (n=9) who were interviewed. The total number of the frequency is higher than the number of teachers because each individual applied several test formats throughout the semester. According to the above table, projects were the most frequently applied assessment approaches (77.8%) for assessing student performance in French classes during the current academic year. Seven teachers out of nine indicated that they applied projects on several topics to evaluate student skills in French.
sample of responses that the teachers reported regarding use of projects are summarized as follows:

- "They have to prepare a calendar in French. They have to find 5 idioms, 5 phrases in French. Each has to choose a month out of the year. Then I evaluate them based on all skills they learn."

- "They have to prepare projects about Paris, electric,.... and then have to present in French...Like many projects to do at the end of the semester."

- "We did projects a lot, 3-4 times."

- "Also, they published an article in the newspaper, in the school paper."

A few of the teachers told the interviewer that they did not use projects because they never had time for them. One teacher reported, "We never had time for projects; I had them out for field trips, volleyball, etc. Many activities, so they missed so many classes, and I gave up. If I give them what we have to gave, it I would break my neck. We did not have time for projects. So I thought, I need to give them basics, what they are supposed to have."

Following projects, oral exams were indicated to be the second most frequently (66.7%) applied assessment format by the teachers. One teacher described how she applied projects in her classroom, "We did work on a project on a Louisiana dish. They were asked to write words in French. Also, they published an article in the newspaper in the school paper. Other teachers also admire it. Next week, we'll be working on Joan of Arc for a one-week unit. " The teachers expressed their use of oral exams with phrases such as
"I give them oral projects where they did dialogues and a sketch...;"

"Sometime in the oral exam, I interview them. In another oral exam, I give them point memorization. They have to memorize a lot of points full of vocabulary and structures. They seem to really get into that and enjoy them. Point memorization is good to learn structures;"

"...they have to give presentation in which they have to follow certain directions;"

"...when they do presentation I grade their speaking;"

The teacher responses suggested that the majority of the teachers frequently used oral exams during the semester. They either interviewed students on various topics or required them to make presentations in front of the class.

The third frequently used assessment format was multiple-choice and fill-in-the-blank. Five teachers out of nine (55.6%), reported that they used these assessment formats quite often during the semester. The teachers indicated that, especially their mid-term exams were made of multiple-choice type formats. The other responses were:

"I use multiple-choice for final exams;"

"...they also take a multiple-choice test as a major semester exam and an end of the year exam;"

"I used mostly multiple-choice exams."

Some of the teachers indicated that sometimes they choose multiple-choice tests because they are easy on them in terms of grading the exams on time. Two of the
teachers reported negative feelings toward use of multiple-choice exams. The teachers gave the following responses,

- "I don't like multiple-choice tests. However the state made us give those exams...,"
- "I did not give them any multiple-choice exams."

The teachers also reported that they often used other types of objective tests such as fill-in-the-blank type tests. Five teachers (55.6) reported that they applied this type of test during the semester. The sample of the teacher responses were

- "I gave them mostly fill-in-the-blank tests,"
- "I used mainly fill-in-the-blank,"
- "My tests were filling the blank. I gave them a sentence they have to translate to English. They made the sentence...."

The fourth frequently used assessment type was essay exams. Approximately half of the teachers (44.4%) reported that they applied essay exams to assess student skills in French learning. A sample of teacher responses to essay exams were

- "I give also essay where they write compositions,"
- "...they have to write a short paragraph...,"
- "I gave them a picture, and they have to write a paragraph"

The sixth option "other" covers responses pertaining to true-false and open-ended type assessments. During the interview, only two teachers (22.2%) indicated that in addition to other assessment formats, they used these type assessments during the current semester. Their responses were:
During the interviews, teachers were asked to provide examples of assessment formats or exams they had administered to students. Four of the teachers presented some examples of assessment formats they used throughout the semester. The materials and exams that were provided consisted of some examples of projects presented by students, several multiple-choice exams, fill-in-the-blank, matching, open-ended exams, true-false exams, and some scoring rubric applied by the teachers to evaluate oral presentations of the students. From the sample of exams and interviews, it was evident that the teachers tended to use various assessment formats all together in the process of evaluating student skills in French learning throughout the semester. Also, they seemed to choose assessment types depending upon the purpose of the assessment, type of skill they wanted to assess (e.g., reading, speaking, writing), and time that they could invest.

Overall, the results indicate that 5 out of nine teachers administered multiple-choice tests. The number of teachers who administered each assessment format was 4 for essay exams, 7 for projects, 6 for oral exams, 5 for fill-in-the-blank, and 2 for other types of exams (e.g., open-ended). These findings suggested that out of 29 used (5 for multiple-choice, 4 for essay...) teachers used objective type assessments (multiple-choice and fill-in-the-blank) 10 times while they applied performance-based assessments 19 times (e.g., essays, projects, oral exams). Thus, it was suggested that the teachers applied performance-based assessments significantly more often than they
used objective type assessments. Therefore, it is very likely that the students who took the French Proficiency Exam were already more familiar with performance-based assessments than they were with multiple-choice exams for 8th-grade French classes.

- Teacher Question: During the current school year, do you have methods for preparing students before an exam? If yes, how do you prepare them? and how many hours do you spend in the preparation for a major test?

The purpose of the above question was to probe whether teachers taught some method to students that might have affected their performance in a testing situation as well as on the French Proficiency Exam. Two teachers (22.2%) responded "Yes". The other seven (77.8%) teachers said that they did not use any specific method in order to prepare students for exams.

The seven teachers who responded "no" reported that before an exam, they usually spent a few days (3-4 hours) to review the topics they would cover in an upcoming exam. They also told the interviewer that they used to ask questions to students and answer students' questions if they had any during the review session. One teacher commented, "We were required to give them a study guide that covers the material they will be tested on. So what I did was my study guide including all the material we had over the year. And every week we went over a portion of it, things that they already learned. I was asking them questions, or they were asking me questions like how to do this, that, etc. Giving comments."

On the other hand, two teachers who responded "yes" indicated that they used some specific strategies to prepare their students before an upcoming exam. One
teacher described her methods for preparing the students as follows: "I introduce the subject matter, and then after they comprehend the particular subject matter, we do oral exercises just to see if they can use it in communication. Then we do reading exercises from the book or listening activities from the book. We do work book pages, or we make some drawings that you see around here; that is, descriptive activities. Then they do some self-portraits and draw themselves and describe themselves. Also, we do some activities. They show the things they like, and then they write sentences about what it is. I also teach some strategies. For example, when they have to match a word to a definition, I tell them to look for a clue in the definition." The other teacher described her methods as follows: "There are reviews of chapters at the end of the book, and we went over them." Although some teachers responded differently to the above question, the interview results suggested that including one of the two teachers who responded "yes" to the question, in both categories, all the teachers used question/answer and revision of previous chapters or materials as a preparation technique for getting students ready before an exam. Samples of the teacher responses were:

- "my study guide was including all the material we had through the year. And every week we went over a portion of it. I was asking them questions, or they were asking me questions like how to do this, that,"
- "we do reading exercises from the book or listening activities from the book,"
- "Just normal review,"

172
"we just practice, practice, practice... as time goes on, we are going to do it over and over until I'm satisfied that everybody is doing at least basic work."

When asked about the amount of time they spent preparing students for an exam, teachers in category "yes" responded that they spend an average of 6 hours before an exam to get students ready for an exam. The average time spent by the teachers who responded "no" to the question that was asking if they had a method for preparing students was approximately 4 hours. Two of the teachers in that category indicated that they did not spend any extra time at all for preparing students before an exam.

In sum, the findings suggest that the teachers did not tend to teach specific test taking strategies to their students. The main activity they intended to apply before an exam was reviewing the previous notes and answering students' questions regarding an upcoming exam.

Teacher Question: Did you have methods for preparing students for the French Proficiency Exam? If yes, how did you prepare them? How many hours did you spend in the preparation for the French Proficiency Exam?

The purpose of the above question was to examine whether teachers applied specific methods for preparing students specifically for the French Proficiency Exam and how many hours they spent in the preparation. This question was asked to the teachers because even though excepting a few teachers, they did not use any specific method to prepare students for regular exams, they might have thought specifically about something for the proficiency exam. The responses to the question provided
significant information about the issue of whether or not some teachers provided more assistance to their students about the French Proficiency Exam that would increase performances of their students were those students that did not receive any special preparation for the proficiency exam.

Eight of the teachers (88.9%) did not have special methods for preparing students before the French Proficiency Exam. When the only teacher who had a method for preparing students for the exam was asked about how she prepared them, the teacher responded,

"Yes. The main thing I did for preparation was listening activities with work sheets. I knew there would be oral, so I worked on oral. For the writing part of the test, I made paragraphs. I thought there would be questions asking what are you wearing, so I made fashion show and ask them to describe what they were wearing but I think there was no question about it. I didn't give them things like describing pictures, but I will include it in my future instructions. They have never done it. It is my first year giving such tests."

Among the teachers who responded "no," three (37.5%) indicated that they did not know that the testing was mandatory and that they had to administer it. Samples of responses for these three teachers were

- "...because I did not know until the last minutes that I would give the exam,"
- "...I found out two days before the exam that I needed to give the test,"
- "...first of all, we did not know."

One of the teachers who did not have any method for student preparation
commented, "I just did what I had been doing since the beginning. My methods overhead projectors, TV, audio-visual, and myself. But as far as for preparing the students for the proficiency test, no I did not do it. I did not tell them what the test content was. I just told them this is going to be the test about what you have learned throughout the year. There is nothing I can do now. So just do what I have been doing so far. Pay attention at home. But I can't tell you this is going to be in the test, etc. So I just give them some advice." The other four teachers who did not have any method for student preparation expressed their responses as follows:

• "they gave us the test one day before and I had to administer if the next day, and I hardly understand myself,"
• "I followed the regular schedule,"
• "I just followed my curriculum,"
• "I did not know what would be on the proficiency exam,"
• "I did not receive any guide or other material from school board,"
• "I had no idea about what to expect,"

When the teachers were asked about the amount of time they invested in preparation of the students, the only teacher who applied a specific method for preparing the students for the proficiency exam told the interviewer that she invested a month in preparation of students for the exam. She commented, "I spent a month. We met 3 times a week. I did not know what to expect. I had no idea. Maybe I should not have spent all that time...." Among the teachers who were in the "other" category, only three said that they spent the same time getting students ready for the exam. Thus,
these teachers indicated that they invested an average of 2 hours in the process of preparing the students.

The results of the interview suggested that excepting one teacher, the rest of the nine teachers did not specifically invest time preparing student before the French proficiency Exam. They just tended to follow the regular teaching activities that they had been following through the semester.

- **Teacher Question: Did you clarify what would be on the French Proficiency Exam and how students could prepare for it? Please explain.**

The purpose of the above question was to clarify whether the teachers informed the students about the details of the French Proficiency Exam in terms of sections (e.g., listening, writing) and the contents of the exam which would prepare students mentally and help them with what they needed to study before the exam.

More than six (66.7%) of the teachers reported that they did not inform their students about the content of the French Proficiency Exam and how they could get ready for it. Only three teachers out of nine indicated that they informed the students about the contents of the upcoming exam. One of the three teachers who responded "yes" to the question summarized how she informed the students about the exam. She commented,

"Yes, as much as I could. I told them about the format of the test, that there would be listening act sections. I said things that we had gone over during the year would be on the test. When you listen, listen for repetition, listen for emphasis like when they talk slowly, then that is probably what you need to understand, etc, little things like that."

176
The other teachers who responded "yes" to the above question summarized their responses regarding the content of the proficiency exam as:

- "I knew that there was going to be intensive reading and intensive listening and writing,"
- "I just worked with the list that the school board had sent me and tried to get students prepared for details, being able to speak, use vocabulary that they were required to use be able to pull it up and use in situation,"
- "I told them about the format of the test, that there would be listening act sections,"
- "I told them things that we had gone over during the year would be on the test"

The responses suggested that the teachers in this category informed the students about sections and contents that would be included in the proficiency exam. On the other hand, teachers who did not instruct students about the content of the test indicated that they were not clear about the content of the exam themselves. One teacher commented,

"I told them what I knew, what I was told was coming. You never really know until you see the exam or give the exam. And then, the exam to my understanding was so hastily put together.... If I had prepared them, the thing is I knew that they were going to have to write and speak. It was my understanding that during this time, there were certain skills they were supposed to acquire. If I had known that the proficiency exam would be based on certain I vocabulary that they had in the past, way back when that
they have forgotten, I would have gone back over that to review. I did not know the way the tests were going to be set up. They could have described the pictures in the test. They forgot the vocabulary that they had in previous French classes." Another teacher commented in a similar way, "Because I had no idea myself what would be on the test. I think we would have a sample of questions asked. In LEAP and IOWA tests, teachers have detailed material about the tests." The other teachers commented as follows regarding the French Proficiency Exam:

- "...I had no idea myself what would be on the exam,"
- "because I did not know until the last minute,"
- "...I barely know what they did,"
- "...I just told them that I was assuming that they would have major words...,"
- "I did not know the way the tests were going to be set up,"
- "...quite honestly no."

The teachers in this category revealed that they did not have much of an idea regarding the details of the proficiency exam; therefore, they did not inform students in detail about the content or sections of the exam.

In sum, it was evident that more than two-thirds of the teachers (66.7%) did not provide detailed information to their students about the French Proficiency Exam in terms of the sections and contents of the exam. The findings also suggest that the teachers were not fully aware of the information regarding the proficiency exam, and that was the main reason why they did not inform the students about it. Another reason was that some of the teachers were not aware at the last minute that the testing was
mandatory and that they had to administer the test regardless of their will. This finding confirmed that a majority of the students were not assisted by their teachers in terms of being informed about the testing session. This suggests that in terms of this factor (as one of the teacher factors), the majority of the students were in similar conditions. That is, any difference found between performances of the students may not be attributable to students being differently prepared for the testing session.

- **Teacher Question:** Do you teach test taking strategies or methods to students? What are they?

The purpose of the question was to investigate whether or not teachers taught test taking strategies to students. The findings related to the question were important since an attempt to teach test-taking strategies might increase the chances of students' performing better on the French Proficiency Exam.

Five teachers (55.6%) taught some form of test-taking strategies to their students. One teacher stated that in her school they had a special course they called "Research Study Skills" for teaching test taking strategies to the students on a regular basis. She also told the interviewer that besides the course, she did not feel that she should teach extra skills regarding test taking strategies. She commented, "In the whole school we have test taking strategies that are taught to students about how to take tests. Every day, 20 minutes before class. We call it gator talk (from the word alligator). It is an advisor type of thing. During that time period, we have a time that we go over test-taking skills. For example, get a good night's sleep, how to read an item, not spend too much time on an item that is difficult, go back and answer easy
items first, then do difficult items. We have a sheet that has instructions on it we go
over with our students at the beginning of the year, nine weeks prior to the test to
refresh, of course. All of this is done in a period called *gator talk*. We say test taking
skills. We have a course here. It is part of class called *research study skills*. In that
course, all semester, it emphasizing how to take tests. So by the time they get my class,
they are also taking that course and gator talk." Another teacher reported that she also
taught some test-taking skills that she thought would be useful for the students. She
summarized them as follows: "Sometimes I do tell them to just look for key words and
don't try in a foreign language to, translate every word. Just get the idea, what the
general gist of it is from the context, textual clues. The only time I give them MC is
the end of the year, and I tell them to use first impressions, don't try to analyze each
situation. Eliminate the ones that are definitely incorrect. Other than that, I don't teach
any test-taking strategies."

The other teachers in this category described their test taking strategies in the form of

- "...I remind them that they can find answers to some questions by looking in
  other questions in the test,"
- "...we go over test taking skills,"
- "get a good night's sleep,"
- "how to read the item,"
- "not spend too much time on an item that is difficult,"
- "go back and answer easy items first, then do difficult items,"
- "...just look for key words,"
"don't try to, in a foreign language, translate every word...,"

"...get the idea, what the general gist of it is, from the context, textual clues,"

"...use first impression,"

"...don't try to analyze each situation,"

"...eliminate the ones that are definitely incorrect,"

"...not to stick on one question,"

"...first guess is usually the best guess,"

"...when you listen, listen for repetition,"

"...listen for like emphasis, like when they talk slowly. Then that is probably what you need to understand."

One of the teachers who responded "No" to the question commented, "No I did not teach any test taking skills." Another teacher expressed her reaction to the question, "No. I did not teach any test taking skills. Maybe I should...."

As the examples indicated, the teachers who responded "Yes" emphasized several test-taking strategies that their students could apply during a test taking session. Most of the test taking strategies, as the examples suggested, could be useful in various assessment situations; for example, multiple-choice, matching, fill-in-the-blank, open-ended, essay, and oral exams.

Teacher Question: Did you teach test taking strategies or methods to students for the French Proficiency Exam? What are they?

The purpose of the above question was to investigate whether teachers attempted to teach any test taking strategies to the students that they thought would be...
beneficial for the French Proficiency Exam. The outcome of the question was important to investigate if the teacher factor regarding the teaching of test taking strategies would have had an impact on performances of the field-dependent and independent students on the proficiency exam.

Seven (77.8%) of the teachers did not attempt to teach any specific test taking strategy regarding the French Proficiency Exam. The teachers in this category indicated that they did not provide any specific test taking method to students other than what they had been already teaching. One teacher commented, "I did not really teach any test taking strategies other than what I teach anyway." Another teacher stated that she did not teach anything special for the proficiency exam. She continued, "I did not know I had to give the test. I learned two days before the exam. I thought, I had given them a statement last year that I am not prepared to give to test." Another teacher told the interviewer that she never thought about it. She said "I don't know if I should, but I never thought about it."

Only two teachers indicated that they attempted to give students specific strategies regarding how to take the proficiency exam. One of them summarized her preparation as follows, "Basically, in listening, I told them not just to listen to the context of sentences and phrases. I prepared them to get used to a variety of voices by audio-cassettes. We have been doing it through the whole year alone. I told them when they hear something that they don't understand then listen for key words. And just use reasoning for figuring out what was just said. Not to give up if they just didn't understand every word, but listen for the idea. And they are accustomed to that"
understanding." A sample of responses of teachers who responded "yes" to the question was

- "I told them not to listen to the context of sentences and phrases,"
- "...get used to a variety of voices...,"
- "I told them when they heard something that they don't understand, listen for key words,"
- "Just use reasoning it for figuring out what was just said,"
- "listen for the idea,"
- "...which section or part to look related to words in question and option."

It seemed from the interviews that two teachers who taught test-taking strategies specifically for the proficiency exam reviewed regular test-taking strategies they had already been teaching, but they specifically related and implemented the strategies to the proficiency exam.

The teachers did not intend to teach any test-taking strategies to the students other than what they had been already teaching during the semester.

Summary

1. Student Interviews

This section was intended to conduct a qualitative inquiry in order to investigate existence of differences between field-dependent and field-independent students. The students and teachers were interviewed regarding performance differences, assessment preferences, and study habits of both student groups. Overall, the student interviews helped to reveal students' feelings and thoughts toward multiple-choice and
performance-based assessments (e.g., essay, oral exams, projects) as well as study techniques they applied for getting ready before exams. In terms of assessment preferences, the results of the qualitative investigation did not reveal differences between the field-independent and field-dependent students. Regardless of their cognitive styles, both groups reported that they preferred their knowledge of French to be tested by multiple-choice exams. With a small difference (86.7% of field-independent and 77.8% of field-dependent students) compared to field-dependent students, more students in the field-independent group favored this type of assessment format. In both groups, just a few other students preferred other types of assessment formats. When they were asked about reasons for favoring multiple-choice tests, both groups indicated that the guess factor was the main reason for that. Thus, they could guess if they were not sure about the correct answer. This factor was followed by the fact that the students found multiple-choice tests easier than any other assessment format.

The students were also interviewed about their study habits. Some variations were observed between the two groups. The results tended to suggest that compared to field-independent students, more field-dependent students reported that they tended to use memorization as a major study technique for getting ready before an exam. Thus, 33.3 percent of the field-dependent students reported that they memorized the materials that they were responsible for before taking an exam. This was followed by reading over materials (27.8%), both "reading and memorizing" depending upon the material (20.0%), and other techniques (13.3%).

184
On the other hand, in the field-independent group, the most frequently used study technique was "reading over material" (46.7%). This was followed by the memorization technique (20.0%), both reading and memorizing depending upon the material (20.0%), and other methods (13.3%).

Also, it was found that as mentioned earlier, 16.7 percent of field-dependent and 20.0 percent field-independent students switch their study methods from "reading over" to "memorization" or vice versa depending upon the material they need to study. That is, they used "memorization" for studying words and their meanings in English or in French and "reading over" for other types of materials.

Also, results suggested another possible variation between the study habits of the two groups. That is, approximately half of the field-independent students (40.0%) compared to five (27.8%) of field-dependent, tended to study with a group or seek help from other people (e.g., friends and parents). However in both groups, a majority of the students tended to study by themselves.

Another contrast observed between the groups was more field-independent students tended to make some kind of changes in their regular study habits depending upon the test format they were going to take. However, in both groups, it seemed that mainly they adjusted the amount of time they were going to spend on different test formats.

Forty percent of field-independent and 22.2 percent of field-dependent students indicated that they changed the amount of time they spent and the topics they studied depending upon the type of exam they were going to take.
Both groups indicated that they invested most of their time on projects (2:20 for field-independent and 3:00 for field-dependent) because they took longer time to complete and required extra search on materials. Field-dependent students invested longer time in projects than the field-independent students did. This may be attributable to their study methods. Thus, field-dependent students tended to use memorization for studying, and it may be less adaptable to projects. Following the projects, the groups spent more time on essay and oral exams. Both groups did not seem to differ in terms of the time they spent for essay and oral exams.

When asked about the French Proficiency Exam, 66.7 percent of field-independent students indicated that they knew how they were going to be tested in the proficiency exam in terms of sections and contents of the exam. However, only 38.9 percent of the field-dependent students indicated that they knew how they were going to be tested by the proficiency exam. The variation between the groups may be due to motivation or attention level of field-dependent and independent students since both groups were selected from the same schools and the same classrooms.

Both groups seemed to agree in the same way that they did not change their study techniques for preparing themselves for the French Proficiency Exam (100% of field-independent and 94.4% of field-dependent students). However, the two groups differed in terms of the total amount of time they spent for studying the proficiency exam. The field-independent students indicated that they spent an average of 6 hours during the last two weeks for getting ready for the exam while the field-dependent students spent an average of 8:52 hours. The reason field-dependent students invested
more time on the proficiency exam is most likely due to their study habits. Thus, field-dependent students used memorization as a study technique, and it took longer time than just reading over the materials like most of field-independent students did.

2. Teacher Interviews

The teachers' data help to triangulate some information gathered from students. When the teachers were asked about performances of the field-independent and dependent students, more field-dependent students were described as performing well on multiple-choice than field-independent students (38.9% versus 26.7%, respectively).

In terms of different forms of performance-based assessment (e.g., essays, projects, oral exams), the teachers indicated that 53.3 percent of field-independent students performed better on performance-based assessments in which the percentage was 55.6 for field-dependent students.

However, they specified that 20.0 percent of field-independent students performed well on both performance-based and multiple-choice assessments. None of the field-dependent students were described as doing equally well on both assessment formats. Another contrast in terms of essays was that 33.3 percent of field-independent students were described as performing well on essay exams, but only one field-dependent student was described as doing well on this type of assessment (Table 5.11). Thus, the results suggest that according to the teachers, more field-independent students performed better on performance-based assessment (53.3 +20.0%=73.3%) than field-dependent students (55.6%+0.0=55.6%) did (Table 5.10).
Also, the teachers indicated that regardless of their cognitive styles, both types of students preferred their knowledge to be tested by multiple-choice exams (66.7% for field-independent and 77.8% for field-dependent students). Only 20% of the field-independent and 11.1% of the field-dependent students were described as preferring project-type exams. Overall, the finding suggests that the teachers did not observe a large difference between assessment preferences of the field-independent and field-dependent students. This data is also important in terms of triangulating the information obtained from student interviews regarding their assessment preferences. Thus, the findings seemed to be consistent with what the students told the interviewer earlier.

Overall, the teacher interviews helped the researcher to understand the information gathered from student interviews in terms of triangulating some data obtained from the student interviews (for example, assessment preferences of the students). Both the teacher responses and student responses regarding their assessment preferences were consistent; that is, teacher data confirmed the student responses.

The teacher interviews also triangulate the data obtained from students regarding the reasons they indicated for preferring a certain assessment type over others as well as the reasons. Thus, as the student indicated, the teachers also told the interviewer that they preferred multiple-choice exams because they felt that that format was easier and they could always use guessing.

The teachers seem to observe some variations in terms of the performances of the field-dependent and field-independent students on multiple-choice and performance-
based assessments. More field-dependent students were described as doing better on multiple-choice exams than field-independent students. The field-dependent students were also described as not good on essay exams.

Overall, almost the same percentage of students in both groups were described as doing well on different forms of performance-based assessments (e.g., oral exams, essays, projects). Although some variations were observed between the groups, as Table 5.10 indicates, the variations do not seem to be deep.

The teacher interviews revealed that a majority of the teachers applied various types of assessment formats all together during the semester. The majority (77.8%) of the teachers indicated that they applied several projects for assessing student performance in French classes. Sixty-seven percent of them told the interviewer that they applied oral exams for the assessment purpose. This was followed by multiple-choice exams (55.6%), fill-in-the-blank (55.6%), essay exams (44.4%), and some other test formats (22.2%), such as open-ended questions. The findings tended to suggest that the majority of the teachers used some combinations of assessment formats which suggest that the students were familiar with taking these types of assessment formats in French classes that might helped them during the French Proficiency Exam.

When they were asked about whether they used some kind of method for preparing students before an exam, the majority of the teachers (77.8%) indicated that they did not use any specific method. Only two of them reported that they taught students about some technique, for example, how to match a word to its definition. In addition to that, excepting one teacher, all the other teachers (88.9%) specified that
they did not have a method for specifically preparing students for the French Proficiency Exam. The findings suggested that the teachers did not tend to change or modify their regular teaching activities for the upcoming proficiency exam.

In addition to that, the findings tended to suggest that only 33.3 percent of the teachers clarified what would be on the French Proficiency Exam and how students could get ready for it in terms of the sections and contents of the exam. The rest of them told the interviewer that they did not inform students about the exam because they were not fully aware of the information regarding the proficiency exam, and that was the main reason for that. Another reason was that some of the teachers were not aware at the last minute that the testing was mandatory, and they had to administer the test regardless of their willingness.

Almost half of the teachers (55.6%) specified that, in general, they taught students about test taking strategies, for example, how to read items and look for key words. However, only 22.2 percent of the teachers told the interviewer that they taught test-taking strategies specifically for the proficiency exam. The majority of them indicated that they followed their regular teaching activities and taught students what they had been teaching before. Overall, the results suggested that a majority of the teachers followed their regular teaching and other classroom activities and did not intend to make specific changes because of the French Proficiency Exam.

Also the teacher data was helpful for obtaining information about the backgrounds of the students, for example, which assessment formats the students were exposed to by the teachers and whether the students were informed about the content or
sections of the French Proficiency Exam. In that sense, the teacher interviews also helped to eliminate some teacher variables that may explain how the students performed in the exam. The teacher interviews suggest that the majority of the teachers exposed their students to a variety of testing formats. Therefore, approximately all the students were familiar with different formats of performance-based assessment (e.g., essay, oral exam and multiple-choice exams). That is, the performance differences found in the quantitative phase are not likely because some students were not familiar with certain assessment types. Also, the teachers informed the students to some degree regarding the content and sections (e.g., writing, oral parts) of the proficiency exam. Thus, the students were in similar conditions in terms of being informed about the proficiency exam.
CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

Overview

The present study examined the degree to which cognitive style impacts student performance on different types of assessment formats and student attitudes regarding these test formats. The primary purpose of the study was to investigate:

- the relationship between cognitive style and academic performance of students as measured by a French proficiency test.

- the relationship between cognitive styles of students and their attitudes and preferences toward two assessment formats: multiple-choice and performance-based assessment.

- the relationship between cognitive style and the students' reported strategies for learning

The demand of making educational programs accessible to all students with different characteristics (e.g., cognitive style) initiated continuous efforts for improving different aspects of the educational setting. Assessing student achievement and skills in different subject domains is a critical part of education. Various assessment formats have been generated with the aim of finding a format that serves all students. However, a number of studies indicated that students tend to perform differently on differently test formats (Mills, 1996; Sivalingam, 1997).

Different characteristics of students have been investigated in order to determine the reasons why students perform differently on different test formats.
Recently, the cognitive style of students started to be viewed as a possible factor that needs to be examined in order to explain why students perform differently on different types of assessment formats (Birenbaum & Feldman, 1998; Lu & Suen, 1995). However, very few studies have been conducted to investigate how assessment format and cognitive style interact. Specifically, a few studies have been conducted in relation to second language performance of students and how their performance is affected by cognitive style (Tinajero & Paramo, 1997; Ehrman & Oxford, 1995; Hoffman, 1997) and the assessment format.

Although there are some studies investigating the interaction between the cognitive style and assessment formats, there is a scarcity of studies that investigate attitudes of students with different cognitive styles toward various assessment approaches (Birenbaum & Feldman, 1998; Birenbaum, 1997).

Previous research suggests a significant interaction effect of the cognitive style and assessment format (Tinajero & Paramo, 1997; Dwyer & Moore, 1995; Lu & Suen, 1995; Armstrong, 1993) on test results. Field-dependent and field-independent students perform differently on various test formats. Field-independent students tend to have higher scores than field-dependent students on performance-based assessment (Lu & Suen, 1995). Because performance-based assessment is less structured than multiple-choice tests and field-dependent students are more likely to have difficulty completing a task that requires re-structuring skills (Witkin & Goodenough, 1981; Lu & Suen, 1995). Field-independent students are not expected to have a problem on these types of test formats or tasks. Research has not suggested a difference between
performances of the two groups on multiple-choice exams because these exams do not require re-structuring skills (Lu & Suen, 1995; Witkin & Goodenough, 1981). Also, field-dependent students are more likely to perform better on multiple-choice exams than they do on performance-based assessments.

The current study aimed to investigate the possible interaction of cognitive style and assessment format on students' second language performance. The study also examined whether students with different cognitive styles performed differently on multiple-choice and performance-based assessment parts of the French Proficiency Exam. Furthermore, students' study habits and their preferences toward multiple-choice and performance-based assessments were investigated. A sequential mixed model design (Tashakkori & Teddlie, 1998) was utilized to incorporate the quantitative and qualitative phases of the study.

Phase I of the study involved assessing student performance on the French Proficiency Exam and the cognitive style test. The proficiency exam consisted of four parts, two of which were in multiple-choice format (listening and reading) and the other two in performance-based format (speaking and writing). Cognitive styles of the students were assessed by Witkin et al.,’s Group Embedded Figures Test. The participants of the study were 258 eighth-grade students who were enrolled in French courses during the 1998-99 school year. The participants were selected from all high schools in the East Baton Rouge school district.

Phase II of the study consisted of student and teacher interviews. Open-ended interview schedules were developed. Depending upon scores the students obtained
from the cognitive style test, they were described as field-dependent and field-independent. Following the classification, approximately an equal number of students (18 field-dependent and 15 field-independent) with the same gender and ethnicity were selected for the student interviews. The student interviews were followed by the teacher interviews. The second language teachers of the students who were interviewed were selected for the interview. The teacher interviews were conducted in order to obtain additional information about the students and triangulate some of the data obtained from student interviews (e.g., assessment preferences of the students and the reasons reported for such preferences).

In Chapter Five, it was investigated that whether or not gender, free/reduced lunch status, ethnicity, and cognitive style influenced student achievement on the two assessment formats. Previous research does not point to an expectation of gender difference in cognitive style. Therefore, in the current study gender or ethnicity difference in cognitive style was not expected. Multivariate analysis of variance (MANOVA) results revealed that gender, ethnicity, and free/reduced lunch status did not have an impact on student achievement.

As stated before, unexpectedly, the number of students on the free/reduced lunch program was small in the sample. Hence, most statistical analyses could not be performed on these students. Descriptive analysis in this group (students who were in free/reduced lunch program) indicated that field-dependent students had a larger score on multiple-choice exams than they had on performance-based assessment (mean z-score of .23 versus -.19, respectively). The field-independent students had similar
scores on both multiple-choice and performance-based assessments (z-mean scores of -.67 and -.77, respectively).

It has been argued that performance-based assessment is robust to gender, ethnicity, and socio-economic status as well as cognitive styles (Simmons & Resnick, 1993; Asher, 1990b; Lu & Suen, 1995). This type of assessment format allows students to describe themselves in a personal matter, express their knowledge through various activities, and not be restricted in the way they perform the task at hand. Carol (1990) indicated that performance-based assessments measure the performance of low-socio-economic and minority students more accurately or precisely than multiple-choice exams. On the other hand, multiple-choice assessment has been criticized for being impacted by socio-economic status, ethnicity, and cognitive style (Simmons & Resnick, 1993; Carol, 1990). After a review of literature, it was predicted in Chapter 1 that despite the stated advantageousness of performance-based assessments, it is more sensitive to learning and cognitive style of students than multiple-choice tests. These predictions are discussed below.

**Performance-Based Assessment**

Witkin and Goodenough (1981) indicated that field-dependent students are expected to have difficulties when performing a task that is less structured and requires re-structuring skills in order to complete the task (e.g., performance-based assessment). In a study, Lu and Suen (1995) found that there is a significant interaction between test format (multiple-choice and performance-based assessment as measured by form of take-home assignments and projects) and cognitive style of students in college level
psychology class. They indicated that field-independent students perform better than
field-dependent students in performance-based assessment.

Contrary to these predictions, the current results did not indicate any differences
between the performance of field-dependent and field-independent students in French
achievement as tested by performance-based assessments (speaking and writing). The
two groups did not perform differently on either speaking or writing sections of the
proficiency test. Field-dependent students performed significantly better on
performance-based assessment than they did on multiple-choice test. On the other
hand, field-independent students performed significantly higher on multiple-choice
tests than they did on the performance-based format.

An explanation for this inconsistency might be that cognitive style is task
related (Lu & Suen, 1995). Thus, how field-dependent and independent students
perform in other subject domains (e.g., psychology, mathematics) may not necessarily
hold for second language performance. Each of the two types of students have
advantageous and disadvantageous in second language learning. Field-dependent
students are known to be highly interpersonal-oriented and comfortable in situations in
which they need to interact with other people and use language for communicating
with others (speaking and writing) to express themselves (Skehan, 1998; Felder &

On the other hand, field-independent students don't have difficulty in terms of
cognitive processing, but they prefer to ignore situations in which they need to use
communication skills.
Another explanation for the inconsistency might be the difference in the age of the individuals who were studied. Unlike the current study, the previous ones were conducted on adult population (e.g., college students). Therefore, difference in the direction of findings might be due to age differences in cognitive style or its impact.

The findings of the current study suggest that performance-based assessment is fair in terms of providing students with different backgrounds (socio-economic status, ethnicity, gender) as well as cognitive style (field-dependent and -independent students) with various situations in which both student groups express themselves in a personal way in second language learning. The finding of the study is significant in terms of discouraging the debate which states that use of performance-based assessment is not fair for field-dependent students and puts them in a disadvantageous situation because they are not competent in terms of re-structuring skills.

**Multiple-Choice Assessment**

As stated above, multiple-choice assessment has been criticized for being impacted by socio-economic status, ethnicity, and cognitive style (Simmons & Resnick, 1993; Carol, 1990). However, after a review of related studies, it was predicted in Chapter 1 that despite the stated disadvantages, multiple-choice format would allow equal conditions for both field-dependent and field-independent students to perform equally well. Thus it is robust to field-dependent and -independent cognitive styles.

According to Witkin and Goodenough (1981), neither field-dependent nor field-independent students are likely to encounter any problem when performing a task that
is structured, for example multiple-choice exams. Findings of Lu and Suen (1995) supported this prediction, indicating that in a college level psychology class, both field-dependent and field-independent groups performed similarly.

Contrary to these predictions, the current results indicated a significant difference between the performance of field-dependent and field-independent students in multiple-choice parts of the French exam, which consisted of listening and reading tests. Field-independent students outperformed field-dependent students on both parts of the multiple choice exam.

One explanation for such results is that cognitive style, as indicated above, is task related (Lu & Suen, 1995). Both cognitive style groups are known to have different preferences in second language learning. It was stated that field-independent students are superior to field-dependent students and are in an advantageous position when a situation is "characterized by logically ordered and structured drills and emphases on grammar rules (i.e., linguistic competence)" (Hoffman, 1997, p. 231). Also, field independent students are described as being comfortable when they have a task that requires dividing sentences or words into smaller components as well as emphasizing grammar analysis (Felder & Henriques, 1995). Since the grammatical rules as well as finding smaller components of sentences are important parts of reading tests, this may cause differences between the performance of the two groups. Field-dependent students are described as being more comfortable for finding main ideas (Felder & Henriques, 1995). On the other hand, field-independent students are not competent in finding main ideas.

199
Another possible explanation is that, the multiple-choice part of the French proficiency exam heavily involved listening. Most of the test information and questions were presented to students through tape-players. This might have impacted the performance of field-dependent students differently than field-independent students. Skehan (1998) stated that field-dependent and -independent students are different in terms of the "input-processing dimension" and their attention organization or mode. During the listening situation, it is important to separate important information from the irrelevant ones and focus the attention on important parts. Thus during the listening activity, field-independent students are expected to have a tendency for separating important input data or parts from irrelevant information and focus their attention on important information (Skehan, 1998; Jamieson, 1992; Hoffman, 1997).

As mentioned before, respondents' age might be another reason why the findings of the current study contradict those of the previous ones. The previous investigations mostly studied the performance of field-independent and -dependent adults such as college students.

In order to test this hypothesis, students' scores on the Louisiana Educational Assessment Program (LEAP) were also examined. This test is an elementary testing program for assessing student progress in language arts and mathematics (Louisiana Department of Education, 1995-96). The language arts test consisted of both multiple-choice and performance-based assessments. The two-factor split-plot design that was used before was also applied to the language arts scores. The results revealed a significant interaction of cognitive style and assessment format ($F(1,101) = 8.32$, p
In line with the findings of the French test, field-independent students outperformed the field-dependent students on the multiple-choice part of the test with corresponding mean z-scores of .56 and -.42, respectively (t(105)=5.68, p<.05). On the performance-based part of the test, although the difference was small, the mean difference between the two groups was found to be statistically significant in favor of field-independent students with mean z-scores of .26 and -.12, respectively (t(105)=2.01, p<.05).

Field-dependent students scored better on the performance-based test than they did on the multiple-choice part. On the other hand, field-independent students scored better on multiple-choice than they did on performance-based assessments. These findings confirmed the results of the French data.

In order to assure internal validity of the study, a number of alternative explanations were examined (Borg & Gall, 1996). In order to assure that the interaction found was attributable to cognitive style and not to some other extraneous variables, other analyses were performed.

One possible extraneous variable was task difficulty. It is possible to speculate that the two groups performed significantly different on the multiple-choice part because items in the multiple-choice test were more difficult than their performance-based counterparts and field-independent students are more competent in terms of solving difficult questions. The interaction between cognitive style and item difficulty of the multiple-choice exam was examined (Table 4.10, Chapter 4). The items that had difficulty level of $p=.50$ and smaller were described as difficult items and those that
had difficulty level larger than .50 (p>.50) described as easy items. ANOVA indicated that the interaction of item difficulty and cognitive style was not statistically significant (F(1, 130)=.004, p=.95). The findings did not reveal any evidence suggesting that the difference between the two groups is attributable to differences in the degree of task difficulty.

Another extraneous variable may have been that the two formats (multiple-choice and performance-based assessments) were not measuring the same construct. Investigating the sample of items used in both forms of the proficiency exam, there is evidence suggesting that the two parts fairly comparable in terms of the content of the tests and level of thinking skills measured. Appendix A provides a summary of the skills measured by the two formats and contents of the tests as well. In order to assure this, further analysis was conducted. Correlation between multiple-choice and performance-based assessment parts was found for the raw scores of the two parts (Table 4.2, Chapter 4). All correlations were found to be statistically significant and ranging between .34 to .68.

In summary, a significant interaction was found between the cognitive style and test format, indicating that effect of cognitive style differed depending upon the type of test format the student was taking. Performance of field-dependent and field-independent students significantly varied on the multiple-choice exam. Field-independent students outperformed the other group on the multiple-choice exam, but no indication of such difference was found between the performance of the two groups on the performance-based part of the exam.
Overall, the findings are consistent with those of previous studies that demonstrated an interaction between cognitive style and assessment approaches (Lu & Suen, 1995).

Furthermore, the results of the French Proficiency Exam were confirmed with those of LEAP language arts, indicating that field-independent students performed better than field-dependent students on the multiple choice test.

**Findings of the Interviews and Their Relation to the Quantitative Phase**

Attitudes of field-dependent and field-independent students toward different assessment approaches and their study habits were probed through data gathered from student and teacher interviews. A total of 33 students and 9 teachers were interviewed. Analysis of the data revealed major differences between the two groups.

Interview data suggested that the two groups did not report differences in their assessment preferences. Regardless of their cognitive styles, both groups reported that they prefer multiple-choice type assessments over any other type of assessment format. As a reason, both groups reported that they felt that this type of format is easier than the others, and they always can use the guessing factor if they don't know the correct answer. These findings were not consistent with findings of the quantitative phase suggesting that field-dependent students perform low on multiple-choice type exams although they preferred to be tested by this type of format. One reason for such similarity might result from the difficulty level of multiple-choice teacher-made tests with which the students had prior experience. It is possible that these teacher-made tests have been easier than the high-stake multiple-choice tests, which are developed by
measurement experts. This factor might have impacted the students' preference for multiple-choice type assessments.

Some differences were observed between the two groups in their study habits. More field-independent students seemed to use reading-over materials as a study method for exams. On the other hand, more field-dependent students reported that they memorized materials when studying for exams. Also, field-independent students tended to use multiple sources for studying, for example books, study sheets/guides, and notes whereas more field-depended students reported that they preferred to use fewer sources, mainly study sheets/ guides. Although more field-independent students reported that they preferred to study with a group (e.g., member of family or friends), both groups reportedly preferred to study by themselves.

Both cognitive style groups tended to keep the same study methods when studying for different assessment formats, for example multiple-choice, essays, and oral exams. They reported that they only studied more for some assessment formats, and it was the only thing they changed depending upon the assessment format they were going to take. Both groups spent the most time in studying for project-type exams. This was followed by essay and oral exams. The students spent the least amount of time on multiple-choice exams. Although the students spent the least time on studying for multiple-choice exams, this factor did not seem to affect performance of field-independent students on multiple-choice as compared to performance-based assessments of the French Proficiency Exam. Because both parts were administered sequentially and the students knew that the test would include both parts and that the
final score would be a combination of both parts, they did not really have a choice of studying less for one part and more for the other part.

The students were also asked about how they prepared for the French Proficiency Exam and if they differed in terms of their preparation. More of the field-independent students reported that they were informed about how they would be tested by the proficiency exam. On the other hand, more field-dependent students reported that they did not know about the sections and contents of the exam. Neither group reported that they adjusted their regular study habits for the proficiency exam.

The teacher interviews were analyzed to probe some characteristics of field-dependent and independent students and investigate some teacher factors that might impact performance on various test formats as well as on the proficiency exam. The teachers were specifically asked about each student who was interviewed. The teachers also confirmed that regardless of their cognitive styles, a majority of the students favored multiple-choice exams. The teachers also confirmed that the students preferred multiple-choice exams because they found them easier and they could guess the correct answers.

The teachers described approximately an equal number of field-dependent and independent students as better performers on performance-based assessment, which suggested that overall they did not perceive a big difference in terms of the performances of the two groups depending upon the test formats. However, in essay type exams, they perceived more field-independent students as being better performers whereas no such description was made for field-dependent students. They also
described more field-dependent students as being good performers on multiple-choice exams. Since the teachers tended to apply teacher-made exams, it is hard to determine why they found more field-dependent students to be better performers on multiple-choice type exams in terms of thinking skills measured by these tests.

Data suggested that a majority of the teachers tended to use combinations of all assessment formats through the semester, which suggests that the students were in similar situations in terms of being exposed to various assessment formats. Approximately half of the teachers seemed to teach some form of test taking strategies to the students. However, only a few teachers said they taught test taking strategies specifically for the proficiency exam. They reported they did not use any specific methods in order to prepare students for the proficiency exam.

**Educational Implications and Recommendations**

The findings have both theoretical and policy implications. First of all, nearly all of the studies investigating the significance of test format and cognitive styles in second language learning consisted of correlational studies. Thus, they were testing whether second language and cognitive styles are correlated. The present study investigated the issue from different aspects. Several analyses were conducted to explain the role of cognitive style and assessment formats in second language performance. As a result, the data reveal a number of findings that answer some of the questions educators may have in their minds. These two factors were observed to have a significant interaction in second language learning. This answers the question that investigates whether the interaction found between the factors in different subject areas
exists for the second language learning. However, contradicting the findings in other subject domains (e.g., psychology), field-dependent students tended to be confident on performance-based type assessments in second language learning. The data suggest that cognitive style is task related, and results found in other studies do not necessarily hold for second language learning. Thus, in second language learning, both cognitive style groups have different advantages and disadvantageous. The findings support the claim that performance-based assessment is a test that is less impacted by student attributes. The study indicated that both groups performed similarly in performance-based assessment. These findings also confirmed by the results of the LEAP data. Use of performance-based assessment in second language learning eliminates the disadvantages that field-dependent students have and provides them a situation in which they can display their true performance.

Secondly, although there are studies investigating the effects of test formats and cognitive styles on different subject areas (rarely second language learning), only a few have investigated student attitudes toward assessment formats and their study habits related to their cognitive styles. Above all, the literature does not indicate any qualitative study investigating the issues in debates. Defining which type students prefer which assessment format would increase face validity of assessment format and more importantly intensify student motivation levels (Birenbaum & Feldman, 1998) that would contribute to better performance. The present study provided evidence suggesting that cognitive style did not seem to impact assessment preferences of the students; however, some differences were observed in terms of study habits, which can
find implications in school settings in terms of being aware of study habits of different students and adjusting instructions and help them to be better learners by letting teachers and students know about their cognitive styles and how to handle a task at hand.

The results of the study suggest that teachers should use performance-based assessments more often than they use multiple-choice exams since multiple-choice tests seem to be more sensitive to individual differences.

The results also have theoretical and psychometric implications for the assessment of cognitive style. In the current study, statistically significant differences were found between minority and non-minority students, and between those who had free/reduced lunch and those who did not. Theoretically, none of these differences was expected. The results indicate that cognitive style is not independent of social background, and socio-economic status. These findings point to the importance of culture and socialization in cognitive style. Such cultural differences were also found in a study that is in progress (Cakan & Tashakkori, in progress). The study shows differences between Turkish and American 8th graders. Mean score of American students is substantially higher than the Turkish students.

**Limitations and Suggestions for Future Research**

The current study faced a few limitations that future research might be asked to address. Some of these limitations are discussed below:

The study indicated that regardless of their cognitive style, both field-dependent and field-independent students preferred multiple-choice type exams over other
formats. An explanation might be that the students are frequently exposed to teacher-made multiple-choice type tests that may be easier than high-stake state-level tests. Preference for multiple-choice tests might be a result of such frequent exposure to easy tests. Future research is needed to investigate this hypothesis.

The present study did not indicate a difference between assessment preferences of field-dependent and -independent students. This issue needs to be investigated among students of different ages and grade levels in order to verify whether age is a factor for students' being aware of their cognitive preferences. As was mentioned before, one explanation for such findings might be that the respondents of the current study were much younger. Future studies are needed to test this possible impact of age on cognitive style and its impact on performance.

A limitation of the current study is that only two types of performance-based assessment (essay and speaking) were used for measuring second language proficiency. Further studies are needed in which other forms of performance-based assessments are utilized for such assessment.

Due to the small number of observations, students who were on the free/reduced lunch program were not included in some of the analyses. Results of these analyses might have been impacted by such omission. Further research is needed in which a more heterogeneous population is studied.

Cognitive style was operationalized as the scores on the Group Embedded Figures Test. Further research is needed in which other measures or other ways of operationalizing this construct are utilized.
The sample used in the study was selective, consisting of students from middle socio-economic backgrounds. Therefore, the findings of the study might be limited to these groups of students. Future research is needed to confirm the results in individuals with different backgrounds.

Ethnicity and socio-economic differences in cognitive style were found in the current study. However, it is not clear if the results are unique to the sample under study or are more pervasive. Further studies are needed in other groups, e.g., in different grade levels.
REFERENCES


211

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Louisiana Department of Education, Division of Student Standards and Assessments, Foreign Language Programs, 1999. *Grade 8 Teacher Manual: Developing Stage French*.


216


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APPENDIX A : CONTENT OF THE TESTS AND BLOOM'S TAXONOMY
**Levels of Thinking skills (Bloom’s Taxonomy) assessed by the French Proficiency Test**

<table>
<thead>
<tr>
<th>Performance-based assessment</th>
<th>Multiple-choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Comprehension</td>
</tr>
<tr>
<td>Application</td>
<td>Application</td>
</tr>
<tr>
<td>Analysis</td>
<td>Analysis</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Synthesis</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Comprehension</td>
</tr>
<tr>
<td>Application</td>
<td>Application</td>
</tr>
<tr>
<td>Analysis</td>
<td>Analysis</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Synthesis</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
</tr>
</tbody>
</table>

**Content of the French Proficiency Test**

<table>
<thead>
<tr>
<th>Performance-based assessment</th>
<th>Multiple-Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td></td>
</tr>
<tr>
<td>grammar, vocabulary</td>
<td>#</td>
</tr>
<tr>
<td>time, weather, number</td>
<td>#</td>
</tr>
<tr>
<td>daily activities, social life</td>
<td>#</td>
</tr>
<tr>
<td>outdoor, school, classroom activities</td>
<td>#</td>
</tr>
<tr>
<td>trips, excursions</td>
<td>#</td>
</tr>
<tr>
<td>familiar phrases, expressions</td>
<td>#</td>
</tr>
<tr>
<td>people around us, friends</td>
<td>#</td>
</tr>
<tr>
<td>health and exercise</td>
<td>#</td>
</tr>
<tr>
<td>vocations, holidays, celebrations</td>
<td>#</td>
</tr>
<tr>
<td>thoughts, opinions, ideas, feelings</td>
<td>#</td>
</tr>
<tr>
<td>Food</td>
<td>#</td>
</tr>
<tr>
<td>personal interests</td>
<td>#</td>
</tr>
<tr>
<td>pertinent events</td>
<td>#</td>
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<td></td>
<td></td>
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</tbody>
</table>

PART FOUR

Writing Performance Assessment
Guidelines

Rationale

The writing performance component of this standards-based evaluation has been designed to determine the individual student's level of competency in writing French. In this writing portion of the test, the student is asked to write about a variety of topics based on written and visual prompts. The test developers felt that it was important to provide several different topics rather than restricting the activity to just one narrow focus. The student does not have to write about all the topics but is simply instructed to write as much as he or she can about as many as he or she can. The student will not be penalized for not writing about any given topic since the Administrator will be looking at the overall quantity and quality of the writing. As in the speaking portion of the test, this approach allows for one-word or simple phrase responses, the production of simple sentences or strings of sentences, or more elaborate descriptions involving connected sentences or paragraphs.

Since the activity replicates a real-life situation, the students could be allowed to use dictionaries at the discretion of the Administrator. Note that dictionaries should be permitted ONLY if the student has been properly trained to use such a bilingual reference. Students who do not know how to use a dictionary actually make more mistakes when allowed to use one, so the Test Administrator should use careful judgment when making this crucial decision. If dictionaries are permitted during this writing activity, they should be available to all members of the class being tested. The Administrator will need to darken the appropriate place on the computer answer sheet to indicate whether or not dictionaries were used.

Administering the Test

Step 1

Hang the "Do Not Disturb" sign on the door.

The Test Administrator passes out the writing activity packet with the instructions to the student page on top. The Administrator should go over these instructions with the class to make sure that they understand. Once the Administrator is confident that the students know what they are to do, they should be told to turn over their packets and begin working.
Step 2

This writing activity should take no more than 30 minutes to complete. Some students will finish quickly, while others need more time to compose creative thought. As the student completes the activity, he or she should bring his paper to the Test Administrator and pick up the Student Activity Packet used during the speaking performance component of the test. The student should return to his or her desk to quietly work in these activities while the other students are finishing their tests.

Step 3

The Administrator should score the student’s performance on the writing activity using the rubric or checklist on the remaining page of the computer answer sheets. Be sure to use the computer answer sheet that already has the student’s name and other information on it. Indicate in the appropriate place on the each computer sheet whether or not dictionaries were used. Check to make sure that all other information has been entered correctly. Place the computer answer sheets and place in the folder labeled Writing Performance. Once all the packets have been collected and scored, the Administrator should put the computer answer sheets in alphabetical order and place them along with the actual student work in the folder. These test materials should be placed in a secure location until collected by the Test Coordinator to be sent to the Department of Education.

Scoring the Test

The Test Administrator uses the criteria on the rubric provided by the Department of Education to score each student’s speaking performance. The rubric contains five categories with five levels of performance described for each. Choose the one level in each category that most accurately describes the performance of the student. The following proficiency level descriptions have been adapted from the ACTFL Performance Guidelines for K-12 Learners (1998).

Comprehensibility

(How well is the student understood?)

No Performance: The student fails to perform.

Minimal Performance: The student tries to perform but it is impossible for anyone to understand what the student is expressing.

Beginning Stage Performance: The student: (1) uses short memorized phrases and sentences in written presentations and (2) shows ability in writing by reproducing familiar material.
Developing Stage Performance: The student: (1) expresses his or her own thoughts, describes and narrates, using sentences and strings of sentences, in written presentations on familiar topics and (2) communicates written information about familiar topics with sufficient accuracy that readers understand most of what is presented.

Expanding Stage Performance: The student: (1) reports, narrates, and describes, using connected sentences, paragraph-length and longer forms of discourse, in written presentations on topics of personal, school, and community interest and (2) communicates with a fairly high degree of facility when making written presentations about familiar or well-researched topics.

Language Control

(How accurate is the student's language?)

No Performance: The student fails or refuses to perform.

Minimal Performance: The student attempts to perform but uses completely inaccurate language or the performance is inadequate for assessment.

Beginning Stage Performance: The student: (1) demonstrates some accuracy in written presentations when reproducing memorized words, phrases, and sentences in the target language; (2) formulates written presentations using a limited range of simple phrases and expressions based on very familiar topics; (3) shows inaccuracies and/or interference from the native language when attempting to communicate information which goes beyond the memorized or pre-fabricated; and (4) may exhibit frequent errors in capitalization and/or punctuation and/or production of characters when the writing system of the target language varies from the native language.

Developing Stage Performance: The student: (1) formulates written presentations on familiar topics, using a range of sentences and strings of sentences primarily in present time but also, with preparation, in past and future time; (2) may show inaccuracies as well as some interference from the native language when attempting to present less familiar material: and (3) exhibits fairly good accuracy in capitalization and punctuation (or production of characters) when target language differs from native language in these areas.

Expanding Stage Performance: The student: (1) accurately formulates paragraph-length and longer written presentations in present time, on topics of personal, school, community, and global interest; (2) may show some inaccuracies and/or interference from the native language when presentations deal with multiple time frames and/or other complex structures; (3) successfully communicates personal meaning by applying familiar structures to new situations and less familiar topics; and (4) exhibits awareness of need for accuracy in capitalization and/or punctuation (or production of characters) when target language differs from native language in these areas.

225
Vocabulary Use

(How extensive and applicable is the student’s vocabulary?)

No Performance: The student fails or refuses to perform.

Minimal Performance: The student’s performance is inadequate for assessment beyond this minimal level.

Beginning Stage Performance: The student: (1) uses a limited number of words and phrases for common objects and actions in familiar categories and (2) relies on native language words and phrases when expressing personal meaning in less familiar categories.

Developing Stage Performance: The student: (1) demonstrates control of an expanding number of familiar words and phrases and of a limited number of idiomatic expressions and (2) may sometimes use false cognates and incorrectly applied terms, and show only partial control of newly-acquired expressions.

Expanding Stage Performance: The student: (1) demonstrates control of an extensive vocabulary, including a number of idiomatic and culturally authentic expressions, from a variety of topics and (2) may use more specialized and precise terms when dealing with specific topics that have been researched.

Communication Strategies

(How does the student maintain communication?)

No Performance: The student fails or refuses to perform.

Minimal Performance: The student’s performance is inadequate for assessment beyond this minimal level.

Beginning Stage Performance: The student relies heavily on repetition to communicate his or her message.

Developing Stage Performance: The student uses circumlocution when faced with difficult syntactic structures, problematic spelling, or unfamiliar vocabulary.

Expanding Stage Performance: The student demonstrates conscious efforts at correct formulation and self-correction by use of self-editing and sustains length and continuity of presentations by appropriate use of strategies such as simplification, reformulation, and circumlocution.
Scoring the Test

The Test Administrator uses the criteria on the rubric provided by the Department of Education to score each student’s speaking performance. The rubric contains six categories with five levels of performance described for each. Choose the one level in each category that most accurately describes the performance of the student. The following proficiency level descriptions have been adapted from the *ACTFL Performance Guidelines for K-12 Learners* (1998).

**Comprehensibility**

*(How well is the student understood?)*

No Performance: The student fails or refuses to participate although the Test Administrator attempts to conduct the interview.

Minimal Performance: The student tries to speak but it is impossible for anyone to understand what the student is saying.

Beginning Stage Performance: The student: (1) relies primarily on memorized phrases and short sentences during highly predictable interactions on familiar topics; (2) is understood primarily by those very accustomed to interacting with language learners; (3) imitates modeled words or phrases using intonation and pronunciation similar to that of the model; and (4) may show evidence of false starts, prolonged and unexpectedly-placed pauses, and recourse to the native language as topics expand beyond the scope of immediate needs.

Developing Stage Performance: The student: (1) expresses his or her own thought using sentences and strings of sentences when interacting on familiar topics in present time; (2) is understood by those accustomed to interacting with language learners; (3) uses pronunciation and intonation patterns which can be understood by a native speaker accustomed to interacting with language learners; and (4) makes false starts and pauses frequently to search for words when interacting with others.

Expanding Stage Performance: The student: (1) narrates and describes using connected sentences and paragraphs in present and other time frames when interacting on topics of personal, school, and community interest; (2) is understood by those with whom he or she interacts, although there may still be a range of linguistic inaccuracies, and on occasion the communication partner may need to make a special effort to understand the message; (3) uses pronunciation and intonation patterns that are understandable to a native speaker unaccustomed to interacting with language learners; and (4) uses language confidently and with ease, with few pauses.
Comprehension

(How well does the student understand?)

No Performance: The student fails or refuses to participate although the Test Administrator attempts to conduct the interview.

Minimal Performance: The student tries but fails to understand the prompts or questions spoken by the Test Administrator.

Beginning Stage Performance: The student: (1) comprehends general information and vocabulary when the communication partner uses objects, visuals, and gestures in speaking or writing and (2) generally needs contextual clues, redundancy, paraphrase, or restatement in order to understand the message.

Developing Stage Performance: The student: (1) comprehends general concepts and messages about familiar and occasionally unfamiliar topics; (2) may not comprehend details when dealing with unfamiliar topics; and (3) may have difficulty comprehending language not supported by situational context.

Expanding Stage Performance: The student: (1) comprehends main ideas and most details on a variety of topics beyond the immediate situation; (2) occasionally does not comprehend but is usually able to clarify with details by asking questions; and (3) may encounter difficulty comprehending language dealing with abstract topics.

Language Control

(How accurate is the student's language?)

No Performance: The student fails or refuses to participate although the Test Administrator attempts to conduct the interview.

Minimal Performance: The student attempts to perform but uses completely inaccurate language or the performance is inadequate for assessment.

Beginning Stage Performance: The student: (1) comprehends messages that include predominantly familiar grammatical structures; (2) is most accurate when communicating about very familiar topics using memorized phrases; and (3) exhibits decreased accuracy when attempting to create with the language.

Developing Stage Performance: The student: (1) comprehends messages that include some unfamiliar grammatical structures; (2) is most accurate when creating with the language about familiar topics in present time using simple sentences and/or strings of...
sentences; (3) exhibits a decline in grammatical accuracy as creativity in language production increases; and (4) begins to apply familiar structures to new situations.

Expanding Stage Performance: The student: (1) comprehends messages that include unfamiliar grammatical structures; (2) is most accurate when narrating and describing in connected sentences and paragraphs in present time with decreasing accuracy in past and future times; (3) may continue to exhibit inaccuracies as the amount and complexity of language increases; and (4) communicates successfully by applying familiar structures to new situations.

Vocabulary Use

(How extensive and applicable is the student’s vocabulary?)

No Performance: The student fails or refuses to participate although the Test Administrator attempts to conduct the interview.

Minimal Performance: The student’s performance is inadequate for assessment beyond this minimal level.

Beginning Stage Performance: The student: (1) comprehends and produces vocabulary that is related to everyday objects and actions on a limited number of familiar topics; (2) uses words and phrases primarily as lexical items without awareness of grammatical structure; (3), recognizes and uses vocabulary from a variety of topics including those related to other curricular areas; and (4) may often rely on words and phrases from his or her native language when attempting to communicate beyond the word and/or gesture level.

Developing Stage Performance: The student: (1) uses vocabulary from a variety of thematic word groups; (2) recognizes and uses vocabulary from a variety of topics including those related to other curricular areas; (3) shows some understanding and use of common idiomatic expressions; and (4) may use false cognates or resort to native language when attempting to communicate beyond the scope of familiar topics.

Expanding Stage Performance: The student: (1) understands and often uses idiomatic and culturally authentic expressions; (2) recognizes and uses vocabulary from a variety of topics including those related to other curricular areas; and (3) uses more specialized and precise vocabulary terms within a limited number of topics.
Communication Strategies

(How does the student maintain communication?)

No Performance: The student fails or refuses to participate although the Test Administrator attempts to conduct the interview.

Minimal Performance: The student is unable to maintain communication.

Beginning Stage Performance: The student: (1) attempts to clarify meaning by repeating words and occasionally selecting substitute words to convey the message and (2) primarily uses facial expressions and gestures to indicate problems with communication.

Developing Stage Performance: The student: (1) may use paraphrasing, question-asking, circumlocution, and other strategies to avoid a breakdown in communication and (2) attempts to self-correct primarily for meaning when communication breaks down.

Expanding Stage Performance: The student: (1) is able to sustain an interaction with a native speaker by using a variety of strategies when discussion topics relate to personal experience or immediate needs and (2) shows evidence of attention to mechanical errors even when these may not interfere with communication.

Cultural Awareness

(How is the student's cultural awareness reflected in communication?)

No Performance: The student fails or refuses to participate although the Test Administrator attempts to conduct the interview.

Minimal Performance: The student's performance is inadequate for assessment beyond this minimal level.

Beginning Stage Performance: The student: (1) imitates culturally appropriate vocabulary and idiomatic expressions and (2) uses gestures and body language that are generally those of the his or her own culture, unless they are incorporated into memorized responses.

Developing Stage Performance: The student: (1) uses some culturally appropriate vocabulary and idiomatic expressions and (2) uses some gestures and body language of the target culture.

Expanding Stage Performance: The student: (1) uses culturally appropriate vocabulary and idioms and (2) uses appropriate gestures and body language of the target culture.
Dear parent:

As part of a follow-up study of the French Proficiency Test that was administered to students in East Baton rouge Parish April 1999, I would like to conduct interviews with the students. The purpose of the interview is to obtain information regarding students’ preferred strategies for learning French. The interview will cover students’ learning styles, how they prepared for the test, and their attitudes regarding the exam. Interview results will not be analyzed individually, but combined to include all respondents. Complete confidentiality of the information is assured. Your permission will help us improve the French Proficiency Testing for next year.

The interview will be conducted at the school and it will take place during the second week of May. The interview will take only ten minutes. We appreciate it if you give us permission to conduct the interview with your child:

(child's name)____________________________

Two copies of this letter are enclosed. Please sign one and have your child return it to school, and keep the other one for your records. You may call me at (225) 343-0717 if I can provide you with any further information regarding this issue.

Thank you in advance for your participation.

Sincerely,

Mehtap Cakan

I hereby agree for my child __________________ to be interviewed as stated above:

Parent or guardian____________________

Signature__________________________ Date:________________________
INTERVIEW QUESTIONS FOR STUDENTS

Please answer the following questions:

1. Do you usually prefer your knowledge of French to be tested by multiple-choice type exams or by other techniques (such as, essay, individual/group project, and oral exams)? Why? Please explain.

2. How do you usually prepare or study for your exams?

3. How did you prepare for the French Proficiency Exam during the last few weeks?

4. Do you change your study methods depending upon the type of exam (test format) you will take? For example, do you change your study methods when studying for multiple-choice or essay or project or oral exams? If yes, what changes do you make? Please explain.

5. Did you know how you were going to be tested for the French Proficiency Exam?

6. Did you change your regular study method to prepare for taking the French Proficiency Exam?

7. Do you spend different amounts of time studying for different types of exam (e.g., multiple-choice, essay, oral exam, and project)? If yes, why? How many hours do you spent studying for each major type of exam (multiple-choice, essay, oral, and projects)?

8. How many hours did you spend studying for the French Proficiency Exam during the two weeks before the test?
INTERVIEW QUESTIONS FOR TEACHERS

Please answer the following questions;

1. During the current year, what kind of test (multiple-choice, essay, oral-exam, project) did you give to students?

Can I have some of these tests or materials as examples?

2. During the current school year, do you have methods for preparing students before an exam?

If yes, how do you prepare them? and

How many hours do you spend in the preparation for a major test?

3. Did you have methods for preparing students for the French Proficiency Exam? If yes, how did you prepare them?

How many hours did you spend in the preparation for the French Proficiency Exam?

4. Did you clarify what would be on the French Proficiency Exam and how students could prepare for it?

Please explain.

5. Do you teach test taking strategies or methods to students? If yes, What are they?

6. Did you teach test taking strategies or methods to students for the French Proficiency Exam?

What are they?
Now I would like to ask you a few questions about ................., one of your students selected randomly.

7. Based on your experiences during the current academic year, on which type of exams (e.g., multiple-choice, essay, oral, and project) does he/she usually perform better?

In your opinion, why does this student perform better on this type of exam?

8. Based on your experiences during the current academic year, do you think she/he prefers a certain type of exam (multiple-choice, essay, oral, or project) over others? What are they?

In your opinion, why does this student prefer that type of exam?
The author of this dissertation, Mehtap Cakan, received a bachelor of arts degree in educational measurement and evaluation from Hacettepe University in Turkey in 1991. Thereafter, she worked as an assistant educational measurement specialist in a high school in Ankara, Turkey.

She graduated with a Doctor of Philosophy degree from Louisiana State University in May of 2000. She concentrated her graduate study in educational research and educational measurement and evaluation. While completing her study at LSU, she also worked as a graduate assistant for a year.

The author is currently planning to teach at a university in Turkey.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Mehtap Cakan

Major Field: Educational Research

Title of Dissertation: Interaction Between Cognitive Styles and Assessment Approaches

Approved:

[Signatures]

Major Professor and Chairman
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination: 12/7/1999