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A STUDY OF THE EFFECTS OF DEPTH OF PROCESSING AND TASK TYPE
ON MEASURES OF STUDENT LEARNING IN ELEMENTARY COLLEGE SPANISH

DISSERATION

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

By

Martha Lee Knorre, A. B., M. A.

The Ohio State University
1975

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CHAPTER I

THE PROBLEM

Introduction to the Problem

Much of what takes place in second-language teaching seems to be based on the assumption that meaning resides in words, and that when students are working with words in a potentially meaningful context, they are working with meaning. This assumption had not been tested until recently when Hosenfeld (in press) interviewed students and asked them to "think aloud" for her as they did their textbook exercises. She found that while some students did indeed process meaning as they performed the tasks assigned to them, the majority reported that they did not. Thus, although learning materials were potentially meaningful, many of the students in Hosenfeld's sample did not process meaning.

Given the inherently meaningful nature of language and the communicative goals of second-language learning, why is it that meaning may not be processed? Insights into this question may be found in the psychology literature. Craik and Lockhart (1972) identify three reasons for failure to process semantically:

1. the nature of the material (the material does not lend itself to meaningful interpretation);
2. the limited availability of processing capacity (the human mind can attend to only a limited amount of information at a time; this limitation is even greater in the foreign language than in the native language);
3. the demands of the task (the task can be done without any semantic processing).

It might be hypothesized that the third reason is the main cause of failure to process semantically in the foreign language. At least one student in Hosenfeld's study explained quite articulately how it was not really necessary for her to attend to meaning in order to do the textbook exercises. The task permitted her to by-pass meaning completely for she needed to pay attention only to morphological and syntactic cues in order to receive a perfect score. Hosenfeld concludes that many students tend to perceive grammar exercises as problem-solving activities and that such students seem to ask themselves: "What is the minimum amount of information needed to complete the task?" It is this information that they appear to process as they do the exercises. Therefore, even though the language used in learning activities may be potentially meaningful—and even though the student may know the meanings of all the words—if the task does not require him to process those meanings in order to complete it successfully, it is quite possible that semantic processing will not take place.

Rivers (1972) refers to the sentences in most drills and exercises as being "semantically empty" for the student (p. 87). Many of the
textbook and teacher-prepared exercises that students are asked to perform require only phonological, morphological, or syntactic processing. In such cases, the learner may cue on only those "bits" of information that are essential to the task and thus may not engage in semantic processing. If some or many language students are not processing semantically, what are the consequences in terms of student learning? Do morphological-syntactic processing and semantic processing have differential effects with respect to desired second-language outcomes?

Cognitive psychology is concerned with the processes by which information is "transformed, reduced, elaborated, stored, recovered, and used" (Neisser, 1967, p. 4), and with finding out what takes place when the learner performs different cognitive processes. Cognitive psychology has influenced the classroom as well as the psychology laboratory. The mind of the learner can no longer be considered a "black box," nor can the process of language learning fit a stimulus-response paradigm. The learner is seen as an active participant in the learning process (Chastain, 1971). Carroll (1971) notes that nearly all current research on human learning implies that the learner is an information processor, and the relevance of such an information-processing approach to second-language learning is discussed in Carroll (1974), Chastain (1971), Lugton (1971), and Rivers (1972). Whereas the radical behaviorists maintained that man's actions should be explained only in terms of observable variables, cognitive psychologists are concerned with what goes on inside the organism:
how he observes, interprets, interrelates and comprehends, recognizes and uses information for learning (Neisser, 1967; Rivers, 1972).

Prior foreign-language research related to this study has dealt with the effects of different classroom procedures on student learning, focusing primarily on the type of activity involved. Savignon (1971) and Joiner (1974), for example, have studied the effects of communicative vs. non-communicative practice. Jarvis (1970) has studied the effects of contextualized classroom practice with particularized referents vs. practice with generic meaning, making a distinction between the types of concepts being used during practice. These studies, which viewed the learner as an information processor, related types of classroom activity to foreign-language learning outcomes. The present study relates types of cognitive processing as well as types of tasks to foreign-language outcomes.

Theoretical Bases

It is the researcher's belief that results of research done in the psychology laboratory may have implications for the foreign-language classroom. Craik and Lockhart (1972) have hypothesized that when working within an incidental paradigm—that is, when the learner has been given neither instructions nor "set" to learn—memory is a function of the depth of processing that one does in performing the assigned task, where "depth" is defined in terms of the meaningfulness extracted from the stimulus material. According to Craik and Lockhart's levels of processing model, semantic tasks require a greater depth of
processing than do syntactic tasks, and thus seem to result in
greater retention. Thus, memory of the language involved in a
particular task seems to be a function of the amount of semantic
processing required by the task.

Results of many studies support Craik and Lockhart's levels of
processing model (Bobrow and Bower, 1969; Hyde and Jenkins, 1969;
Hyde and Jenkins, 1973; Johnston and Jenkins, 1971; Mandler, 1967;
Mechanic, 1962; Mechanic, 1964; Rosenberg and Schiller, 1971; Schulman,
1971; Till and Jenkins, 1973; Tresselt and Mayzner, 1960; Walsh and
Jenkins, 1973). Thus, the data suggest that retention is a function
of depth of processing as defined by Craik and Lockhart. Walsh and
Jenkins (1973), in a summary statement, report:

It is surely clear now that when the materials are
English words and when the criterion task is a recall
task, the aspect of the orienting task that is most
crucial is whether it is semantic or nonsemantic. How
generally this is true for other materials and other
criteria remains to be explored (p. 488).

The present study is primarily an investigation of the relationship
between levels of processing and measures of foreign-language learning.
If the depth of processing hypothesis holds true for measures of
foreign-language learning, then students who perform tasks requiring
semantic processing should score higher on post-test measures than do
students who perform tasks requiring only morphological-syntactic
processing.

In moving from the psychology laboratory to the foreign-language
classroom, however, two important differences must be considered.
first, although it is relatively easy to work within the incidental-
learning paradigm in the psychology laboratory, a certain intent to
learn is to be expected within the classroom setting. Second,
laboratory research has dealt with measures of retention—that is,
"the stability of learned material over time" (Jung, p. 141)—and
thus assumes a commonality of prior linguistic knowledge among
subjects. Classroom research, on the other hand, is concerned with
the learning of new words and structures, and thus cannot assume
such commonality among students. Procedures taken to minimize the
degree of these two differences are discussed in Chapter III.

Language-learning activities have multiple dimensions and may
be analyzed accordingly. Craik and Lockhart analyze one dimension
in their levels of processing model; Bloom (1956) deals with another.
His Taxonomy of Educational Objectives: Handbook I. The Cognitive
Domain "is designed to be a classification of the student behaviors
which represent the intended outcomes of the educational process"
(p. 12) and consists of six levels:

2. Comprehension: The lowest level of understanding, including translation, interpretation, and extrapolation.
4. Analysis: The breakdown of a communication into its constituent elements or parts; includes analysis of elements, of relationships, of structure.
5. Synthesis: The putting together of elements and parts to form a new whole, to constitute a pattern or structure clearly not there before, including the production of a unique communication.

6. Evaluation: Judgments about the value of material and methods for given purposes, including judgments in terms of internal evidence and external criteria.

An earlier adaptation of Bloom's taxonomy to the foreign-language classroom (Valette and Disick, 1972) limited Bloom's higher levels of analysis, synthesis, and evaluation to the following foreign-language activities: stylistic and thematic analysis; original research projects; and the evaluation of appropriateness and effectiveness of a language sample or literary passage. Nevertheless, in adapting this hierarchy to the foreign-language classroom it seems important to remember that Bloom is concerned with the learning of new ideas; the language learner, on the other hand, is learning new vocabulary and structures, that is, a new means of expression. Thus, analysis, in the foreign-language classroom, might refer to the analysis of new language as well as to the analysis of new ideas. Similarly, synthesis—in addition to the synthesis of ideas—might refer to the putting together of linguistic elements to produce new messages that the student may not have encountered before in his language study. Thus, although it was not so indicated by Valette and Disick, it is the researcher's belief that many basic foreign-language tasks fall into Bloom's levels of analysis and synthesis, and are therefore appropriate categories to be considered in this study.
In further support of this position, the following should be considered. Analysis, which Bloom considers to be "an aid to fuller comprehension" (p. 144), may include such tasks as labeling, identification of parts, and distinguishing relevant from extraneous information. Such tasks are clearly a part of what the language learner must do when he tries to understand an incoming message.

Synthesis, which generally involves a recombination of parts of previous experience with new material, is the category of the cognitive domain which, according to Bloom, most clearly provides for creative behavior on the part of the learner. Such creative behavior is not completely free creative expression, however, because "generally the student is expected to work within the limits set by particular problems, materials, etc." (p. 162). In the foreign-language classroom, one is in a sense dealing with a type of "structured creativity" because it is often necessary to provide the student with the vocabulary and structures that he needs in order to create. Bloom notes:

> Synthesis objectives occur at most levels of education.... Obviously the tasks corresponding to these objectives will differ in their magnitude and complexity from level to level. We would expect a progression from relatively small tasks to much larger tasks as the student moves through the educational program (p. 168).

Therefore, because beginning language students have very limited language skills, it seems appropriate that foreign-language synthesis tasks be highly structured, thus minimizing student frustration and linguistic error.
Statement of the Problem

It is the purpose of this study to provide data about the relationship between each of two independent variables and selected second-language learning outcomes. Specifically, the study deals with the following questions:

1. Is the learning of a second language a function of the depth of processing (morphological-syntactic vs. semantic) that is required by learning activities? If it is, then students who do tasks requiring semantic processing should perform better on post-test measures than do students who do tasks that require only morphological-syntactic processing.

2. Is the learning of a second language related to the type of learning task (analysis vs. synthesis)?

3. Does the levels-of-processing variable interact with the task variable with respect to amount of student learning?

Operational Definitions

The following operational definitions were used in preparing learning activities for the study.

1. Morphological-Syntactic Processing

   It is possible to complete morphological-syntactic tasks by processing only morphology and syntax.
Morphology refers to "the stock of segmental morphemes and the ways in which words are built out of them," while syntax includes "the ways in which words and suprasegmental morphemes are arranged relative to each other in utterances" (Hockett, p. 177).

2. **Semantic Processing**

   In order to complete semantic tasks, it is necessary to process semantic information as well as morphological and syntactic information. "Semantic" is usually understood as relating to the meaning(s) of words. More specifically, because "morphology and syntax together are what is generally called grammar," (de Saussure, p. 135), and "linguistic description minus grammar equals semantics" (Katz and Fodor, p. 483), semantic processing is defined as any processing of language that is more than the processing or morphology and syntax.

3. **Analysis Tasks**

   Analysis tasks require the breakdown of a foreign-language communication into its constituent parts, and include linguistic analysis as well as the analysis of ideas.
4. **Synthesis Tasks**

Synthesis tasks require the putting together of elements and parts so as to form a new whole; they involve the production of a unique communication, the putting together of old and/or new linguistic units to form a new linguistic whole.

**Value of the Experiment**

Carroll (1974) notes that cognitive theory attaches much importance to meaning. He also indicates that it will help language learners to know the following:

> It is important whenever possible to remember the meanings conveyed by the foreign language and to think of these meanings while practicing (p. 143).

And, for the preparers of instructional materials, he adds:

> Prescribe learning sequences in which there is a maximal amount of reference to meaning and situation (p. 144).

Yet, in spite of Carroll's rather authoritative statements, very little is known about the precise role of semantic processing in second-language learning. To date, relatively little attention has been given to it.

Oller (1971) has suggested that one of the most important problems for research is the relative importance of syntactic and semantic features in second-language learning. Considering the many studies conducted in the psychology laboratory that report the significance of the semantic dimension of information processing on retention,
it seems even more important that research be done in the foreign-language classroom. It is believed that the data from such research can have implications for the development of learning materials and for the planning of classroom activities.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

Basic research, such as that conducted in the psychology laboratory, as well as applied or classroom research provide data of interest to foreign-language educators. The literature related to both types of research has contributed to the conceptualization of this study. Research conducted within the foreign-language classroom will be discussed first. Second, basic psychological research conducted under the incidental learning paradigm and related to Craik and Lockhart's levels of processing model of memory will be considered. Finally, Bloom's taxonomy of educational objectives will be discussed as it relates to the present study.

Research in the Foreign-Language Classroom

Empirical research in the foreign-language classroom at one time meant broad methodological comparisons. Such studies did not, however, yield much useful information for the language teacher, nor did they suggest profitable directions for further research. Because the methods compared usually consisted of a rather large number of
instructional variables—many of which were uncontrolled—it was impossible to identify what was actually being compared. Carroll (1965) and Jarvis (1970) have noted the need for more carefully controlled, small-scale experiments to test specific aspects of the second-language teaching-learning process.

In general, the trend in more recent foreign-language research has been in this direction. One of the major concerns of foreign-language researchers has been the differential effects of different types of student practice. "Practice" may appear to be a rather vague, non-specific category of behavior simply because it is a term that is used to refer to most classroom activity involving the target language as well to most out-of-class activity such as written homework and laboratory assignments. Nevertheless, it is a variable that can be organized along a number of dimensions; that is to say, one can view the types of practice and processes involved in second-language learning in many ways. A student may practice a receptive skill or a productive skill; he may work with the written word or the spoken word; he may practice in a drill situation or in a communicative one. Although practice is not the only variable that contributes to second-language learning, its significance is considerable. Clearly, much learning occurs during the initial presentation phase of the material. Nevertheless, practice affects learning and retention by modifying cognitive structure; generally speaking, it increases the stability and clarity of newly-learned meanings in cognitive structure (Ausubel, pp. 273-74), an essential part of second-language learning.
Jarvis (1970) studied the effects of contextualized practice with particularized referents (Contextual practice) vs. practice with generic meanings (Drill practice), making a distinction between the types of concepts being processed during practice. Contextual practice symbolized specific referents; Drill practice, while meaningful and potentially communicative, did not. Although results revealed only small differences between the two treatment groups in the receptive skills, differences were highly significant in the productive skills and consistently favored the Contextual group.

Savignon (1971) and Joiner (1974) studied the effects of communicative vs. non-communicative practice. Savignon studied the effects of spending one class period per week (in addition to the other four regularly-scheduled classes) in a French-related activity. The first treatment group worked in the language laboratory with basic course materials; the second treatment group received training in performing specific communication tasks; the third group had class sessions in English relating to French culture. The Communication Skills group performed significantly better than either of the other two groups on post-test measures of communicative skill and on teacher evaluation of oral skills. No significant differences were found in reading or listening scores, nor in final course grades.

Similarly, Joiner compared the relative effectiveness of communicative and non-communicative oral practice in beginning college French. Again, the Communicative group significantly outperformed the Non-communicative group on measures of communicative proficiency.
The above studies related types of classroom activity to foreign-language learning outcomes. The present study relates types of cognitive processing required by different learning tasks—as well as different task types—to foreign-language learning outcomes.

Levels of Processing, The Orienting Task, and Incidental Learning

Until recent years, models of human memory have been dominated by the concept of memory stores and transfer of information among these various stores. Craik and Lockhart (1972) have provided an alternative conceptual framework for human memory. Craik and Lockhart relate memory to levels of perceptual processing. It is postulated that the memory trace is one product of perceptual processes, and that trace persistence is a function of cognitive depth, where "depth" is defined in terms of the meaningfulness extracted from the stimulus (Craik, 1973).

Preliminary stages of perceptual analysis are concerned with physical or sensory features such as lines and angles, while later stages are more concerned with matching the input against stored abstractions from past learning; that is, later stages are concerned with pattern recognition and the extraction of meaning. This conception of a series of processing stages—which may be viewed as a continuum of analysis—is referred to as "depth of processing" where greater "depth" implies a greater degree of semantic or cognitive analysis (Craik and Lockhart, 1972). For example, even "after a word has been recognized, further processing may consist of the formation of
images, associations or stories, depending on the subject's biases or expectations (Craik, 1973, p. 50)." Thus, the greater the degree of stimulus elaboration, the greater the retention.

Craik and Lockhart (1972) suggest that "trace persistence is a function of depth of analysis, with deeper levels of analysis associated with more elaborate, longer lasting, and stronger traces (p. 675)." In other words, retention is a function of depth of processing. Thus, one's memory of the language involved in a particular task seems to be a function of the amount of semantic processing required in the performance of that task.

Craik and Lockhart (1972) identify three reasons why the subject may fail to process semantically: (1) the nature of the material; (2) limited available processing capacity; and (3) the task demands. If the subject fails to process the material to a semantic level, the result is reduced retention of the material involved in the task.

Craik and Lockhart believe that when memory traces are viewed as the product of a particular form of processing, much of the incidental learning literature takes on a new significance. Under incidental conditions, the experimenter has a control over the processing the subject applies to the material that he does not have when the subject is merely instructed to learn and uses an unknown coding strategy. In the incidental learning paradigm "the subject processes the material in a way compatible with or determined by the orienting task (Craik and Lockhart, p. 677)."
Incidental learning is that learning which apparently takes place without a specific motive or a formal instruction and set to learn the material in question (McGeoch and Irion, 1952). The subject is not told that a subsequent test of learning will be administered. Instead, a cover task is usually given to the subject so that he will believe the task is unrelated to learning and thus he will not attempt to memorize the material (Jung, 1968).

In general, intentional learning is found to be superior to incidental learning. Such findings are not attributed to intent itself, however. Postman (1964) suggests that intentional instructions promote higher learning because they generally direct the subject's attention to the material relevant to the subsequent test better than do intentional learning instructions. In cases where the intentional and incidental instructions ensure equal attention to test-relevant cues, it has been reported by Mechanic (1964) and others that there is no difference between learning under intentional and incidental instructions. For reviews of the early incidental and intentional literature, the reader is directed to Postman (1964) and McLaughlin (1965).

Agreeing with Postman with respect to the function of the orienting task in learning, Craik and Lockhart (1972) state that "the instruction to learn facilitates performance only insofar as it leads the subject to process the material in a manner which is more effective than the processing produced by the orienting task in the incidental condition (p. 677)."
Beginning from Postman's hypothesis that incidental learning is a positive function of the number of differential responses evoked by the stimulus material, Tresselt and Mayzner (1960) tested free recall after incidental learning under three different orienting tasks: crossing out vowels, copying words, and judging the degree to which each word was an instance of the concept "economic." Following the completion of these tasks, Ss were tested for their retention of the word list. The results clearly showed that, as predicted, there was a highly significant increase in the recall scores as the hypothesized number of differential responses increased, that is, moving from the vowel task to the copying task to the judgment task.

Similar results using the free-recall paradigm were obtained by Hyde and Jenkins (1969) and Johnston and Jenkins (1971). These experiments showed that with lists of highly associated word pairs, free recall and organization resulting from any orienting task that required the use of the word as a semantic unit, was equivalent to that of an intentional control group with no incidental task, but both were substantially superior to an incidental group whose task involved treating the word structurally (checking for certain letters or estimating the number of letters in the word). These results are consistent with those of Mandler (1967) who showed that incidental learning during categorization of words yielded a similar recall level to that of a group that performed the same activity but that knew that their recall would be tested.
Till and Jenkins (1973) similarly showed that amount and organization of recall of word lists depends on the nature of the orienting tasks performed by subjects, even when the task is varied from word to word within a single list. Unrelated words to which subjects applied a semantic task (pleasantness rating) were more often recalled than words to which non-semantic tasks were applied (estimation of number of letters in the word or indication of occurrences of the letter E). No significant difference in recall was observed between groups informed of the subsequent recall test and those groups not informed. Likewise, in working with high-strength associative pairs, the semantic task again led to greater recall than the nonsemantic task.

Schulman (1971) had subjects scan a list of words for targets defined either structurally (words containing the letter A) or semantically (words denoting living things). After completing the scanning task, subjects were given an unexpected test of recognition memory for words in the list. Performance in the semantically defined target conditions was significantly better than that in the structurally defined conditions even though scanning time per word was approximately the same in most cases.

Bobrow and Bower (1969) and Rosenberg and Schiller (1971) studied the incidental learning of sentences. Recall after an orienting task that required processing the sentence to a semantic level was substantially superior to recall of words from equivalently exposed sentences which were processed nonsemantically.
Hyde and Jenkins (1973) designed and conducted a study to test the hypothesis that "different tasks, having little in common except a requirement for the subject to think about the meaning of the word, would produce very similar results in recall (p. 473)." Each of two word lists—one of moderately associated word pairs, the other of unrelated words—was presented to 11 different groups of subjects. The control group was instructed to remember the words; five groups performed orienting tasks but were not informed that they would have to recall the words; five groups performed the tasks and were informed about subsequent recall. Two orienting tasks required that subjects process the meaning of the words (pleasant-unpleasant rating; estimating the frequency of usage); two tasks required syntactic processing (sentence frames; parts of speech); one task required processing the orthography of the word (E and G checking). Semantic tasks yielded much greater recall than the nonsemantic tasks and intention to learn was not significant for recall of the unrelated words. While these results are in accord with the accepted generalizations concerning studies of incidental learning, Hyde and Jenkins' interpretation of the results departs somewhat from the earlier view presented by Postman (1964). Postman hypothesized that incidental learning is a positive function of the number of differential responses evoked by the stimulus material. Hyde and Jenkins suggest that incidental learning is a positive function of the type of processing
required by the orienting task:

As the result of this and other experiments, we suggest that the traditional view of incidental learning be revised...we urge that processes rather than responses be studied as the variables that exercise major control over the learning that we see evidenced in the criterion task (p. 479).

In short, what is suggested is a process approach rather than a response approach to incidental learning.

In summary, the data from all of the preceding studies of incidental learning support Craik and Lockhart's conclusion that memory performance is a positive function of the level of processing required by the orienting task. If then, memory trace is viewed as the by-product of perceptual analysis, an important goal of research is the study of the consequences of various types of perceptual operations or processes. It has also been suggested that the incidental learning paradigm is one method by which the experimenter can have more direct control over the type of processing that subjects perform. Such research seems appropriate to the foreign-language classroom as well as to the psychology laboratory. In concluding their study, Walsh and Jenkins (1973) suggested the need for further research, saying:

It is surely clear now that when the materials are English words and when the criterion task is a recall task, the aspect of the orienting task that is most crucial is whether it is semantic or nonsemantic. How generally this is true for other materials and other criteria remains to be explored (p. 488).

The present investigation is a study of the learning of other
materials, i.e., foreign-language vocabulary and structures, using other criterion measures. Criterion measures are discussed in Chapter III.

Bloom's Taxonomy of Educational Objectives

Cognitive processes have multiple dimensions. Craik and Lockhart consider one dimension with their levels of processing model. Bloom's Taxonomy of Educational Objectives: Handbook I. The Cognitive Domain concerns itself with another. The taxonomy was designed "to be a classification of the student behaviors which represent the intended outcomes of the educational process (Bloom, p. 12)," and is one way of categorizing "the ways in which individuals think as the result of participating in some unit of instruction (p. 12." In effect, what Bloom has done is provide a holistic view of a second dimension of the cognitive processes as they relate to education. His hierarchy, beginning with the simplest type of behavior and proceeding to the most complex, consists of six levels:

1. Knowledge: The recall of specifics and universals, of methods and processes, or of a pattern, structure, or setting.

2. Comprehension: The lowest level of understanding, a type of understanding in which the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications.
3. **Application:** The use of abstractions in particular and concrete situations.

4. **Analysis:** The breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit. It may include analysis of elements, of relationships, and of organizational principles.

5. **Synthesis:** The putting together of elements and parts so as to form a whole. This involves the process of working with pieces, parts, elements, etc., and arranging and combining them in such a way as to constitute a pattern or a structure not clearly there before. It may include production of a unique communication, or a plan or proposed set of operations, or the derivation of a set of abstract relations.

6. **Evaluation:** Judgments about the value of material and methods for given purposes, including judgments in terms of internal evidence and external criteria.

In an earlier adaptation of Bloom's taxonomy to the foreign-language classroom, Valette and Disick (1972) noted that these six categories had been designed primarily for the physical and social sciences, for history, and for literature—not for foreign languages. They noted that for that reason it had often been considered difficult to classify foreign-language goals within the Bloom framework. In their own adaptation of Bloom's taxonomy to the foreign-language classroom, Valette and Disick limited Bloom's higher levels of analysis, synthesis, and evaluation to the following foreign-language activities: stylistic and thematic analysis; original research projects; and the evaluation
of appropriateness and effectiveness of a language sample or a literary passage. In contrast to Valette and Disick's interpretation of analysis and synthesis, it is the researcher's belief that many basic foreign-language tasks fall into the categories of analysis and synthesis, and therefore are appropriate cognitive processes to be considered in this study. For a partial listing of such tasks, the reader is referred to Appendix A. For further discussion of the issue, the reader is referred to Chapter I.
Design

To maximize information yield, two experiments were conducted: the first in Spanish 103 classes (third quarter); the second, in Spanish 102 classes (second quarter). Experimental treatments consisted of pencil-and-paper activities prepared by the researcher and based on vocabulary and structures that form part of the regular departmental curricula for the respective courses. A 2 x 2 factorial design was carried out at each of the two levels of instruction. The first independent variable was based on Craik and Lockhart's levels of processing model of memory and consisted of two levels: Morphological-Syntactic Processing vs. Semantic Processing. The second independent variable, the Task variable, was based on two levels of Bloom's taxonomy of educational objectives: Analysis and Synthesis.

Each of the three dependent variables of the study was designed to test a unique type of learning, to measure an important component of the instructional goals of foreign-language programs. The three dependent variables were as follows:
1. The **Vocabulary** measure consisted of 5 items of English-to-Spanish translation.

2. The **Grammar** measure consisted of 5 multiple-choice reading-grammar items.

3. The **Paragraph Completion** measure, designed to measure student ability to use both vocabulary and grammatical structures in context, required students to complete the 10 blanks in a paragraph, selecting grammatically and semantically correct responses from the 20-25 alternatives provided.

Because both treatment phase and testing phase had to be carried out in the same class period in order to work within the incidental paradigm, it was impossible to measure the dependent variables more extensively.

**Sample**

The sample consisted of students enrolled in 8 randomly selected Spanish 102 classes and 10 randomly selected Spanish 103 classes at The Ohio State University, Spring Quarter, 1975. Most students in these courses are undergraduates who study Spanish as a part of the four-quarter language requirement (Spanish 101-104) of the College of Arts and Sciences. The researcher chose to replicate the study at the 102 and 103 levels of instruction because at those levels the amount of student knowledge was sufficient to make possible the preparation of the required activity sets and criterion measures.
Preparation of Activities

During discussions with the Chairman of the Department of Romance Languages and Literatures and the Director of the Elementary Spanish Program, it was agreed that the experiment would be designed so that ongoing instruction would not be interrupted and so that the experimental treatments would contribute to student learning as specified by the departmental course syllabi. Therefore, the grammatical structures and the 15 vocabulary items used in the activities prepared for the study were largely a function of departmental goals, textbook, and syllabi.

The text used at both levels of instruction was *La lengua española* (Castels and Lionetti, 1974) and contained two possible sources of vocabulary items: dialogues and readings. Reading selections were considered to be a better source of vocabulary items for two reasons: First, once cognates and low-frequency items were excluded, dialogues offered few new vocabulary items; second, once a dialogue has been presented, there is a tendency for it to be "overpracticed" orally—the language contained therein tending to be more appropriate for oral practice than for written work—either in class or in the language laboratory. Thus, the probability of observing any potential treatment effects would have been greatly reduced.

Because relatively little emphasis is given to the development of reading skill, only five reading assignments are made in each course during a 10-week quarter. These are cultural readings that
supplement textbook dialogues; they range in length from three to six pages at the 102 level, and from four to seven pages at the 103 level. Vocabulary items were selected from "La ciencia y las leyendas" for the 102 study, and from "El Canal de Panamá" for the 103 study. Specific vocabulary items were chosen because of their high frequency within the foreign language or within the reading selection from which they were chosen. Only nouns, verbs, and adjectives were selected because "content words are associated with more rapid learning than are function words" (Underwood, p. 483), and because the nature of the experimental situation permitted only a single presentation of each item within each activity set. Fifteen vocabulary items were selected from each reading selection for inclusion in each of the activity sets for their respective experiments. A basic assumption was that the presentation phase of the new material would already have taken place—i.e., that students would have familiarized themselves with the new vocabulary items during their reading of the reading selection—the day before the experiment, and therefore student work with the activity sets in class would provide the practice phase of study.

Grammatical structures included in the experimental materials were those most recently presented in class prior to the day of the experiment. Thus, just as for the vocabulary, the presentation phase had already taken place, and time spent working with the activities in class—i.e., the experimental treatment—constituted the practice phase.
For each level of instruction four sets of pencil-and-paper activities were prepared to meet operational definitions presented in Chapter I. Each set of activities required a different combination of task type and type of cognitive processing:

1. **Morphological-Syntactic Analysis**: The breakdown of the communication into its constituent parts, requiring only the use of morphological and/or syntactic information.

2. **Morphological-Syntactic Synthesis**: The putting together of linguistic elements so as to form a new whole, requiring only the use of morphological and/or syntactic information.

3. **Semantic Analysis**: The breaking down of the communication into its constituent parts, requiring the use of semantic information.

4. **Semantic Synthesis**: The putting together of linguistic elements so as to form a new whole, requiring the use of semantic information.

A list of activity types fitting each category is found in Appendix A. Specific activity types used in each activity set were selected because of their appropriateness for the grammatical structures being practiced. Activity sets used in the two experiments—each set consisting of three or four activities—are found in Appendices C and D.
Because students did not have access to textbooks during the experiment and because they could not ask teachers for help or additional information, it was important to structure the activities so that practice would be as grammatically error-free as possible. Models indicating the correct syntax and morphology were therefore provided for each activity, so that the student could pattern his answer after the model and could thereby produce a grammatically correct response.

All treatment conditions worked with the same vocabulary and structures. Each of 15 vocabulary items was used once in the preparation of each activity set. In addition, every attempt was made to ensure an equal amount of practice with the selected structures across all treatment conditions.

Instructions to the activities in the two morphological-syntactic conditions were rather "mechanical" and in no way suggested that students ought to process semantically; for example: "Rewrite each of the following sentences, changing the yo form to an usted command. Follow the model provided." Instructions to the activities in the two semantic conditions, on the other hand, were designed to establish a meaningful "set" and indicated that the student would have to make semantic decisions; for example: Would this be good advice or bad advice to give someone else? How would person X have felt in this situation? Who might have said this? Students were asked to make such decisions in order to ensure semantic processing. It should be
noted that activities requiring students to give any kind of personal information were intentionally avoided because of the researcher's belief that the introduction of the personal element would have been a confounding factor in the experiment.

**Instrumentation**

A criterion measure consisting of three subtests was constructed for each level of instruction. Each subtest was designed to test a unique type of learning:

1. **Vocabulary, 5 items.** This measure required the student to write the Spanish equivalent of English words. Vocabulary items tested in this section were words that the researcher considered to be most important for productive skills. Therefore, the English → Spanish format was considered more appropriate than Spanish → English.

2. **Grammar, 5 items.** The multiple-choice reading grammar format was designed to test student ability to apply grammatical information and can be considered an indirect measure of writing ability. These items did not require the use of semantic information.

3. **Paragraph Completion, 10 items.** This subtest was constructed to measure student ability to use both vocabulary and grammatical structures in context. Students were required to complete the 10 blanks in a
unified paragraph, selecting grammatically and semantically correct responses from the 20-25 alternatives provided. It should be noted that the theme used for the Paragraph Completion measure was not the same as that used in activities worked with by students in the semantic conditions.

The entire criterion measure was constructed so as to require no more than 15 minutes to administer. Criterion measures are found in Appendices C and D.

Pilot Study

Prior to the 102 and 103 experiments a pilot study was conducted in one Spanish 103 class in order to determine appropriate length of activity sets to be used in the 20-minute practice session, and in order to refine classroom procedures as well as the attitudinal instrument.

Four activity sets were prepared, integrating 20 vocabulary items (selected from the day's reading assignment) with those grammatical structures presented in class the day before the pilot study. Each set contained three or four activities; approximate guidelines were given for time to be spent working with each activity. After working with the activity sets for 20 minutes, students turned them in to their instructor. They were then given 15 minutes to complete an unannounced quiz on the vocabulary and structures that
they had just practiced. In addition they were asked to complete a brief attitudinal questionnaire. All materials used in the pilot study appear in Appendix B.

The following time table was followed:

- 20 minutes: work with activity sheets
- 15 minutes: three-part quiz
- 5 minutes: attitudinal questionnaire
- 8 minutes: instructions, administrative matters, assignment for next day.

Immediately following the pilot study the researcher studied student activity sheets as well as quizzes and attitudinal questionnaires. Student errors on the activity sheets were very few, and thus the goal of relatively error-free practice appeared to be met. Two changes were made as a result of having conducted the pilot study:

1. The number of vocabulary items to be included in each study was reduced from 20 to 15, thus reducing the over-all length of the activity sets. Students had indicated on the attitudinal questionnaire that the activity sets were just a little too long to be completed in 20 minutes. Analysis of work performed by students on the activity sets showed that many students indeed had not quite finished the activities in the time allotted.

2. Two items that students had indicated as being ambiguous were deleted from the attitudinal questionnaire.
According to the instructor, the administrative procedures used seemed to be appropriate and therefore were not changed for either of the two experiments.

**General Procedures**

After randomly selecting 8 sections of Spanish 102 and 10 sections of Spanish 103 to participate in the experiment, the researcher contacted each instructor and asked for his help in carrying out the study. All instructors agreed to give their full cooperation.

Each instructor was given an information sheet describing in detail his role in the experimental procedures. Prior to the experiment, teachers were not told the precise nature of the research questions; they were told only that the experiment was designed to evaluate the effectiveness of four types of learning activities on the learning of grammar and vocabulary. Furthermore, teachers did not receive the actual activity packets until the day of the experiment, thus assuring that no teacher would "teach for the experiment." Conversations with teachers emphasized the importance of students' not knowing about the quiz until after they had worked with the activities. All instructors indicated their understanding of the importance of this factor.

The day of the experiment each instructor received a packet containing an equal number of copies of each activity set. The four treatment activity sets were assigned to students within classrooms on the basis of a systematic random-sampling procedure in order to minimize distribution bias.
Classroom Procedures

Procedures approximated those of the laboratory as much as is realistically possible within the classroom setting. Although it is relatively easy to work within the incidental-learning paradigm in the psychology laboratory, a certain intent to learn is to be expected within the classroom setting. It is more difficult, therefore, to work within the incidental paradigm in the classroom. Thus, to maximize incidentalness, students were given the cover task of evaluating new learning activities related to their course of study. The following steps were taken to maximize incidentalness and to minimize student awareness of their participation in an experiment:

1. Because of the nature of the incidental paradigm, a one-day, in-class experiment was conducted. No special instructions or special assignments were given to students prior to the day of the experiment. All experimental materials were based on content included in regular departmental assignments.

2. The regular course instructors, Teaching Associates in the Department of Romance Languages and Literatures, distributed the activity sets, gave instructions, and administered the quiz and attitudinal questionnaire during the scheduled class hour.
3. On the day of the experiment students were asked to help evaluate new language-learning activities during the class hour. They were given 20 minutes to work with the activities. Instructors then collected their activities and distributed the three-part quiz, explaining that it would not count as part of their course grade, but that it would help in evaluating the effectiveness of the activities in helping them learn. Finally, students filled out a 10-item attitudinal questionnaire (See Appendices C and D), thus completing the cover task of evaluating new learning activities.

The attitudinal questionnaire also encouraged students to make any general comments that they might have about the activities. An analysis of student comments indicated that they had accepted the evaluation cover task at face value and that neither had they expected the quiz, nor had they been aware of their participation in an experiment.

Statistical Analysis

The multiple dependent variables (Vocabulary, Grammar, and Paragraph Completion) were subjected to a two-factor multivariate analysis of variance (MANOVA), where levels of processing and type of task served as independent variables. MANOVA, whose purpose is to analyze multiple measures on N individuals, is an extension of
univariate analysis of variance. Where significance was shown by the multivariate statistic, univariate analysis of variance was used as the principal follow-up technique.

All data were analyzed on an IBM 370 computer by the Instruction and Research Computer Center at The Ohio State University. The program that performed the multivariate analysis of variance was prepared by the Clyde Computing Service of Miami, Florida and was adapted by the Social Psychology Laboratory of The Ohio State University.

Multivariate analysis of variance was used to test the following null hypotheses:

(1) $H_0$: There will be no significant difference attributable to variation in levels of processing on the principal discriminant function defined by the following post-test measures: Vocabulary; Grammar; Paragraph Completion.

(2) $H_0$: There will be no significant difference attributable to variation in tasks requiring analytic or synthetic processing on the principal discriminant function defined by the following post-test measures: Vocabulary; Grammar; Paragraph Completion.

(3) $H_0$: There will be no significant interaction between the levels of processing variable and the analytic-synthetic task variable on the principal
discriminant function defined by the following post-test measures: Vocabulary; Grammar; Paragraph Completion.
CHAPTER IV

RESULTS AND DISCUSSION

Introduction

In this study a $2 \times 2$ factorial design was replicated at two levels of instruction. The Levels of Processing variable had the following two levels: Morphological-Syntactic Processing and Semantic Processing. The two levels of the Task variable were Analysis and Synthesis. (Operational definitions of the levels of each independent variable are provided in Chapter I.)

At each level of instruction the criterion measure consisted of three subtests or dependent variables: (1) a five-item vocabulary measure, (2) a five-item grammar measure, and (3) a ten-item paragraph completion measure. Because the number of items for each subtest was small, test reliabilities were determined for the combined 20 items of the three-part criterion measure. Spearman-Brown reliabilities were found to be .74 and .79 for the 102 and 103 criterion measures, respectively.
The two experiments shared the same design and procedures (as discussed in Chapter III). Selected vocabulary items and grammatical structures were integrated into the four sets of pencil-and-paper activities that were prepared for each level of instruction. Structures and vocabulary were selected from those included within the regular 102 and 103 curricula. Activity sets prepared by the researcher for the two experiments are found in Appendices C and D.

Although both experiments used the same design and procedures and were carried out under the same incidental learning paradigm, different language and different student populations were sampled. The results of the two experiments, therefore, will be discussed separately in this chapter, and the findings will be related to the three null hypotheses that were tested in each experiment. For a summary of findings and conclusions based on the results of both experiments, the reader is referred to Chapter V.

Experiment I

Experiment I was conducted with students enrolled in 10 randomly selected Spanish 103 classes at The Ohio State University. Table 1 contains main-effect means. Treatment-group means and standard deviations for Vocabulary, Grammar, and Paragraph Completion measures are reported in Table 2, while Table 3 summarizes results of the analyses of variance.
Table 1. Main-Effect Means for Three Subtests of the Criterion Instrument for Experiment I.

<table>
<thead>
<tr>
<th>Effects of Processing Variable</th>
<th>Subtest</th>
<th>Morphological-Syntactic (n=53)</th>
<th>Semantic (n=51)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vocabulary</td>
<td>.560</td>
<td>.644</td>
</tr>
<tr>
<td></td>
<td>Grammar</td>
<td>4.630</td>
<td>4.446</td>
</tr>
<tr>
<td></td>
<td>Paragraph</td>
<td>4.679</td>
<td>4.229</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Effects of Task Variable</th>
<th>Subtest</th>
<th>Analysis (n=47)</th>
<th>Synthesis (n=57)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vocabulary</td>
<td>.554</td>
<td>.650</td>
</tr>
<tr>
<td></td>
<td>Grammar</td>
<td>4.570</td>
<td>4.508</td>
</tr>
<tr>
<td></td>
<td>Paragraph Completion</td>
<td>4.220</td>
<td>4.688</td>
</tr>
</tbody>
</table>
Table 2. Treatment Group Means and S.D.'s on Dependent Variables for Experiment I.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Morphological-Syntactic</th>
<th>Semantic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Analysis</td>
<td>Synthesis</td>
</tr>
<tr>
<td></td>
<td>n = 24</td>
<td>n = 29</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>mean</td>
<td>S.D.</td>
</tr>
<tr>
<td></td>
<td>.500</td>
<td>.659</td>
</tr>
<tr>
<td>Grammar</td>
<td>mean</td>
<td>S.D.</td>
</tr>
<tr>
<td></td>
<td>4.750</td>
<td>.532</td>
</tr>
<tr>
<td>Paragraph Completion</td>
<td>mean</td>
<td>S.D.</td>
</tr>
<tr>
<td></td>
<td>4.875</td>
<td>2.213</td>
</tr>
</tbody>
</table>
Table 3. Summary of Analyses of Variance for Experiment I.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>df</th>
<th>Vocabulary</th>
<th>Grammar</th>
<th>Paragraph Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of Processing</td>
<td>3,98</td>
<td>1.044</td>
<td>1</td>
<td>.171</td>
<td>.766</td>
<td>3.486</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.185</td>
<td>1.732</td>
<td>.912</td>
</tr>
<tr>
<td>Task</td>
<td>3,98</td>
<td>.635</td>
<td>1</td>
<td>.236</td>
<td>.110</td>
<td>5.236</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>.256</td>
<td>.249</td>
<td>1.370</td>
</tr>
<tr>
<td>Levels x Task</td>
<td>3,98</td>
<td>2.289</td>
<td>1</td>
<td>.017</td>
<td>.750</td>
<td>19.041</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.018</td>
<td>1.697</td>
<td>4.982*</td>
</tr>
<tr>
<td>Error</td>
<td>100</td>
<td></td>
<td></td>
<td>.922</td>
<td>.442</td>
<td>3.822</td>
</tr>
</tbody>
</table>

* p < .05
+ p < .10
Hypothesis I: There is no significant difference attributable to variation in Levels of Processing on the following post-test measures: Vocabulary; Grammar; Paragraph Completion. This hypothesis remains tenable. Examination of the analyses of variance for the Levels of Processing effect as summarized in Table 3 reveals no significant F-ratios. Main-effect means for Morphological-Syntactic and Semantic conditions are reported in Table 1. For the Vocabulary measure, level means were almost equal. On both the Grammar and Paragraph Completion measures, however, students in the Morphological-Syntactic condition scored slightly higher than students in the Semantic condition. This tendency could, in part, be attributed to the writing variable. Analysis of tasks included in the activities used in this experiment showed that Morphological-Syntactic tasks required students to do more writing as they practiced structures and vocabulary than did the Semantic tasks. Writing may encourage deeper levels of processing and therefore result in greater student learning.

Hypothesis II: There is no significant difference attributable to variation in tasks requiring Analysis or Synthesis on the following post-test measures: Vocabulary; Grammar; Paragraph Completion. The F-ratios for the Task effect were shown not to be significant and therefore this hypothesis cannot be rejected. Examination of main-effect means shows that Analysis and Synthesis effects were almost equal for both Vocabulary and Grammar measures. For the Paragraph Completion measure, however, a slight
advantage was shown for the Synthesis groups over the Analysis
groups, having means of 4.688 and 4.220, respectively. Again,
analysis of tasks revealed that Synthesis tasks required more
writing than did Analysis tasks. It is possible that the writing
variable may be responsible, in part, for the slight advantage
of the Synthesis groups.

Hypothesis III: **There is no significant interaction between**
the Levels of Processing variable and the Task variable on the
following post-test measures: Vocabulary; Grammar; Paragraph
Completion. The multivariate F-ratio for the interaction effects
was not significant at the .05 level. The univariate interaction
effect for the Paragraph Completion measure, however, was significant
at the .05 level, $F(1,100) = 4.982$ ($p < .05$). This univariate
statistic, however, must be interpreted with caution in light of
the multivariate statistic, $F(3,98) = 2.289$ ($p < .10$). Examination
of treatment group means for the Paragraph Completion measure reveals
that in the Morphological-Syntactic condition the Analysis group, with
a mean of 4.875, outperformed the Synthesis group, having a mean of
4.483; in the Semantic condition, the Synthesis group, with a mean
of 4.893, scored higher than the Analysis group, having a mean of
3.565. This disordinal interaction effect is plotted in Figure 1.

Although the univariate F-ratio for the Grammar measure was not
significant at the .05 level, students in the Morphological-Syntactic
Analysis condition scored higher than students in the Morphological-
Synthesis condition, while students in the Semantic Synthesis condition
Figure 1

Experiment I: Paragraph Completion
scored higher than students in the Semantic Analysis group. This pattern is similar to that of the Paragraph Completion measure. An explanation of such differential learning effects might be found in the requirements of the tasks. Synthesis tasks required students to recombine sentence fragments to form new statements. Analysis tasks, on the other hand, required students to analyze morphology and/or syntax and then make a transformation of the structure provided. It was hypothesized that Synthesis tasks require less attention to morphological-syntactic detail than do Analysis tasks and therefore the Morphological-Syntactic Synthesis group scored lower on the Grammar measure than did the Morphological-Syntactic Analysis group.

Evaluation of Vocabulary Measure for Experiment I

A word about the low mean scores on the Vocabulary measure (.500 to .679 on a 5-item measure) seems necessary. The poor performance on this measure of students in all treatment conditions caused the researcher to doubt the appropriateness of this criterion measure for this learning paradigm. In research being conducted concurrently under the same paradigm, however, Birckbichler (personal communication) reported scores ranging from 1.880 to 2.143 on a similar 4-item measure of French vocabulary. It was concluded, therefore, that the criterion measure was probably not inappropriate to the learning paradigm.
A second possibility seems to provide a more probable explanation. Examination of student comments on the attitudinal questionnaire revealed that many students had not read the homework assignment (containing the vocabulary items included in the activities); they felt that they would have performed better on the quiz had they read the assignment before coming to class. For many students, then, it appears that a basic assumption of the experiment (i.e., that the "presentation phase" of the vocabulary would have occurred prior to the experiment) was not met.

It was concluded that the extremely low scores on the Vocabulary measure were probably not a function of the measure's incompatibility with the learning paradigm, but rather were probably a function of a spurious lack of student preparation on the day of the experiment. Therefore, it was decided that the same type of criterion measure would be used in Experiment II.

Experiment II

Students enrolled in eight randomly selected Spanish 102 classes at The Ohio State University participated in Experiment II. Main-effect means are presented in Table 4. Treatment means and standard deviations for the three dependent variables are shown in Table 5, while Table 6 summarizes the results of the analyses of variance.

Hypothesis I: There is no significant difference attributable to variation in Levels of Processing on the following post-test measures: Vocabulary; Grammar; Paragraph Completion. The multivariate
Table 4. Main-Effect Means for Three Subtests of the Criterion Instrument for Experiment II.

**Effects of Processing Variable**

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Morphological-Syntactic</th>
<th>Semantic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=71)</td>
<td>(n=70)</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>1.637</td>
<td>1.620</td>
</tr>
<tr>
<td>Grammar</td>
<td>3.686</td>
<td>3.572</td>
</tr>
<tr>
<td>Paragraph Completion</td>
<td>5.762</td>
<td>6.110</td>
</tr>
</tbody>
</table>

**Effects of Task Variable**

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Analysis</th>
<th>Synthesis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=70)</td>
<td>(n=71)</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>1.620</td>
<td>1.637</td>
</tr>
<tr>
<td>Grammar</td>
<td>3.792</td>
<td>3.464</td>
</tr>
<tr>
<td>Paragraph Completion</td>
<td>6.055</td>
<td>5.823</td>
</tr>
</tbody>
</table>
Table 5. Treatment Group Means and S.D.'s on Dependent Variables for Experiment II.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Morphological-Syntactic</th>
<th>Semantic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Analysis</td>
<td>Synthesis</td>
</tr>
<tr>
<td>Vocabulary mean</td>
<td>1.417</td>
<td>1.857</td>
</tr>
<tr>
<td>S.D.</td>
<td>.906</td>
<td>1.375</td>
</tr>
<tr>
<td>Grammar mean</td>
<td>4.000</td>
<td>3.371</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.069</td>
<td>1.416</td>
</tr>
<tr>
<td>Paragraph Completion</td>
<td>5.639</td>
<td>5.886</td>
</tr>
<tr>
<td>S.D.</td>
<td>2.404</td>
<td>2.654</td>
</tr>
</tbody>
</table>
Table 6. Summary of Analyses of Variance for Experiment II.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>$F$</th>
<th>df</th>
<th>Vocabulary</th>
<th>Grammar</th>
<th>Paragraph Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of Processing</td>
<td>3,135</td>
<td>.722</td>
<td>1</td>
<td>.013</td>
<td>.497</td>
<td>4.061</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.009</td>
<td>.299</td>
<td>.712</td>
</tr>
<tr>
<td>Task</td>
<td>3,135</td>
<td>.891</td>
<td>1</td>
<td>.014</td>
<td>3.903</td>
<td>1.918</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.010</td>
<td>2.352</td>
<td>.336</td>
</tr>
<tr>
<td>Level x Task</td>
<td>3,135</td>
<td>3.143*</td>
<td>1</td>
<td>6.324</td>
<td>3.127</td>
<td>8.243</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.359*</td>
<td>1.885</td>
<td>1.446</td>
</tr>
<tr>
<td>Error</td>
<td>137</td>
<td>1.451</td>
<td>1.659</td>
<td>5.701</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$
**Hypothesis II:** There is no significant difference attributable to variation in tasks requiring Analysis or Synthesis on the following post-test measures: Vocabulary; Grammar; Paragraph Completion. The F-ratios for the Task effects were not significant, and therefore, this hypothesis remains tenable. Overall mean scores were almost the same for Analysis and Synthesis effects on the Vocabulary measure. Students in Analysis groups tended to perform somewhat—although not significantly—higher than did students in Synthesis groups on both Grammar and Paragraph Completion measures.

**Hypothesis III:** There is no significant interaction between the Levels of Processing variable and the Task variable on the following post-test measures: Vocabulary; Grammar; Paragraph Completion. The multivariate interaction effect was found to be significant, $F(3,135) = 3.145$ ($p < .05$). Therefore this hypothesis must be rejected. When data were subjected to univariate analysis of variance, significant interaction was found only for the Vocabulary
measure, $F(1,137) = 4.359 (p < .05)$. This disordinal interaction is plotted in Figure 2. Of the two treatment conditions requiring Morphological-Syntactic processing, the Synthesis group was favored, whereas of the two treatment conditions requiring Semantic processing, the Analysis group received the higher scores. The superiority of Synthesis over Analysis in the Morphological-Syntactic condition may be due to the greater attention that must be given to morphological-syntactic detail in the Analysis condition. It may be hypothesized that there is less need to focus on morphological-syntactic detail in the Synthesis condition, thus leaving greater processing capacity for semantic processing.

In the Semantic condition, Analysis tasks required only that the student read and make a semantic decision based on what he had read, while the Synthesis tasks required him to put together the sentence first, then make a semantic decision. Part of the student's processing capacity had to be spent actively processing morphology and syntax; therefore, less capacity was available for semantic processing.

Although the interaction effect for the Grammar measure was not found to be significant, students in the Morphological-Syntactic Analysis group, with a mean of 4.000, outscored the other three groups, while the Morphological-Syntactic Synthesis group received the lowest mean score, 3.371. Means for the two Semantic groups were almost equal and fell between the means of the two Morphological-Syntactic groups.
Figure 2.

Experiment II: Vocabulary Measure
For the Paragraph Completion measure, the univariate interaction was not significant. Nevertheless, students performing tasks requiring Morphological-Syntactic processing did better when the task required Synthesis, whereas students doing tasks requiring Semantic processing scored higher when the learning tasks required Analysis. This pattern is the reverse of the significant interaction effect for the Paragraph Completion Measure in Experiment I.

Summary

The results of each of the two experiments have been reported separately in this chapter. A synthesis of the results of the two experiments as well as the resulting conclusions and implications will be presented in Chapter V.
CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Overview

This study was designed to examine the relationship between task types and types of cognitive processing required by second-language learning tasks and selected measures of foreign-language learning. The effects of two independent variables were studied. The Levels of Processing variable had its theoretical base in Craik and Lockhart's levels of processing model of human memory and consisted of two levels: (a) Morphological-Syntactic Processing and (b) Semantic Processing. The task variable was an adaptation of two levels of Bloom's taxonomy of educational objectives to the foreign-language classroom and also consisted of two levels: (a) Analysis tasks and (b) Synthesis tasks.

A 2 x 2 factorial design was replicated at two levels of instruction. Students participating in the one-day experiments were enrolled in second- and third-quarter Spanish at The Ohio State University. Each experiment consisted of four treatment conditions.
In each treatment condition students worked with one set of pencil-and-paper activities that had been prepared by the researcher. All four activity sets engaged students in the practice of selected vocabulary and grammatical structures, but each activity set required students to perform a different combination of task type and processing type. The four treatment conditions were:

1. Morphological-Syntactic Analysis.

The study investigated the effects of the two independent variables on student learning as measured on three dependent variables: (1) a five-item vocabulary measure, (2) a five-item grammar measure, and (3) a ten-item paragraph completion measure.

Summary of Findings

A review of the findings reveals few significant differences beyond the .05 level. Only one multivariate and two univariate F-ratios were significant at this level. A summary of the findings of the two experiments with respect to the three research questions investigated follows.

Question I: Is the learning of a second language a function of the depth of processing that is required by second-language learning activities?
This was the most important of the three research questions and the one having the strongest \textit{a priori} hypotheses, based on data from psychological research. The data from this study, however, suggest that there were no differential learning effects attributable to the level of processing required by learning activities. In this respect the data were consistent across all three dependent variables and across both experiments.

Lack of differential learning effects of the levels of processing variable is only one of several possible explanations for the lack of significant differences in the data, however. Failure to detect significant differences may also be a function of other factors related to the "translation" of the levels of processing model from the psychology laboratory to the foreign-language classroom. Such factors include the following:

1. \textbf{Intent to Learn}. Although students participating in these experiments appear to have accepted their task as one of evaluating new learning activities, it is still possible that, given the classroom setting, they may have approached the task with a strong intent to learn.

2. \textbf{Learning Set}. Although not required to do so by the tasks, students may have processed morphological-syntactic activities semantically, perhaps a function of previous learning set and/or strategies. Again, this
would be a function of conducting research in a classroom setting rather than in the psychology laboratory.

3. **Limited Treatment Phase.** Experimental treatments were necessarily limited to 20 minutes because they were conducted during a 48-minute classroom session. Such treatments may not have been sufficiently potent as to result in differential learning effects. An increased treatment phase might have greater impact and increase differential learning effects.

4. **Criterion Measures.** Dependent variables used in psychological research were measures of retention: recognition and recall. These were not the measures used in the current study. Criterion instruments other than those used in this study might be more sensitive and thus be more likely to detect any differences that might exist.

Finally, a larger sample would have resulted in a more powerful statistic, increasing the statistical probability of detecting any existing differences.

**Question II:** Is the learning of a second language related to the Analytic/Synthetic nature of second-language learning activities?
No strong a priori hypotheses were made with respect to this question, and indeed no differential effects were found. Thus, although Analysis and Synthesis tasks appear to be very different in nature, they seem to result in no differential learning effects, at least within the present learning paradigm and with respect to the present criterion measures.

Question III: Does the Processing variable interact with the Analytic/Synthetic dimension of activities with respect to amount of student learning?

Although not predicted, two significant interaction effects were found at the .05 level. On the Paragraph Completion measure in Experiment I, the Analysis group outperformed the Synthesis group in the Morphological-Syntactic condition, whereas in the Semantic condition, the Synthesis group scored higher than the Analysis group. Although an interesting outcome that may be worthy of further study, it was not predicted and is largely uninterpretable at this time.

On the Vocabulary measure in Experiment IX, the Synthesis group was favored in the Morphological-Syntactic condition, while the Analysis group received the higher score in the Semantic condition. In Chapter IV results are interpreted in terms of task demands.

Relation to Other Studies

Concurrent research was conducted by Birckbichler [personal communication]. Subjects were students enrolled in French 102 and 103 at The Ohio State University. Comparisons of her findings with those
presented in the current study are appropriate because of the intentional similarity of design and procedures. The two researchers collaborated in an effort to maximize information yield and to replicate in two languages studies primarily concerned with the effects of the Morphological-Syntactic and Semantic levels of the Processing variable. The second independent variable differed in the two studies, however. Whereas the Task variable for the present study consisted of an adaptation of Bloom's levels of Analysis and Synthesis, Birckbichler's second independent variable was adapted from Guilford's Structure-of-Intellect model. The two levels of her Task variable, therefore, were Convergent tasks and Divergent tasks. Convergent refers to any task requiring "single-answer problem solving," while Divergent tasks require "multiple-answer problem solving."

In general, Birckbichler's findings parallel those of the present study. Only one significant main effect was found, that being for the Processing variable on the Vocabulary measure (Experiment II, French 102 students and materials). The observed advantage for students in the Semantic condition over students in the Morphological-Syntactic condition provides some support for the a priori hypothesis of the studies and suggests that it may be the learning of vocabulary that is most affected by the Processing variable.
Limitations of the Study

The reader is reminded of the following limitations of the study:

1. **Sample of Students.** Findings can be generalized only to second- and third-quarter Spanish students with characteristics similar to those from which the sample of students participating in this study was drawn.

2. **Instruments.** As in any study, a limiting factor is the extent to which instruments used to evaluate student learning are valid and reliable measures of student knowledge and skill.

3. **Incidental Learning Paradigm.** Of extreme relevance to the interpretation of the results of this study are the limitations imposed by the use of an incidental learning paradigm in an educational setting. Specific limitations are discussed earlier in this chapter.

Recommendations for Further Research

It is believed that the lack of significant main effects for the depth of processing variable is largely a function of the adaptation of the research procedures from the psychology laboratory to the foreign-language classroom and that, therefore, the research model remains tenable. It is therefore recommended that further research be conducted to study the relationship of the depth of processing required by learning tasks to measures of foreign-language learning, using alternative adaptations of the research paradigm to the classroom
situation. Specifically, it is suggested that the dependent variable that appears to be most strongly related to the depth of processing is vocabulary and that it is this variable that may be the most useful for further study. It also seems important to increase the treatment phase as well as the number of students participating in the experiment in order to increase the probability of detecting differences. Also, other criterion measures should be considered, particularly higher level and more synthetic measures that might be more discriminating. Finally, it is suggested that the relationship between depth of processing and self-reported learning strategies (meaningful vs. non-meaningful, as analyzed by Hosenfeld) be studied.
Appendix A. Activity Types
1. **Morphological-Syntactic Analysis:** The breakdown of the communication into its constituent parts, requiring only the use of morphological and/or syntactic information.
   
   a. Person-number substitution drill
   b. Infinitives in parentheses
   c. Question-answer format practicing verb morphology
   d. Tense rewrite
   e. Negative or passive transformations
   f. Multiple-choice items requiring only morphology and/or syntax

2. **Morphological-Syntactic Synthesis:** The putting together of linguistic elements so as to form a new whole, requiring only the use of morphological and/or syntactic information.

   a. Sentence builders requiring only use of morphology and/or syntax
   b. Scrambled sentences requiring only use of morphology and/or syntax
   c. Expansion or pyramid exercises
   d. Dehydrated sentences (if carefully constructed)
3. **Semantic Analysis:** The breaking down of the communication into its constituent parts, requiring the use of semantic information.
   a. Multiple-choice items where all alternatives would fit syntactically, but not semantically
   b. True-false
   c. Decide whether person X would have said the following.
   d. Decide who would have said/done the following: person X or person Y
   e. List words or phrases from the following paragraph that indicate it was written by a person from category X

4. **Semantic Synthesis:** The putting together of linguistic elements so as to form a new whole, requiring the use of semantic information.
   a. Sentences builders requiring semantics
   b. Scrambled sentences requiring semantics
   c. Reorder sentences to form paragraph or dialogue
   d. Completion format requiring meaning
   e. Question-answer
   f. Tasks requiring inference
Appendix B. Pilot Study

1. Activities

2. Criterion Instrument

3. Attitudinal Questionnaire
Pilot Study
Spanish 103
April 24, 1975

Grammar:
1. Passive reflexive
2. Reflexive for unplanned occurrences

Reading:
"Venezuela" (from Castels and Lionetti, pp. 527-33)

Vocabulary:
la ayuda
el fracaso
el poder
la compañera
el sol
la luz
obedecer
romper
enviar
elegir
garantizar
quemar
nombrar
breve
cualquier
fiel
una vez más
además
de nuevo
We are trying out some different types of activities related to your assignments, and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. Rewrite each of the following sentences making the indicated substitutions using the passive reflexive. Follow the model sentence provided. (5 minutes)

Model: Se come pan. (frijoles)

Se comen frijoles.

Se estudian idiomas. (español)

Se estudia español.

1. Se vende un coche. (unas bicicletas)

2. Se elige el presidente. (los representantes)

3. Se garantiza el producto. (las máquinas)

4. Se cruza el río. (las montañas)

5. Este año se nombraron otros oficiales. (otro vicepresidente)

6. Se compraron flores. (gasolina)

7. De nuevo se invadieron los países. (el territorio)

8. Se alquilaron los apartamentos. (la casa)

II. Change each of the following sentences from the true passive to the passive reflexive. Write your new sentences in the space provided. (10 minutes)

Model: El coche fue comprado por el joven.

Se compró el coche.

Los libros fueron vendidos por el librero.

Se vendieron los libros.
II. 1. El paquete fue enviado por la tía.
    2. Cualquier libro breve fue leído por el niño.
    3. La luz fue apagada por Pepito.
    4. La ayuda fue conseguida por su compañera fiel.
    5. Los efectos del sol y de la luz fueron estudiados por los científicos.
    6. Las leyes fueron obedecidas por los niños.
    7. Además, el fracaso fue causado por Paco.
    8. Una vez más el gobierno liberal fue destruido por el poder de los conservadores.

III. Answer each of the following questions, following the model.
(5 minutes)

Model: ¿Cuándo se te cayeron las tazas? (ayer)
       SE ME CAYERON LAS TAZAS AYER.

¿Cuándo se te cayó el disco? (hoy)
       SE ME CAYÓ EL DISCO HOY.

1. ¿Cuándo se te olvidó la dirección? (ayer)
2. ¿Cuándo se te rompió el vaso? (esta mañana)
3. ¿Cuándo se te quemó la comida? (anoche)
4. ¿Cuándo se te cayeron los papeles? (esta tarde)
5. ¿Cuándo se te rompieron los platos? (hoy)
6. ¿Cuándo se te perdieron los libros? (la semana pasada)
We are trying out some different types of activities related to your assignments, and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. Write grammatically correct sentences in the space provided. Use one item from each column to construct each sentence. Construct as many sentences as you can. (5 minutes)

Model: Se compran coches nuevos.

| Se vende  | pan     | nuevos |
| Se compra | coches   | fresco |
|           | muebles  | nuevas |
|           | leche    | viejos |
| Se venden | libros   | fría   |
| Se compran| bicicletas | usadas |

II. Unscramble each of the following sentences. Rewrite them in the space provided. (5 minutes)

Model: /extranjeras / se / lenguas / estudian / SE ESTUDIAN LENGUAS EXTRANJERAS.

1. / el paquete / de marzo / el 3 / envió / se /

2. / eligieron / para / nuevos jefes / se / la compañía /
II. 3. / obedeció / no / el niño / a su mamá /
4. / buenos resultados / se / en tiempo breve / garantizaron /
5. / de nuevo / el mal uso de poder / la causa del fracaso / fue /
6. haría / lo / cualquier amigo fiel /

III. Write grammatically correct sentences using the reflexive for unplanned occurrences. Write as many sentences as you can in the space below. (5 minutes)

Model: Se me cayó el plato.
Se te olvidaron las tazas.

<table>
<thead>
<tr>
<th>me</th>
<th>rompió</th>
</tr>
</thead>
<tbody>
<tr>
<td>te</td>
<td>cayó</td>
</tr>
<tr>
<td>Se</td>
<td>le</td>
</tr>
<tr>
<td>nos</td>
<td>rompieron</td>
</tr>
<tr>
<td>les</td>
<td>cayeron</td>
</tr>
<tr>
<td>el disco</td>
<td>la taza</td>
</tr>
<tr>
<td>el plato</td>
<td>los discos</td>
</tr>
<tr>
<td></td>
<td>las tazas</td>
</tr>
<tr>
<td></td>
<td>los platos</td>
</tr>
</tbody>
</table>

IV. Rewrite each of the following scrambled sentences in its original form. (5 minutes)

Model: / chica / a su mamá / llamó / la /
LA CHICA LLAMÓ A SU MAMÁ.

1. / a mi compañera de cuarto / tomar el sol / le gusta / 
2. / se / profesores nuevos / consiguieron / este año / 
3. / además / oficiales / se nombraron / nuevos / 
4. / los frijoles / quemaron / se / una vez más / 
5. / de los amigos / se / la ayuda / necesita / 
6. / los efectos dañosos / se / de la luz / estudiaron /
We are trying out some different types of activities related to your assignments, and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. George is a young American student living with a family in Venezuela. Mr. and Mrs. Pérez have two young children. The following statements describe some of George's observations about things that happened in the Perez household. In the space provided write the word or phrase that best completes the thought. (5 minutes)

1. La señora Pérez es una mamá muy inteligente y sabe que, a veces, sus niños (aunque son buenos) no la ______________.
   a. destruyen
   b. obedecen
   c. compran
   d. venden

2. La última vez que ella los dejó solos en casa, a ellos ______________ tres vasos de cristal.
   a. se les quemaron
   b. se les quemó
   c. se les rompió
   d. se les rompieron

3. Además...este mismo día los visitaba una amiguita de la familia y ______________ un plato.
   a. se le olvidó
   b. se le olvidaron
   c. se le cayó
   d. se le cayeron

4. Sin embargo, los niños son amigos muy ______________ a su amiguita, y por eso ellos mismos aceptaron la culpa.
   a. fieles
   b. bajos
   c. jóvenes
   d. aburridos

5. Cuando la señora Pérez volvió a casa, los niños le hablaron de los platos rotos, y ______________ ella los perdonó, como siempre.
   a. por primera vez
   b. en vez de estar contenta
   c. para castigarlos
   d. una vez más
II. Phil is also a university student. He wants to go to Florida for Spring Break. His mother, however, doesn’t seem to think it’s a very good idea. Here are fragments of their many conversations on the matter. Who might have said each one: Phil or his mother? Decide, and then mark your answer with a checkmark in the appropriate column. (8 minutes)

<table>
<thead>
<tr>
<th></th>
<th>Phil</th>
<th>La mamá</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>¡La Florida! ¡Un lugar donde siempre brilla el sol!</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>¿Cómo se consigue el dinero para hacer un viaje tan extravagante?</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>¿De nuevo me pides permiso?</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>No quiero que viajes con cualquier amigo de clase.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Pensaba ir con Tomás y Jorge; también van María y Alicia, dos compañeras de clase.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>El viaje será un fracaso...y no me llames cuando necesitas ayuda.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>¡Pero así se hacen las vacaciones de nuestra generación!</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Sí, las vacaciones van a ser breves...pero te garantizo que van a ser agradables.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Este año quieres ir a la Florida, el año que viene a México, y después querrás ir a la luna.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>No, no me voy a quemar.</td>
<td></td>
</tr>
</tbody>
</table>
III. Read the following report of a student strike. As you read, look for words and phrases that suggest to you that the paragraph might have been written by a person who aligned himself more with the police than with the students. List the "cue" words and phrases that you find in the space provided. (7 minutes)

Otra vez los estudiantes hacen huelga. Estos jóvenes que no respetan los ideales de la patria—ni la ley, ni la bandera nacional, ni la tradición—estos jóvenes otra vez están destruyendo el sistema educativo que el gobierno les da.

Eran las siete de la tarde cuando llegó la policía y casi no se veía la luz del día. Para controlar a los rebeldes, el capitán de policía envió su escuadra entera a la escena del crimen. Parece que algunos estudiantes llevaban revólveres, y que la policía tuvo que defenderse. La brutal acción de los estudiantes resultó en la destrucción de muchas cosas. Al principio parecía que los insurgentes tenían la ventaja y el poder, pero nuestra policía valiente pudo restaurar el orden público dentro de muy poco tiempo. Dentro de poco, llevaron a los ingratos a la cárcel donde van a recibir el castigo que merecen.

El capitán de la escuadra—un patriota fuerte e inteligente—fue nombrado héroe por el Comité Nacional. Quién sabe...es probable que en las próximas elecciones lo elijan Director de Seguridad Pública.

Example: NO RESPETAN LOS IDEALES DE LA PATRIA.
We are trying out some different types of activities related to your assignments, and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. George is an American studying in Venezuela. While reading the newspaper the first day we was there, he encountered each of the following statements. Where was it most probable that he found each of them: On the front page (la primera plana)? In the classified ads (los anuncios clasificados)? In full-page ads fun by major business concerns (los anuncios de compañías grandes)? Indicate your answer by checking the appropriate column. (5 minutes)

1 = La primera plana
2 = Los anuncios clasificados
3 = Los anuncios de compañías grandes

```
1 2 3
1. Se contamina el aire.
2. En nuestra elegante tienda se habla inglés.
3. Se alquilan habitaciones en mi casa.
4. Se venden coches nuevos a precios muy baratos.
5. Se raciona la gasolina por falta de petróleo.
6. Se abre a las 9 de la mañana y se cierra a las 8.
7. Se robaron 20 obras de arte al Museo Nacional.
10. En todas nuestras tiendas se consigue cualquier cosa que Vd. desee. ¡Hay de todo!
```
II. George is still in Venezuela. While there he has a lot of good experiences, but a number of unpleasant things happen to him as well, largely due to the fact that he is both a bit clumsy and a bit forgetful. George kept a list of some of the things that didn't go quite right for him. Below, reproduce as many of the unpleasant—and unplanned!—occurrences as you can, using the elements from the two columns. (5 minutes)

<table>
<thead>
<tr>
<th>English</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Se me cayó</td>
<td>la maleta</td>
</tr>
<tr>
<td>Se me cayeron</td>
<td>las llaves del coche</td>
</tr>
<tr>
<td>Se me rompió</td>
<td>enviar postales a mis compañeras de escuela</td>
</tr>
<tr>
<td>Se me rompieron</td>
<td>el pasaporte</td>
</tr>
<tr>
<td>Se me perdió</td>
<td>traer los cheques de viajero</td>
</tr>
<tr>
<td>Se me perdieron</td>
<td>comprar un regalo para mi mamá</td>
</tr>
<tr>
<td>Se me olvidó</td>
<td>todos mis documentos</td>
</tr>
<tr>
<td>Se me olvidaron</td>
<td>el dinero</td>
</tr>
</tbody>
</table>

Lo malo que me ocurrió en Venezuela:

1. Se me olvidó el pasaporte.
III. While in Venezuela George takes part in an international student conference and discussed politics with students from all parts of the world. Some of the speakers expressed positive attitudes, others negative. Unscramble and write each of the sentences below in the space provided. Then check the appropriate box to indicate whether you thought the person's attitude toward his government was positive or negative. (10 minutes)

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Actitud</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL PRESIDENTE RESUELVE TODOS NUESTROS PROBLEMAS.</td>
<td></td>
</tr>
<tr>
<td>1. /deben recibir / del gobierno / no la reciben / /los pobres/ ayuda / pero /</td>
<td>Pos. Neg.</td>
</tr>
<tr>
<td>2. /absoluto / de los radicales / el gobierno breve / / un fracaso / fue /</td>
<td></td>
</tr>
<tr>
<td>3. / patriotas fieles / y deben tener / son / / los líderes / más poder /</td>
<td></td>
</tr>
<tr>
<td>4. / a / obedecer / todos debemos / nuestros / líderes /</td>
<td></td>
</tr>
<tr>
<td>5. / a Dios / gracias / fue nombrado / Presidente / / el representante de la gente /</td>
<td></td>
</tr>
<tr>
<td>6. / ahora tenemos / porque eligimos / de nuevo / / un gobierno mejor / al candidato idealista /</td>
<td></td>
</tr>
<tr>
<td>7. / además / muchos cambios / hicieron / que beneficiaron / los políticos / a la gente /</td>
<td></td>
</tr>
<tr>
<td>8. / después de las elecciones libres / se / una vez más / ve / la luz /</td>
<td></td>
</tr>
</tbody>
</table>
I. Write the Spanish equivalent of each of the following words.

1. sun

2. to burn

3. besides

4. faithful

5. to obey

II. Circle the letter of the answer that best completes each of the following sentences.

1. A Juan __________ las llaves.
   a. se me cayeron
   b. se les cayeron
   c. se le cayeron
   d. se le cayo

2. En esta tienda __________ libros y revistas.
   a. me vendo
   b. se vende
   c. te vendes
   d. se venden

3. Antes no __________ casas, pero hoy día sí se hace.
   a. se alquilaban
   b. se alquilan
   c. se alquilaba
   d. se alquila

4. Yo quería traer la foto, pero __________.
   a. se me olvidaron
   b. se le olvidaron
   c. se me olvidó
   d. se le olvidó

5. En nuestra escuela no son muy populares las ciencias, pero __________ mucho el español y el inglés.
   a. se estudian
   b. se estudia
   c. me estudian
   d. me estudia
III. Read the following passage. From the list, select the appropriate words needed to complete the ideas. Write them in the spaces provided. Remember that your sentences should be both grammatical and meaningful, and that the passage as a whole tells a short but unified story. Note: No word or phrase is used more than once.

se me rompió se nombraron una compañera breve
se eligió se garantizaron una huelga fiel
se consiguieron se te cayeron un poder cualquier
se le cayó se le rompieron un fracaso además
se quemó se enviaron una luz de nuevo

Había una vez una escuela primaria donde los niños querían organizar y presentar una obra dramática. Lo primero que tuvieron que hacer fue pedir permiso a los maestros. Después de hablar mucho, por fin _________ el permiso necesario. No sería posible presentar _________ drama. Era necesario que fuera algo especial, porque querían invitar a los padres. Después de muchos debates sobre los méritos respectivos de los varios dramas posibles, _________ un drama _______, un drama de unos quince minutos. Luego, tenían que pensar en los personajes, y quién debe hacer cada papel. Después de varios días de vacilación, _________ los actores. Durante dos o tres semanas preparaban y preparaban... hasta que todos los maestros de la escuela—y también la mayor parte de los padres— se quedaban sin paciencia ninguna. Pero, por fin _________ las invitaciones y, una vez más, los padres fueron a la escuela para ver el drama, porque querían a sus hijos.

En la primera escena, a uno de los niños _________ un gran número de cosas, y en la segunda escena _________ no sé cuántos platos a otro, con el resultado de que empezaron la segunda escena _________ y la repetieron completamente. Algunos de los niños no habían recordado el momento de entrar. Otros olvidaron lo que tenían que decir. En una frase, fue un desastre total, es decir, _________ absoluto. Pero a los padres no les importaba. Todos salieron de la escuela pensando, "Mi hijo... es... actor".
Evaluation of Materials

Please respond to each of the following items, placing a checkmark in the appropriate box.

1 = strongly disagree
2 = disagree
3 = agree
4 = strongly agree
? = uncertain

1. I found the activities interesting.
2. I would enjoy having similar activities as homework.
3. I would enjoy doing similar activities orally in class.
4. I think most students would like doing the activities.
5. I found the activities helpful in learning the grammar.
6. I found the activities helpful in learning the vocabulary.
7. I think these activities would help me in learning to express myself in Spanish.
8. I felt that these activities helped prepare me for the brief evaluation I just took.
9. I had enough time to complete these activities.
10. I had time left over after completing these activities.
Appendix C. Experiment I

1. Activities
2. Criterion Instrument
3. Attitudinal Questionnaire
Grammar:  

- ponerse + adjective
- llegar a ser + noun
- ¿qué? ¿cual? ¿cuáles?

Reading:  

El Canal de Panamá (in Castels and Lionetti, pp. 569-75)

Vocabulary:  

- el proyecto
- la enfermedad
- las deudas
- el acuerdo
- la arena
- el gasto
- los recursos
- el nivel
- los seguros
- los impuestos
- disminuir
- colocar
- mejorar
- aumentar
- firmar
We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. Rewrite each of the following sentences making the indicated subject change. Make certain that the adjective agrees in person and number with the subject. (7 minutes)

   Model: Juan se puso contento cuando vio a su amigo. (las niñas)  
   LAS NIÑAS SE PUSIERON CONTENTAS CUANDO VIERON A SU AMIGO.

1. Juan se puso pálido a causa de su enfermedad. (los pacientes)

2. El jefe se puso furioso cuando supo del gasto del dinero. (la mamá)

3. La mamá se puso triste porque no pudo pagar sus deudas.  
   (los padres)

4. Los embajadores se pusieron nerviosos porque no pudieron llegar a un acuerdo.  
   (las dos amigas)

5. Los jóvenes se pusieron contentos porque no tuvieron que pagar los impuestos.  
   (la señora Pérez)

6. Juan se puso triste cuando vio su examen. (las chicas)

7. Ana y Teresa se pusieron furiosas cuando oyeron las mentiras.  
   (los chicos)

8. Pedrito se puso contento cuando encontró sus juguetes.  
   (los niños)
II. Write the answer to each of the following questions, following the model. (5 minutes)

Model: ¿Cuándo llegó a ser abogado? (hace tres años)
       LLEGÓ A SER ABOGADO HACE TRES AÑOS.

1. ¿Cuándo llegó a ser director de la compañía de seguros? (el año pasado)
2. ¿Cuándo llegó a ser jefe del proyecto? (hace tres semanas)
3. ¿Cuándo llegó a ser juez? (en noviembre?)
4. ¿Cuándo llegó a ser campeón nacional? (el verano pasado)
5. ¿Cuándo llegó a ser presidente de la compañía? (en 1967)
6. ¿Cuándo llegó a ser rector de la universidad? (este año)

III. Write the correct form—¿cuál? or ¿cuáles?—to ask the question which one? or which ones? Follow the model provided. (4 minutes)

Model: Hay tres libros nuevos,
      ¿CUÁL es el más interesante?
      Hay veinte libros en la lista.
      ¿CUÁLES son los más importantes?

1. Hay tres métodos de disminuir la cantidad de trabajo.
   ¿CUÁL es el mejor?
2. Hay dos programas para mejorar el nivel de vida.
   ¿CUÁL es el más rápido?
3. Hay dos ideas para aumentar la productividad de la tierra.
   ¿CUÁL es la mayor?
4. Había unos veinte hombres que firmaron el documento.
   ¿CUÁLES son los más famosos?
5. Habrá muchos problemas si no conservamos nuestros recursos naturales.
   ¿CUÁLES son los más serios?
IV. Use ¿qué? to ask for definitions or explanations of each of the following items. Fill in the blanks to complete the questions. (4 minutes)

Model:  El Prado es un museo.
¿QUÉ es un museo?

1. La arena de esta playa es muy blanca y muy fina.
¿___________ es una playa?

2. Para colocar este dibujo en la pared, necesito un martillo.
¿___________ es un martillo?

3. Construyeron un dique para crear un lago artificial.
¿___________ es un dique?

4. No quiero pagar los impuestos. Preferiría comprarte un abrigo de pieles.
¿___________ es un abrigo de pieles?
We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. Unscramble each of the following sentences. Rewrite them in the space provided. (5 minutes)

Model: / llegó a ser / María / hace tres años / profesora / MARÍA LLEGÓ A SER PROFESORA HACE TRES AÑOS.

1. / llegó a ser/de la compañía de seguros / director / Ramón/
2. / jefe del programa/llegó a ser / la semana pasada / Roberto/
3. / el señor Pérez / en noviembre / juez / llegó a ser /
4. / el verano pasado / llegó a ser / Pepe / campeón nacional /
5. / el general / presidente / el año pasado / llegó a ser /

II. ¿Cuál? and ¿cuáles? are used to ask which one(s)? Following the model, use the appropriate form—¿cuál? or ¿cuáles?—to write the question that elicited each answer. (5 minutes)

Model: Madrid es la capital de España.
¿CUÁL ES LA CAPITAL DE ESPAÑA?
El rojo y el azul son mis colores favoritos.
¿CUÁLES SON SUS COLORES FAVORITOS?

1. La fiebre amarilla es la enfermedad que mató a mucha gente panameña.
2. El segundo es el plan más práctico para mejorar el nivel de vida en nuestro país.
3. El martillo es el mejor instrumento para colocar este retrato en la pared.
4. El primero es el mejor sistema para aumentar la productividad de la tierra.
5. Estos dos son mis libros favoritos.
III. ¿Qué? is used to ask for a definition or an explanation. Using ¿qué?, write the question that elicited each of the following answers. Follow the model. (3 minutes)

Model: Un lápiz es algo que se usa para escribir. ¿QUÉ ES UN LÁPIZ?

1. La arena es una sustancia que se encuentra en la playa. ¿QUÉ ES LA ARENA?
2. Una deuda es una cuenta que tenemos que pagar. ¿QUÉ ES UNA DEUDA?
3. Un soldado es un hombre que hace el servicio militar. ¿QUÉ ES UN SOLDADO?
4. Una constitución es la ley fundamental de una nación, una ley que firman sus líderes. ¿QUÉ ES UNA CONSTITUCIÓN?

IV. Construct as many grammatically correct sentences as you can. Write them in the space provided. (7 minutes)

| Se puso contento | cuando supieron que disminuían los recursos naturales.
|                  | cuando terminó el proyecto.
|                  | cuando supieron del gaso de dinero.
|                  | cuando no pudieron llegar a un acuerdo.
|                  | cuando recibió el gran premio.
|                  | cuando vio a sus amigos.
|                  | cuando tuvieron que pagar los impuestos.
|                  | cuando encontró sus juguetes perdidos.
|                  | cuando por fin pudo ir de vacaciones.
|                  | cuando tuvieron que comprar gasolina a un precio muy alto.
| Se pusieron furiosos | Example: Se puso contento cuando encontró sus juguetes perdidos.
Spanish 103

We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. John Smith is an American engineer whose company sent him to work with a group of engineers in Panamá. The mornings he spends at work (part of his job is to do a study on the canal) and the afternoons he spends as a tourist. Below is a list of some of the many questions he asked during his three weeks in Panamá. Which questions did he probably ask at work as an engineer? Which as a tourist? Decide, and then mark your answer with a checkmark in the appropriate column. Remember that ¿qué? is used to ask for a definition or an explanation and ¿cual? and ¿cuales? ask which one? and which ones? (10 minutes)

<table>
<thead>
<tr>
<th>Ingeniero</th>
<th>Turista</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ¿Cuáles son las playas que tienen la arena más blanca?</td>
<td></td>
</tr>
<tr>
<td>2. ¿Cuál fue la enfermedad que mató a tanta gente durante la construcción del canal?</td>
<td></td>
</tr>
<tr>
<td>3. ¿Cuál fue el nombre del jefe del proyecto? ¿Leeseps?</td>
<td></td>
</tr>
<tr>
<td>4. ¿Cuál es el nivel del agua en esta esclusa?</td>
<td></td>
</tr>
<tr>
<td>5. ¿Cuáles son los recursos naturales más importantes para construir un puente como este?</td>
<td></td>
</tr>
<tr>
<td>6. ¿Cuál es el precio hoy? Ayer el dueno de este café me dijo que iba a aumentar el precio.</td>
<td></td>
</tr>
<tr>
<td>7. ¿Qué es un dique? Me dicen que construyeron un dique para crear un lago artificial.</td>
<td></td>
</tr>
<tr>
<td>8. ¿Qué son impuestos? Mi jefe me dice que tengo que pagarlos.</td>
<td></td>
</tr>
<tr>
<td>9. ¿Qué es un juez? Me dicen que vamos a necesitar un juez para llegar a un acuerdo con la otra compañía.</td>
<td></td>
</tr>
<tr>
<td>10. ¿Qué es este papel? Mi esposa dice que tengo que firmarlo para cobrar un cheque de viajero.</td>
<td></td>
</tr>
<tr>
<td>11. ¿Qué es una mola? Me dicen que debo comprar una y colocarla en la pared de mi casa en los Estados Unidos.</td>
<td></td>
</tr>
</tbody>
</table>
While in Panama, John received a number of letters from his wife who had stayed home in New York. Some of the news he received caused him to become happy, some furious, etc. Read each of the following bits of news and decide how he probably reacted to each item. Write your answer in the space provided. (5 minutes)

Example: "Tu hijo perdió su bicicleta."
John ____________
   a. se puso contento
   b. se puso indiferente
   c. se puso furioso

1. "La compañía de seguros acaba de notificarnos: Van a subir los precios.
John ______________________
   a. se puso alegre
   b. se puso ridículo
   c. se puso enojado

2. "Ya no tenemos ninguna deuda grande. Acabo de pagar la última."
John ______________________
   a. se puso triste
   b. se puso contento
   c. se puso deprimido.

3. "Ayer murió la esposa del vecino."
John ______________________
   a. se puso enfermo
   b. se puso triste
   c. se puso nervioso

4. "Parece que no va a mejorar la condición de tu mamá. Todavía tiene que consultar con el médico."
John ______________________
   a. se puso triste
   b. se puso contento
   c. se puso indiferente

5. "Ha disminuido el número de problemas que tengo con los niños. Ya no son tan malos como antes."
John ______________________
   a. se puso triste
   b. se puso indiferente
   c. se puso contento.

6. "Tú no podrías creer lo que está haciendo el gobierno municipal. ¡Es terrible! Tenemos muy malos administradores, como tú sabes, y como resultado, todo lo que hacen es un gran gasto de dinero."
John ______________________
   a. se puso palido
   b. se puso alegre
   c. se puso furioso
III. While in Panama John Smith went to a party one evening. There he met many people who had become extremely successful over the years. He was very impressed with them. Here are their stories. How did each story end? Write the appropriate ending in the space provided. (5 minutes)

1. Raúl Jiménez era un abogado que trabajaba en su ciudad durante unos años. A él le gustaba muchísimo la política y quería servir al público en alguna capacidad oficial. Decidió ser candidato en las últimas elecciones y ganó, es decir que ___________________________.
   a. llegó a ser médico
   b. llegó a ser psicólogo
   c. llegó a ser juez

2. Felipe Suárez trabajaba como vendedor de zapatos en una compañía grande. Felipe era muy trabajador y los administradores notaron sus buenas cualidades. Primero lo nombraron jefe del departamento, después jefe de compras para la compañía entera, y por fin Felipe ___________________________.
   a. llegó a ser maestro de español
   b. llegó a ser vicepresidente de la compañía
   c. llegó a ser abogado

3. En 1950 José Antonio Pérez empezó su servicio militar como lugarteniente. Era un hombre muy serio y muy inteligente. Tenía todas las cualidades necesarias para ser un buen líder. Después de algunos años fue nombrado capitán. Todos lo consideraban un buen soldado profesional. Por fin José Antonio Pérez ___________________________.
   a. llegó a ser periodista
   b. llegó a ser general
   c. llegó a ser cocinero

4. Luis Valdés empezó su carrera como profesor universitario cuando tenía 30 años. Todo el mundo lo admiraba y todos lo consideraban un profesor excelente. A los 38 años lo nombraron Decano de la Facultad de Filosofía y Letras. Su capacidad administrativa había impresionado a todos sus colegas y a todos los estudiantes también. Fue tan respetado por todos que a los 45 años este señor ___________________________.
   a. llegó a ser Rector de la Universidad
   b. llegó a ser policía
   c. llegó a ser camarero
We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as an approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. John Smith is an American tourist in Panama. A number of things happened to John while he was there. Some of them made him happy, some sad, some angry. Using one element from each column, write about as many of these occurrences and their impact on his emotional state as you can. Write your sentences in the space provided. (7 minutes)

<table>
<thead>
<tr>
<th>Se puso</th>
<th>porque</th>
<th>tuvo que pagar muchos impuestos.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>conoció a una panamena muy linda.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aumentaron sus deudas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>vio un gran gasto de recursos naturales.</td>
</tr>
<tr>
<td></td>
<td>cuando</td>
<td>no pudo hablar bien el español.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>notó que había disminuido su dinero.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tuvo que firmar su nombre 8 veces en el banco para cobrar un cheque.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>fue a la playa para ver la arena blanca y las chicas bonitas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>fue invitado a la casa de una familia panamena.</td>
</tr>
</tbody>
</table>

Example: Se puso furioso cuando no pudo hablar bien el español.
II. During his stay in Panamá, John Smith met many people who had become successful over the years. He was so impressed that he began to keep a list describing the success stories that he heard. Using one item from each column below, try to duplicate John's list, describing as many of the probable success stories as possible. (5 minutes)

<table>
<thead>
<tr>
<th>Después de muchos años</th>
<th>el capitán</th>
<th>el profesor</th>
<th>el abogado</th>
<th>el vendedor de seguros</th>
<th>el estudiante pobre</th>
<th>llegó a ser</th>
<th>jefe del gobierno</th>
<th>juez</th>
<th>decano</th>
<th>general</th>
<th>presidente de la compañía</th>
<th>profesor</th>
<th>universitario</th>
</tr>
</thead>
</table>

Example: Después de muchos años, el profesor llegó a ser decano.

III. Later on John Smith is sent back to Panamá by his company, an engineering firm. While there he spends his mornings at work (part of his job is to do a study on the canal) and the afternoons he spends as a tourist. Below are a few scrambled sentences (questions, actually). Unscramble and write each question. Which questions did John probably ask at work as an engineer? Which as a tourist? Decide, and then mark your answer with a checkmark in the appropriate column. Remember that ¿qué? is used to ask for a definition or an explanation and ¿cual? or ¿cuáles? to ask which one(s)? (8 minutes)
III.

Example:/ es / qué / un canal /

¿QUÉ ES UN CANAL?

1. /del canal/cuál fue la enfermedad terrible/
   /durante la construcción/

2. /cuál es / del agua / aquí / el nivel/

3. /más fáciles/cuáles son los métodos/
   /para mejorar nuestro trabajo/

4. /buenos/ los restaurantes / cuáles son /

5. / qué / recuerdos / son /

6. / es / un dique / qué /

7. / es / qué / una playa /

8. / colocar / dónde debemos / estas máquinas /

9. / con la otra compañía llegar a un acuerdo /
   / como debemos /

10. / cuándo este proyecto / vamos a terminar /
Please take the following short quiz. It will NOT count as a part of your course grade but will help in determining how effective the activities were in helping you learn. Thank you.

I. Give the Spanish equivalent of each of these English words:

1. illness ________________ 4. resources ____________
2. agreement _________________ 5. to improve __________
3. to increase ________________

II. Circle the letter of the answer that best completes each of the following sentences.

1. Ayer el niño ______ muy triste, pero no sé por qué.
   a. se pone
   b. llega a ser
   c. se puso
   d. llegó a ser

2. En la escuela Marcos recibió malas notas en arte, pero con mucho trabajo ______ un artista bueno.
   a. se pone
   b. llegue a ser
   c. se puso
   d. llegó a ser

3. Hay tres teoría nuevas. ¿____ es la más probable?
   a. Que
   b. Cuál
   c. Cuáles

4. Alguien me habló de un canal. No entiendo. ¿____ es un canal?
   a. Que
   b. Cuál
   c. Cuáles

5. A mí me gustan las películas ¿______ son tus favoritas?
   a. Que
   b. Cuál
   c. Cuáles
III. Read the following passage. From the list, select the appropriate words needed to complete the ideas. Write them in the spaces provided. Remember than your sentences should be both grammatical and meaningful, and that the passage as a whole tells a short but unified story.

<table>
<thead>
<tr>
<th>Nouns</th>
<th>Verbs</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>proyecto</td>
<td>deudas</td>
<td>se pone</td>
</tr>
<tr>
<td>martillo</td>
<td>playas</td>
<td>firma</td>
</tr>
<tr>
<td>arena</td>
<td>recursos</td>
<td>disminuye</td>
</tr>
<tr>
<td>nivel</td>
<td>esclusas</td>
<td>llega a ser</td>
</tr>
<tr>
<td>seguros</td>
<td>impuestos</td>
<td>coloco</td>
</tr>
</tbody>
</table>

El señor Fernández es un hombre de negocios y tiene 40 años. Hasta ahora ha tenido mucho éxito en el mundo de los negocios. A los 30 años fue nombrado gerente de una tienda. A los 35 años ________ vicepresidente de una compañía de _________. Pero ahora ha ocurrido algo malo. He perdido su empleo. Como resultado, tiene que cambiar su ______ de vida. Ahora no gana dinero, pero todavía tiene muchas _________. Poco a poco ________ el dinero que tiene en el banco. No queda casi nada. Necesita pagar el dinero que tiene en el banco. No queda casi nada. Necesita pagar los ________ nacionales el 15 de abril, pero no puede. Por eso va al banco. Necesita quinientos dólares. Como el señor Fernández siempre ha tenido muy buen crédito, entra en el banco, ________ el papel, y sale con el dinero.

El próximo día el señor Fernández lee el periódico. Vd un anuncio de una compañía que empieza un ______ nuevo. Se necesitan hombres de negocios. El señor Fernández _________ muy contento y llama por teléfono. El jefe le dice, "Tenemos varios puestos," y le lee la lista. "______ de ellos le interesa más?" El señor Fernández indica su preferencia y pide una entrevista. Así se termina la conversación.
Evaluation of materials

Please respond to each of the following items, placing a checkmark in the appropriate box.

You are encouraged to add further reactions and comments in the space below.

SD = strongly disagree
D = disagree
A = agree
SA = strongly agree

1. I found the activities interesting.
2. If we had more time, I would like to do similar activities during the quarter.
3. This was an enjoyable way of working with the grammar.
4. This was an enjoyable way of working with vocabulary.
5. I felt frustrated while doing these activities.
6. I felt the activities were too hard.
7. I had enough time to complete these activities.
8. I had time left over after completing the activities.
9. These activities are similar to the ones that I am used to doing in Spanish 103.
10. I would enjoy doing similar activities either as homework, when I'm able to use the book for help, or as a class activity, with help available from my instructor.

Comments:
Appendix D. Experiment II

1. Activities

2. Criterion Instrument

3. Attitudinal Questionnaire
Experiment II
Spanish 102
May 14, 1975

Grammar:  
-ER commands
-IR commands
Irregular commands: ir and ser

Reading:  
"La ciencia y las leyendas" (from Castels and Lionetti, pp. 359-63)

Vocabulary:  
la magia
la mente
la explicación
la respuesta
la ciencia
los adelantos
el siglo
las leyendas
las creencias
la felicidad
prometer
enviar
influir
acostumbrado
loco
We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. Rewrite each of the following sentences, changing the yo form to an usted command. Follow the model provided. (6 minutes)

   Model: Yo escribo una composición.
   ESCRIBE VD. UNA COMPOSICIÓN.

   Yo bebo café con leche.
   BEBA VD. CAFÉ CON LECHE.

1. Leo la explicación del libro para entender el concepto.

2. Leo este artículo sobre los adelantos técnicos.

3. Como un sándwich con papas fritas.

4. Vivo en una casa de apartamentos.

5. Escribo la respuesta a la pregunta.

6. Escribo una carta a mamá.

7. Describo las creencias más populares de nuestra sociedad.

II. Rewrite each of the following commands, making the indicated substitution. Follow the model provided. (6 minutes)

   Model: Escriba la lección. (los ejercicios)
   ESCRIBE VD. LOS EJERCICIOS.

1. Descubra más satisfacción en su trabajo. (felicidad)

2. Crea Vd. en la ciencia. (la magia)

3. Crea Vd. en estas ideas que influyen tanto en nuestras costumbres. (estas leyendas antiguas)
II. (cont.)

4. Prométame que va a enviar el libro hoy. (el paquete)

5. Describa Vd. la vida a la cual Vd. está acostumbrado. (un hombre del siglo 20)

6. Describa Vd. la mente de una persona loca. (sana)

III. Rewrite each of the following statements, changing it into a command form, following the model. (8 minutes)

Model: Juan es bueno en la escuela.

JUAN, SEA BUENO EN LA ESCUELA.

Juan va a la escuela.

JUAN, VAYA A LAESCUELA.

1. Raúl es simpático con todos.

2. Teresa no es mala.

3. Pepe no es cruel a los animales.

4. Ana María va a Nueva York este fin de semana.

5. Andrés va a Chicago para ver los museos.

6. José Luis va a la biblioteca después de la clase.

7. Elena va primero al mercado y después a casa.
We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. Unscramble each of the following sentences. Rewrite them in the spaces provided. (5 minutes)

Model: /de español/estudie Vd./todos los días/la lección/

ESTUDIE VD. LA LECCIÓN DE ESPAÑOL TODOS LOS DÍAS.

1. /con todos/simpático/sea/

2. / los días / bueno / sea / todos /

3. / no / cruel / sea / a los animales /

4. / vaya Vd. / si le gusta el teatro / a Nueva York /

5. / al campo / vaya Vd. / un lugar tranquilo / para encontrar /

6. / a los bares / vaya Vd. / no /

7. / si tiene un amigo enfermo / al hospital / vaya Vd. /
II. Using one item from each column, construct as many grammatically correct sentences as you can. Write them in the space provided. (8 minutes)

<table>
<thead>
<tr>
<th>Crean</th>
<th>Crea</th>
<th>Vd.</th>
<th>en la ciencia y en el progreso en los adelantos tecnológicos en el futuro en las leyendas antiguas en la magia de las culturas primitivas en armonía con los amigos para tener felicidad en el campo para tener la mente tranquila en esta parte de la ciudad en esta casa de apartamentos en armonía con la naturaleza</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crea</td>
<td>Vds.</td>
<td>en la ciencia y en el progreso en los adelantos tecnológicos en el futuro en las leyendas antiguas en la magia de las culturas primitivas en armonía con los amigos para tener felicidad en el campo para tener la mente tranquila en esta parte de la ciudad en esta casa de apartamentos en armonía con la naturaleza</td>
</tr>
<tr>
<td></td>
<td>Viva</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vivan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: Crean Vds. en el futuro.
Viva Vd. en el campo para tener la mente tranquila.
III. Unscramble each of the following sentences. Rewrite them in the spaces provided. (7 minutes)

1. / moderna / a la tecnología / estoy acostumbrado / no /

2. / la televisión / en nuestra vida / influir tanto / no debe /

3. / enviar / quiero / a mi tío / este paquete /

4. / escribo / a la pregunta / la respuesta /

5. / una explicación / cuando no entiendo / pido /

6. / no me gusta / del siglo 20 / la tecnología /

7. / las personas / la televisión / que miran / están locas /

8. / nuestra literatura / de nuestras creencias / dice mucho /

9. / que voy a / yo le prometo / los mitos antiguos / estudiar /
We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. We're always telling each other to do things, but the things that we tell each other to do often depend on the culture in which we live. Read each of the following commands and decide whether it would most probably have been given in a precolombian indian culture or in our 20th-century society. Then, write the command in the appropriate column. (7 minutes)

1. Lea Vd. este artículo sobre los adelantos técnicos.
2. Lea Vd. el periódico todos los días.
3. Coma Vd. maíz.
4. Coma Vd. un sandwich con papas fritas.
5. Crea Vd. en las leyendas y las creencias de nuestros padres.
6. Crea Vd. en la ciencia y en el progreso.
7. Crea Vd. en Quetzalcóatl.
8. Viva Vd. en armonía con la naturaleza.
9. Viva Vd. en una casa de apartamentos.
10. Descubra Vd. la utilidad de nuestras máquinas.

<table>
<thead>
<tr>
<th>La sociedad precolombina</th>
<th>La sociedad moderna</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: Coma Vd. maíz.</td>
<td></td>
</tr>
</tbody>
</table>
II. Imagine that someone from a precolumbian society were to visit us and write down some of his observations. The following paragraph is a sample of what he might have written. Read it carefully, then, at the bottom of the page, make a list of words and phrases that indicate that the paragraph might have been written by an observer from another time--someone who did not really understand nor like what he saw. (8 minutes)

Mi primer día en el siglo 20 vi una cosa que llaman "televisión". Con esta cosa pueden enviar voces y fotos por el aire, de un lugar a otro. Es muy curioso. Parece que la mente humana puede hacer muchas cosas que yo no entiendo. Para mí es pura magia. Por eso yo pedí una explicación de cómo funciona esta cosa. La respuesta fue que es una cosa muy complicada, el resultado de la tecnología. Yo no estoy acostumbrado a estas cosas, ni a la televisión ni a la tecnología. Tampoco me gustan. Creo que las personas que miran la televisión están locas. En mi opinión, la televisión no debe influir tanto en la vida de estas personas. La miran todo el día, y esto es muy malo. Pero, en fin, sólo es mi opinión. Ellos tienen su propia cultura que es diferente de la mía, y prometo no criticarla más.

Example: MI PRIMER DÍA EN EL SIGLO 20....
Imagine that it were possible for a precolombian indian to visit our society and that it were your job to give him advice. Read each of the following sentences and decide whether you think the advice would be helpful or not. Write the sentences in the appropriate column. (5 minutes)

1. Sea simpático con todos.
2. Sea malo todos los días.
3. No sea cruel a los animales.
4. Vaya Vd. a Nueva York si le gusta el teatro.
5. Vaya Vd. a Chicago para encontrar una ciudad tranquila.
6. No vaya Vd. a los bares.
7. Vaya Vd. a un hospital para enviar una carta a un amigo.

Consejos buenos
Consejos malos
We are trying out some different types of activities related to your assignments and your help is needed. We would like you to do the following activities, using the times indicated as approximate guidelines. We appreciate your participation and will ask you to help us evaluate these activities later in the class hour.

I. We're always telling each other to do things, but the things that we tell each other to do often depend on the culture in which we live. Using one item from each column below to construct each command, try to construct at least 8 commands: 4 that might have been heard in a precolumbian indian culture, and 4 that might be heard in the 20th century.

(8 minutes)

<table>
<thead>
<tr>
<th>La sociedad precolumbina</th>
<th>La sociedad moderna</th>
</tr>
</thead>
<tbody>
<tr>
<td>lea Vd.</td>
<td>la felicidad y compro un coche nuevo</td>
</tr>
<tr>
<td>Coma Vd.</td>
<td>un sándwich con papas fritas</td>
</tr>
<tr>
<td>Crea Vd. en</td>
<td>maíz</td>
</tr>
<tr>
<td>Viva Vd.</td>
<td>la ciencia y el progreso</td>
</tr>
<tr>
<td>Descubra Vd.</td>
<td>los dioses</td>
</tr>
<tr>
<td></td>
<td>Quetzalcóatl</td>
</tr>
<tr>
<td></td>
<td>este libro sobre la mente humana</td>
</tr>
<tr>
<td></td>
<td>este artículo sobre los adelantos tecnológicos</td>
</tr>
<tr>
<td></td>
<td>las leyendas y las creencias de nuestros padres</td>
</tr>
<tr>
<td></td>
<td>en armonía con la naturaleza</td>
</tr>
<tr>
<td></td>
<td>la utilidad de nuestras máquinas</td>
</tr>
</tbody>
</table>

Example: COMA VD, UN SÁNDWICH CON PAPAS Fritas.
II. If a pre columbian indian were to observe our contemporary world he might find some things that he wouldn't understand or like. Below are some observations that he might make about our 20th-century society. How would you fit them together to form a meaningful paragraph? Reorder the following sentences in a way that makes sense to you and write the paragraph in the space provided. (7 minutes)

Mi primer día en el siglo 20 vi una cosa que llaman "televisión".

La respuesta fue que es una cosa muy complicada, un producto de la tecnología.

Yo no estoy acostumbrado a estas cosas, ni a la tecnología ni a la televisión.

Pero, en fin, sólo es mi opinión, ellos tienen su propia cultura que es diferente de la mía, y prometo no criticarla más.

Para mí es pura magia y por eso pedí una explicación de cómo funciona este aparato.

Tampoco me gustan; creo que las personas que miran la televisión están locas.

En mi opinión, la televisión no debe influir tanto en la vida de estas personas.

Write your entire paragraph.

MI PRIMER DÍA EN EL SIGLO 20 VI UNA COSA QUE LLAMAN "TELEVISIÓN".
III. Imagine that it were possible for a pre-columbian indian to visit our society and that it were your job to give him advice. Unscramble each of the following sentences and decide whether you think the advice would be helpful or not. Write the sentences in the space provided and check the appropriate box. (5 minutes)

Example: / vaya / a California / Vd. /  
VAYA VD. A CALIFORNIA.  

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Consejos buenos</th>
<th>Consejos malos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. /con todos/simpático/sea/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. /malo/sea/todos los días/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. /no/a los animales/sea/cruel/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. /el teatro/si le gusta/vaya Vd./a Nueva York/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. /vaya Vd./para encontrar/a Chicago/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/una ciudad tranquila/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. /vaya Vd./a los bares/no/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. /a un hospital/para enviar una carta/vaya Vd./</td>
<td></td>
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<tr>
<td>/a un amigo/</td>
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</tbody>
</table>
Please take the following short quiz. It will NOT count as a part of your course grade but will help in determining how effective the activities were in helping you learn. Thank you.

I. Give the Spanish equivalent of each of these English words:

1. explanation
2. answer (noun)
3. science
4. legends
5. to promise

II. Circle the letter of the answer that best completes each of the following sentences.

1. A mí me gusta este traje, pero no me gusta el otro. Vd. el otro.
   a. Vende
   b. Venda
   c. Vendo
   d. Vendas

2. Sr. Pérez, si Vd. quiere ir a un país precioso, a España.
   a. vea
   b. ve
   c. vaya
   d. va

3. Acabamos de ganar muchos dólares en la lotería. Vd. el dinero en tres partes iguales.
   a. Divide
   b. Dividen
   c. Divido
   d. Divida

4. Vd. siempre llega tarde. Por favor, puntual.
   a. sepa
   b. sea
   c. soy
   d. sabe

5. Digo la verdad. Por favor, Vd. esto. No me dude.
   a. cree
   b. oreyó
   c. creo
   d. crea
III. Read the following passage. From the list, select the appropriate words needed to complete the ideas. Write them in the spaces provided. Remember that your sentences should be both grammatical and meaningful, and the passage should form a short but unified whole.

Note: No word or phrase is used more than once.

Spanish 102 Name _________________________ Quiz, page 2

III. Read the following passage. From the list, select the appropriate words needed to complete the ideas. Write them in the spaces provided. Remember that your sentences should be both grammatical and meaningful, and the passage should form a short but unified whole.

Note: No word or phrase is used more than once.

Vivimos en una época cuando la astrología está de moda. Muchas personas del ____________ 20 creen que los astros tienen efectos sumamente importantes sobre nosotros. En otras palabras, creen que los astros pueden ____________ en muchos aspectos de nuestra vida personal.

Hoy día, hay opiniones muy diversas sobre el tema. ____________ Vd. estas dos:

--Si Vd. estudia su horóscopo todos los días, puede encontrar la ____________ y estar contento.
--En mi opinión, las personas que creen en la astrología están ____________.

Además, la propaganda para los horóscopos aparece en todas partes. Por ejemplo, ayer, en el periódico, apareció el siguiente anuncio:

Nuestra computadora puede preparar su horóscopo personal.

Vd. tiene que ____________ solo 15 dólares y este cupón.

___________ Vd. su nombre y los datos necesarios, y muy pronto va a recibir su propio horóscopo, gracias a los ____________ técnicos de nuestra sociedad. Por favor, si Vd. no recibe su horóscopo en el tiempo deseado, ____________ paciente, porque muchísimas personas nos escriben todos los días. Si Vd. no quiere un horóscopo de nuestra computadora, ____________ Vd. a la oficina de otra persona para pedirlo, pero seguro que le va a costar mucho más dinero, y el horóscopo va a ser mucho menos exacto.
Spanish 102
5-14-75

Evaluation of materials

Please respond to each of the following items, placing a checkmark in the appropriate box.

You are encouraged to add further reactions and comments in the space below.

SD = strongly disagree
D = disagree
A = agree
SA = strongly agree

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<th>A</th>
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6. I felt the activities were too hard.
7. I had enough time to complete these activities.
8. I had time left over after completing the activities.
9. These activities are similar to the ones that I am used to doing in Spanish 1C2.
10. I would enjoy doing similar activities either as homework, when I'm able to use the book for help, or as a class activity, with help available from my instructor.

Comments:
BIBLIOGRAPHY


Birckbichler, Diane. Personal communication, 1975.


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