COMPUTER-SUPPLEMENTED STRUCTURAL DRILL PRACTICE VERSUS COMPUTER-SUPPLEMENTED SEMANTIC DRILL PRACTICE BY BEGINNING COLLEGE GERMAN STUDENTS: A COMPARATIVE EXPERIMENT.

DISSERTATION

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

By

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ABSTRACT

"Computer-Supplemented Structural Drill Practice Versus Computer-Supplemented Semantic Drill Practice By Beginning College German Students: A Comparative Experiment."

By Reiner Horst Schaeffer, Captain, USAF

1979 Ph.D. Dissertation in Foreign Language Education at The Ohio State University (114 pages).

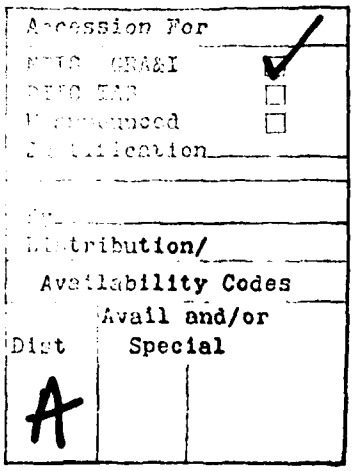
This study investigated the effectiveness of two types of computer practice, structural and semantic, across two levels of verbal aptitude. The experiment was conducted at the United States Air Force Academy. Subjects (n = 72) were beginning college German students who had no previous high school language training. The cadets were randomly assigned to three groups: (1) Structural Practice, (2) Semantic Practice, and (3) No Practice (Control). Groups 1 and 2 practiced the same grammatical concept on the computer with structural and semantic exercises, respectively. A structural exercise could be accomplished based on knowledge of structure alone, while a semantic exercise's successful accomplishment

depended upon understanding of the meaning of the item/problem; structure was a secondary consideration. The Control Group had no practice.

After the practice session, all three groups were administered a posttest (40 items) consisting of a structural and a semantic measure. Analysis of the data revealed a significant difference between the Semantic Group and the Structural Group on the semantic measure ($p < .05$). The Semantic Group also achieved the higher mean on the structural measure, though the difference in mean scores was not statistically significant.

The results of the study support previous research on the importance of meaningful (semantic) practice in the second-language learning process. It was also discovered that interpersonal interactions are not an explanation for the advantage observed for meaningful language practice in other experiments.

Dedicated to the United States Air Force which, during my 20 years of active military service, encouraged and provided educational opportunities ranging from a high school equivalency certificate to a doctorate degree.



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INTRODUCTION AND STATEMENT OF THE PROBLEM

Introduction to the Problem

Underlying virtually all current principles of foreign language learning is the notion of meaningful learning. In general, meaningful learning is a manifestation of cognitively based learning theories. Because cognitive learning theories rapidly are replacing their behavioristic predecessors as major bases for educational research, the notion of meaningful learning has powerful implications. In foreign language education, the shift from behavioristic to cognitive learning theories has had its most dramatic effect on how the learner is viewed. The learner now is recognized as an active participant in the learning process rather than as a creature of habit to be stimulated and conditioned to learn. A very crucial and integral part of cognitive theory is its emphasis on meaning--"the single most important variable in human learning . . ." (Osgood, 1961, p. 91).

Meaningful learning, which simply means "making sense of the world" (Smith, 1975, p. 1), is related closely to communicative proficiency, the major goal of foreign language study in the past few years. Commenting on this relationship between communication and meaning, Goyer (1970) notes that communication is "the sharing of experience"; meaning is "a discriminative response to a stimulus, and provides the criteria for determining whether or not communication occurs in a given situation" (p. 4). According to Goyer's definition, then, meaning is a prerequisite to communication. Unless this sharing of experience is meaningful, there will be no communication.

Although the behaviorists and cognitive theorists do not agree on how learning takes place, they do agree that practice is an absolute necessity in the learning process. How this practice is viewed and approached, however, is a further point of disagreement among these theorists. As a result of this disagreement, an essential difference in foreign language learning involves the type of practice used.

Brooks (1964), who is often referred to as the "father" of the audio-lingual method of language

learning, for example, considers pattern drills the core of practice. According to Frey (1968), such drills basically serve as a primary means for teaching phonology, morphology, and syntax. In this role, their goal is to develop automatic, correct responses by the student. Thus, while these drills, as it is generally recognized, train students to manipulate or form syntactic structures, meaning is of little importance. Stated in other words, many of these drills can be completed by the student without attending to meaning. Meaning, at best, is optional.

Cognitive psychologists, such as Ausubel, and many foreign language educators (Rivers, 1976; Grittner, 1977) believe that practice should be meaningful. In addition to being meaningful, practice should incorporate the affective domain, which subsumes such subjects as the individual's personal experience, values, and feelings (Christensen, 1975). Some examples of meaningful practice activities are incomplete sentences such as "I am . . ., I believe . . ., My parents told me . . ., I am happy that . . ." (Disick and Barbanel, 1974, p. 210). Other examples are sentence builders, matching and preference exercises

(Jarvis et al., 1976; Knorre et al., 1977; and Schulz et al., 1978). In contrast to pattern drills, all these meaningful activities focus primarily on meaning; application of structure is a secondary consideration.

Most foreign language educators today agree that there is a need for meaningful practice activities. Yet, what is found in most foreign language classrooms is "a preponderance of time . . . spent in either the mechanical 'manipulation' of language forms or in discussing the manipulation of these forms" (Jarvis, 1975b, p. 221). Indeed, textbooks, workbooks, and classroom exercises still contain an abundance of pronunciation drills, vocabulary drills, and particularly, structural drills (Paulston, 1970), despite research evidence attesting to the greater potential of meaningful and communicative practice.

One study providing research evidence in support of communicative activities was conducted by Oller and Obrecht (1968), who demonstrated in an experiment that ". . . the effectiveness of a given pattern drill is significantly increased by relating the language of that drill to communicative activity in the teaching/learning process" (p. 174). In two other studies,

Jarvis (1970) dealt with contextualized practice with particularized referents and practice with generic meaning, and Joiner (1974) with communicative and non-communicative practice. In both experiments, better results were achieved by the contextualized and communicative groups respectively. More empirical studies dealing with meaningful practice are, however, needed.

Theoretical Bases

Communication theory, to a large extent, provides the theoretical basis for this study. In its most primitive form, communication is the sending and receiving of messages. A more complex definition of this construct, communication, is provided by Goyer (1970). He notes that to communicate means "'to make common' (to share) experience, regardless of the nature of the experiential event, or the method of its transmission or projection" (p. 6). Common to any definition of communication is the notion of and emphasis on putting meaning across. In order to ensure that the message is understood, it must be meaningful. Yet, while there is an abundance of research concerned with meaning (Johnson, 1975), there is little empirical

evidence and few findings with which all authorities agree. Most educators and psychologists are in accord, however, that meaning is one of the most significant, if not the most important ingredient in the learning process.

Many of today's foreign language educators view language learning simply as learning how to communicate (Rivers 1976; Grittner, 1977). Before achieving communicative competence, however, the theory of language states that a student must internalize, by means of practice activities, some grammatical rules and some vocabulary (Clausing and Wood, 1974). The audio-lingual method assumed that if students could manipulate forms, repeat with accuracy, complete transformations of sentences, and respond successfully to any kind of pattern drill, they would then transfer the training to the process of communicating effectively in the foreign language. This theory of language acquisition is in conflict with those proponents who follow Chomsky's reasoning and believe that deep structure precedes surface structure, meaning precedes grammar, and language develops from simple to complex patterns (Smith, 1975). Based on this theory, Sampson (1977)

maintains that fluency should precede accuracy in second-language acquisition. Some foreign language educators, who stress communicative rather than linguistic competence at the earliest stages of second-language learning, share Sampson's view (Gaarder, 1967; Savignon, 1976). Research by Oller and Obrecht (1968), Chastain and Woerdehoff (1968), Jarvis (1970), and Joiner (1974) support the contention that practice activities can be more effective if they are meaningful and communicative. As a result of this thinking, many examples of meaningful exercises and activities have emerged in recent foreign language articles and texts for reading (Disick and Barbanel, 1974; Joiner, 1974; Christensen, 1975; Paulston and Selekman, 1976; Rivers, 1976; Birckbichler, 1977; Knorre et al., 1977; Schulz et al., 1978; and Jarvis et al., 1976, 1977a, 1977b, 1979).

In order to further this communicative trend in foreign language teaching, more empirical studies attesting to the effectiveness of meaningful practice are needed. Various media and strategies should be investigated to determine the effects of meaningful practice in a variety of instructional strategies.

One such medium is the computer, which can be found practically everywhere. It is used very little, however, in foreign language education. The basis for selecting media normally is determined by the intended learning outcome (Gagné, 1977) and cost-effectiveness (O'Neil et al., 1976). Thus, the computer has been chosen by many educational institutions primarily for drill and practice activities for which, according to computer experts, it seems to be best suited (Walton, 1970; Allen, 1971; Nelson et al., 1976).

In reviewing the literature, however, it becomes evident that the computer's potential and possibilities in foreign language education have not been fully explored. Although combining computer technology with practice in foreign language education is not new, the effectiveness of the type of practice activities using this medium has not been tested.

Statement of the Problem

The purpose of this study is to compare the effectiveness of two types of computer practice, structural and semantic, in developing the students'

reading and writing skills. Specifically, this research deals with the following questions:

1. Is the ability to identify and manipulate a grammatical structure influenced by the type of practice activity; i.e., structural versus semantic?
2. Does the verbal aptitude variable interact with the task variable in terms of student learning?

Operational Definitions

Defining complex concepts for research purposes is often an arduous task. Mortensen (1972) notes that if a concept is defined too broadly, it loses value as an object of study, and if it is defined too narrowly, it may be of inconsequential concern. Many terms in foreign language education are unfortunately not defined precisely enough and thus may present a major obstacle to the researcher who intends to manipulate such variables in an experiment. To avoid imprecision in defining the independent variable, this investigator reviewed drills and exercises contained in 25 basic college German textbooks (published between 1965 and

1978). The following two questions were asked in order to distinguish between two types of drills, "structural" and "semantic," the practice variables in this study.

1. Is knowledge of structure alone sufficient in solving the task/problem?
2. Is attending to meaning a prerequisite to structural application in solving the task/problem?

A structural drill is defined as a drill that can be accomplished by a student based solely on knowledge of the structure alone. Thus, while structural knowledge is essential in such a drill, meaning is optional. Whether or not a student attends to meaning in such a drill is not known. A cue is normally given to the student in a structural drill; i.e., a simple change is required (change of tense, change of noun to pronoun, etc.). If the personal "I" or possessive adjective "my" are used in such a drill, they are not different from "he," "her," or "we"; they simply represent a structural part of the drill and, except by chance, have no personal reality or relevance to the student. (See Appendix B-2.)

A semantic drill, on the other hand, is defined as a drill that cannot be accomplished by a student unless the meaning of the items is understood. Meaning is first and foremost, whereas structure is a secondary consideration. A semantic drill should have a meaningful context based on the students' life experiences. (See Appendix B-3.)

Significance and Assumptions of the Study

In the past, many studies in foreign language education have dealt with global methods. According to Jakobovits (1970), these broad methodological comparisons have not yielded very useful insights because they tend to consist of several classroom activities, many of which are made up of undefined and unobserved variables. For this reason, Jakobovits believes that detailed studies of specific language procedures may provide more useful information on effective teaching approaches. Such detailed empirical studies on communicative and meaningful language practice have been pursued by Jarvis (1970), Joiner (1974), Birckbichler (1975), and Knorre (1975). It is hoped that this experiment will add to the results of these studies

and provide more insight into the effects of meaningful practice. More specifically, it is hoped that the present study will reveal some information on the usefulness of the computer as a practice medium. It is further believed that this research may have implications for the development of learning materials for practice in and out of the classroom.

The computer, the practice medium, cannot be viewed as a complete self-contained means of instruction because ". . . discussion and pupil-pupil and pupil-teacher interaction are essential for learning" (Ausubel, Novak, and Hanesian, 1978, p. 387). As an adjunct to classroom instruction, however, the computer seems to be well-suited for drills and language practice, especially in the reading and writing skills. The main advantages of the computer as a driller, according to most CAI writers, are pace, sequencing of material, immediate correction and feedback, actual involvement, diagnostic ability, convenience and scheduling (Ornstein, 1968; Suppes and Jerman, 1970; Allen, 1972). The computer's greatest weakness, on the other hand, is its ineffectiveness (at least at present) to deal with the spoken language (Nelson et

al., 1976). This limitation, however, has no impact on this investigation because it deals with practice of reading and writing skills only.

Although there is very little research in foreign language education on the effectiveness of computer-assisted instruction, the computer seems to show great promise. The lack of research may be explained by the fact that many foreign language educators consider the computer inappropriate for meaningful and communicative activities. This study is an attempt to test this claim.

Limitations of the Study

The following limitations of this study should be kept in mind.

1. Grammatical Concept: The grammar principle to be practiced in this experiment is limited to the present perfect tense of weak verbs. Thus, only replication of this study with different grammatical concepts (such as the future tense, modal auxiliaries, preposition, etc.) would show if the same or similar results would be achieved.

2. Complexity of Exercises: The types of exercises that could be created for this study were considerably restricted by the limited vocabulary of the beginning German students (at the time of the experiment, the students will have completed one-half semester of German language study only). Because of this vocabulary limitation, both structural and semantic computer exercises deal with simple, short drills. For more advanced foreign language students, however, the complexity and variety of these exercises could be expanded commensurate with the level of language knowledge.

3. Computer Novelty: Because computer practice is not an integral part of normal classroom instruction at the Air Force Academy, the novelty of working with the computer for this experiment may be a relevant factor. To some extent, the learning outcome may be attributed to the novelty of using the computer rather than to the specific type of practice.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The greatest change in foreign language education in recent years can be seen in the movement from a teacher- to a learner-centered approach. The best evidence of a teacher-centered approach was the audio-lingual classroom, where the teacher served as a model for the students, provided stimuli, reinforcement, and feedback. The audio-lingual method of teaching, which followed the behaviorists' and descriptive linguists' theories that learning is basically a process of conditioning, placed primary emphasis on linguistic competence. Linguistic competence, or what Rivers (1973) refers to as "skill getting," entails the gaining of knowledge of units, categories, and purposes in the areas of the sound system, vocabulary, and structure. In other words, grammar was at the core of the language program.

While the audio-lingual method of teaching may be classified as teacher-centered, today's humanistic movement favors a student-centered approach. This focus on the student is deeply embedded in cognitive theories of learning, which view the learner as an active and creative participant in the learning process. A very powerful factor in this learning process is the student's existing cognitive structure. As Ausubel (1968) puts it:

> If I had to reduce all of educational psychology to just one principle, I would say this: The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly (Preface, no page number).

The degree to which a student's cognitive structure (store of knowledge) influences the learning process is the degree to which the to-be-learned material is meaningful. Meaningful learning is assumed to take place when the learner attempts to integrate newly learned material with what is already known (Ausubel, 1968). Since there would be no real point in language without meaning (Clark and Clark, 1977), the notion of meaningful learning is closely related to the present goal of communicative competence in foreign language teaching.

Communicative competence--"The ability to receive, understand, and produce suitable and comprehensible messages" (Zelson, 1976, p. 19)--depends on meaning. If there is no meaning, there is no communication.

Although there are distinct differences in how learning is viewed by the behavioristic and cognitive theorists, proponents of both camps agree that practice is at the core of any language program. As Jarvis (1978) notes: "We learn what we practice, what we experience, what we do" (p. 672). Practice, which is a rather general term, normally refers to most in- and out-of-class activities in foreign language learning. It subsumes such terms as "drill," "exercise," and "activity." Although some authors distinguish between drill and exercise (Stevick, 1976) or drill and activity (Chastain, 1970), others do not (Rivers, 1964, 1976). Thus, these terms seem to be interchangeable. Miller and Swick (1976), for example, define the purpose of a drill "to extend, reinforce and refine a student's capabilities to do specific mental/or physical performance" (p. 26). The same statement of purpose would obviously apply if the terms "exercise" or "activity" were used instead of "drill."

Behaviorists and cognitive theorists agree that practice is an essential and crucial variable in the learning process. They disagree, however, about the type of practice. Supporters of the audio-lingual method, for example, view language learning as habit formation through conditioning and drill. They believe that continuous mechanical manipulation of vocabulary and grammatical structures will lead to language proficiency. To reach this goal, they rely heavily on pattern drills as the primary means of practice. Most of these drills focus on phonology, morphology, and syntax. Although meaning is not specifically stressed in these drills, many foreign language teachers assume that students automatically attend to meaning when performing a task. Hosenfeld (1976) has shown in an experiment, however, that this hypothesis does not always hold true.

Cognitive theorists of learning, on the other hand, stress the concept of meaningful practice. Because the purpose of practice "is to increase the stability and clarity and hence the dissociability strength, of the emergent new meanings in cognitive structure" (Ausubel, Novak, and Hanesian, 1978, p. 311), it

must focus on meaning. Reflecting on the significance of meaning while practicing, Carroll (1974) advises foreign language learners that "It is important whenever possible to remember the meanings conveyed by the foreign language and to think of these meanings while practicing" (p. 143). Thus, if language is viewed as a meaningful system, it follows that meaning should be present at all stages of language practice (Woodsworth, 1973). The development of each practice activity must, therefore, incorporate this concept. A meaningful activity, then, is one in which the processing of meaning is essential to the successful completion of a task, and the application of morphology and syntax (structure) assumes a subordinate role.

Despite this emphasis on meaningful learning/practice and the concern for developing communicative abilities in second-language learners, a discrepancy exists between these cognitive theories and what is found in the foreign language classroom. In many classrooms attention continues to be given to linguistic competence at the expense of student motivation, humaneness, and proficiency itself (Zelson, 1976). One reason for this attention to linguistic competence

may be due partially to the content of many existing textbooks. Ten years ago, for example, pattern drills were found in every textbook, and such drills often constituted the main part of exercises (Mathieu, 1968). This assessment holds true even today. Most of today's foreign language texts and workbooks still contain innumerable structural activities that concentrate on phonological, morphological, or syntactic processing. The existence of such structural drills is an apparent carry-over from the days of the audio-lingual method of teaching. Since then, foreign language education theories have moved away from this manipulation of vocabulary and structure, but the content of many texts has lagged behind these changes toward communicative and meaningful activities. Exceptions to the more traditional textbooks are foreign language readers by Knorre et al. (1977) in Spanish, Schulz et al. (1978) in German, and Jarvis et al. (1976, 1977a, 1977b, 1979) in French. These references, as well as a method text by Allen and Valette (1977), contain excellent examples of meaningful and communicative activities, such as rank order or preference exercises, opinion polls, dehydrated sentences, paragraph completion, personalized questions, and interviews.

Related Research

In order to continue the development of meaningful learning materials and to gain further insight into the effectiveness of meaningful practice, additional research is needed comparing various practice activities in experiments using varied media in different types of learning situations. The following studies have emerged in the past few years and empirically support the hypothesis that practice that emphasizes meaning with situational referents seems to be superior to manipulative practice.

Chastain and Woerdehoff (1968), for example, made broad comparisons of practice based on the audio-lingual theory and practice based on the cognitive-code learning theory. One of the findings was that ". . . drills stressing understanding were superior to pattern practice" (p. 279). In another experiment, Oller and Obrecht (1968) found that ". . . the effectiveness of a given pattern drill is significantly increased by relating the language of that drill to communicative activity in the teaching-learning process" (p. 174).

The present research is primarily influenced by an experiment conducted by Jarvis (1970) from which he

concluded that contextualized practice with particularized referents produced better results than practice with generic meaning in speaking and writing skills. Since this experiment, Jarvis (1975a, 1976, 1978) has published various articles dealing with meaningful learning, and Jarvis et al. (1976, 1977a, 1977b, 1979) have applied these findings in designing French readers that contain no pattern drill exercises but only meaningful activities.

Building on Jarvis' (1970) results, Joiner (1974) conducted an experiment distinguishing between communicative and non-communicative oral practice in beginning college French. According to Joiner, a communicative practice requires student control of both the content and the expression of the utterance. The utterance must also add new information. Non-communicative practice, on the other hand, includes various types of pattern drills, questions with cued responses, comprehension type questions on assigned reading, and situational questions such as "Where is the book?" While oral communication was the major concern of the investigation, Joiner also tried to determine the effects of the two treatments on all language skill areas and

on attitude. The findings indicated that students placed in the communicative group significantly outperformed those whose practice was non-communicative on a test of communicative proficiency that contained tasks of describing, reporting, and interviewing. Her results support the inclusion of communicative practice in overall instructional strategy if communicative proficiency is a course goal.

Three other studies dealing with communicative skills and competence were done by Savignon (1972), Bartz (1974), and Schulz (1974). Savignon (1972) attempted to develop tests to measure the effectiveness of communicative skills. The students who practiced with specific communicative activities scored significantly higher on the test of communicative competence than those in the audio-lingual program. Concentrating also on the testing aspect of communication, Bartz (1974) and Schulz (1974) examined student performance on linguistic and communicative tests in listening comprehension, speaking, reading, and writing using their own constructed tests in German and French respectively. Their studies showed that while linguistic and communicative competence are related, they are two different constructs.

In two separate but similar experiments, Birckbichler (1975) and Knorre (1975) examined the effects of second-language learning tasks requiring various types and levels of processing (morphological-syntactic and semantic) on measures of student learning. Although few significant differences were discovered beyond the .05 level by these researchers, the reasons for this lack of differences may be attributable to the possibility that the subjects with the morphological-syntactic (non-semantic) tasks may not have eliminated semantic processing completely. A longer treatment phase and a more sensitive criterion instrument might have yielded differential effects on the processing variable.

Another experiment related to this research was conducted by Hosenfeld (1976) in which students were asked to "think aloud" while completing fill-in exercises. Hosenfeld found that some students relied on morphological-syntactic information only to complete the task rather than processing the meaning of the sentence. The experiment seems to show that some students will do only what is absolutely necessary to complete a given task. If the task requires processing

of meaning as a prerequisite to structural application, however, the student can no longer bypass meaning in completing the task.

The above studies dealt with various forms of meaningful or communicative language practice in the classroom. The present study is an attempt to extend this line of research and to compare the effectiveness of two learning tasks, structural and semantic, with learning outcome. In order to gain more insight into varied practice media, the computer, which the literature heralds as an excellent practice medium, was selected for this experiment.

The Computer as a Practice Medium

The first commercial computer began operation in the Census Bureau in 1951 (Suppes and Jerman, 1970). Since then, the computer has become an absolute necessity in science, government, business, and education. While educational institutions have primarily taken advantage of the computer in administrative operations, its increased use as an educational medium is evidenced by the many computer-managed instruction (CMI) and computer-assisted instruction (CAI) programs in such

institutions. In foreign language education, as well as in other disciplines, the potential of the computer has not yet been explored thoroughly.

The most extensive experimentation in applying CAI to the teaching of foreign languages has been done by the Thomas J. Watson Research Center of the IBM Corporation (Ornstein, Ewton, and Mueller, 1971). The best known and at the present time probably the most advanced computer-based instructional system, however, is the University of Illinois' Programmed Logic for Automatic Teaching Operations (PLATO) (Curtin et al., 1976). Ausubel, Novak, and Hanesian (1978) refer to PLATO as the most 'spectacular' CAI development (p. 386). PLATO, which utilizes a high-speed digital computer as the central control element for teaching a number of students simultaneously, has been used since 1960 to teach in at least 20 fields including Chinese, French, German, Italian, Japanese, Latin, Russian, and Spanish (Scanlan, 1971; Grundlehner, 1974; Allouche and Ervin, 1976). There are also many other universities and even high schools that have used or are still using some form of CAI in various languages (Ruplin and Russell, 1970; Turner, 1970; Lipton, 1972; Ruplin, 1973; Haas, 1979).

The complexity of computer configurations for an instructional terminal varies. The simplest, most often used configuration is a teletype machine or electric typewriter connected by telephone line to a computer (Arendt, 1972). A more complex system, such as PLATO, consists of a plasma display panel (video screen), a typewriter keyboard connected to the computer, a slide projector, an audio selector, and a judging system (syntactic, lexical, and orthographical correctness of sentences).

In the widest sense, computer-assisted instruction refers to any application of the computer to teaching (Allen, 1972). Authors normally distinguish between four basic approaches in the instructional process: (1) drill and practice, (2) tutorial, (3) problem-solving, and (4) simulation (Edwards et al., 1974). The first two modes, drill/practice and tutorial, are commonly addressed in the foreign language literature. While a tutorial program assumes the burden of instruction, the drill and practice program is supplementary to the regular curriculum. In lieu of the term computer-assisted instruction, the term computer-supplemented instruction (CSI) will be used in this

dissertation. This term more aptly describes the function of the computer as an adjunct to classroom instruction. It must be emphasized that neither this researcher nor most foreign language educators and authors view the computer as a replacement for the classroom teacher. In fact, Ornstein (1968) states that virtually no successful program today makes any attempt to dispense altogether with human intervention.

The present study deals with the application of the computer in drill and practice activities. According to Reinert (1974), drill functions during the past two decades increasingly have been turned over to various machines, the computer being the newest and most promising. Ellis (1974) reports that drill and practice account for most of the use of computers in education. Research by Edwards et al. (1974) confirms this statement. They found in a comprehensive study on the effectiveness of CAI that drill and practice is the most consistently effective mode of CAI, especially in mathematics. The same assessment is also held by many authors reporting on foreign language CAI programs (Adams, Morrison, and Reddy, 1968; Alpert and Blitzer, 1970; Allen, 1972; Bell, 1974; Clausing and Wood, 1974).

The types of drill practice/exercises in foreign language education commonly found in a CAI program are either similar or the same as those in textbooks and workbooks. As Dyer (1976) puts it: "The most common form of CAI today remains the 'automated' textbook" (p. 56). These drills, especially at the elementary level, are simple and short rather than complex, and mono- rather than multi-structural. The types of drill most often found in CAI programs are substitution, transformation, response, and translation. The typical drill presents a series of problems, teaching, reinforcing, and testing one specific grammatical point; i.e., verb conjugation, negation, or questions (Clausing and Wood, 1974). Thus, as is the case with textbooks and workbooks, the majority of computer drills are structural rather than semantic or meaningful.

The literature notes many advantages of the computer. Edwards et al. (1974) report that studies consistently show that increased achievement results from the use of CAI as a supplement to traditional instruction. These authors further have found that learning time can be compressed through CAI, that CAI seems to be more effective for low-ability students, and

that boys tend to favor CAI more than girls. In all studies reviewed by Edwards et al. (1974), both students and teachers liked CAI except when there were hardware problems. CAI also provides more interaction between student and computer than takes place between student and teacher in a traditional classroom (Rosenbaum, 1969). Erickson (1972) and others found that students using the computer are highly motivated. The computer allows them to work at their own pace, does not correct them in front of their peers, is very organized, and provides an individualized and even personalized approach to learning. More than 90 percent of the students surveyed by Scanlan (1971) would recommend CAI to others. Haas (1979) and Taylor (1979) report similar results based on a survey conducted at The Ohio State University.

Another significant advantage of the computer is the "time-saving" feature. In correcting and providing feedback directly to the student, the teacher is relieved from this very time-consuming process. Yet, the teacher can periodically request print-outs to determine student progress and identify possible problem areas. The extra time gained by the teacher

can then be used in the classroom for communicative and creative activities.

The greatest weakness of the computer (at least at present) is that it cannot effectively deal with the spoken language (Nelson et al., 1976). Although some progress has been made in this direction, results so far have not been very encouraging. If the computer is used to practice reading and writing skills, however, as proposed in this study, then the classroom is freed for additional practice in the oral/aural skills.

CHAPTER III

STUDY DESIGN AND PROCEDURE

Design of the Experiment

The experimental design selected for this study is a modified version of the "Experimental Group-Control Group: Randomized Subjects" (Kerlinger, 1973, p. 331) using two experimental groups and one control group.

	X_1	Y	(Experimental)
R	X_2	Y	(Experimental)
	-X	Y	(Control)

Kerlinger (1973) describes this design as probably the "best" for many experimental purposes (p. 331) due to its internal validity (control for history, maturation, testing, etc.). Externally, the major weakness of this design is its limited generalizability.

A 3 X 2 factorial design was used. The first independent variable, the practice variable consisted of three levels: (1) computer-supplemented structural practice, (2) computer-supplemented semantic practice,

and (3) no practice. The two types of computer exercises, structural and semantic, embodied a grammatical concept (present perfect tense of weak verbs) and vocabulary that form part of the regular German 132 curriculum at the United States Air Force Academy (USAFA). The second independent variable, the aptitude variable, consisted of two levels, high and low aptitude (split at the median) and was based on the verbal score attained by each subject on the Scholastic Aptitude Test (SAT) or the American College Test (ACT). The dependent variable, a multiple-choice/completion test, was designed to test and compare the effects on learning by practicing with structural exercises versus practicing with semantic exercises. The dependent variable was composed of two subtests: (1) a structural measure and (2) a semantic measure, each of which consisted of 10 multiple-choice and 10 completion items.

Table 1. 3 X 2 Factorial Design

Experimental Groups	Aptitude	
	High	Low
A - Computer Practice/ Structural		
B - Computer Practice/ Semantic		
C - Control/ No Practice		

Population and Sample

The study was conducted at the United States Air Force Academy in Colorado Springs, Colorado during the Spring 1979 Semester. The reasons for selecting the Academy as the experimental site were many. First, USAFA maintains a complete data bank of each cadet's background; i.e., entrance examination data, placement test scores, high school ranking, etc. Second, as part of the core curriculum, each cadet must complete four and one-half semester hours in a foreign language

unless this requirement is satisfied by a placement test. Thus, most cadets take a language course because they are required to and therefore may be less motivated than volunteers. Third, the cadets represent a student body drawn from all 50 states, a unique situation. Fourth, the course content, including exercises, homework assignments, etc., is identical for all students in German 131 and 132.* Fifth, the Academy provides excellent facilities and has sufficient computer terminals for such an experiment. Sixth, the support and cooperation of faculty and staff at the Air Force Academy facilitated the study. Finally, the results may be generalized to the sister service academies, the United States Military Academy and the United States Naval Academy.

Of the total population of 142 students (10 sections) enrolled in German 132, 74 students, the

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* German 131 is designed for (1) students who either have had no prior German language training or (2) students who had some German language training in high school but failed to qualify for German 141, the basic intermediate language sequence, based on a placement test score. German 131 meets during each Fall Semester for one hour every other day (one and one-half semester hours credit). German 132 follows German 131 in the Spring Semester, and classes meet every other day for two hours (three semester hours credit).

sample in this study, have not had previous German language training in high school, nor have they had any exposure to a second language. Two of the 74 subjects resigned from the Academy prior to the administration of the experiment, leaving a final sample of 72 students. This experiment dealt exclusively with these untrained subjects.

Procedure and Implementation

In order to obtain treatment-by-aptitude interaction in this experiment, the 72 subjects were blocked at the median by high and low aptitude based on either SAT or ACT verbal scores. The verbal score on one of these instruments was chosen because such a score is readily available. Each cadet must take either the SAT or ACT (some students take both tests using the higher score) as part of the entrance requirement at the Academy. Although the Modern Language Aptitude Test (MLAT) is frequently administered to determine language aptitude, rigidly controlled student time at USAFA prevented giving this test to the subjects. To administer the short form (3 parts) of the MLAT, for example, would have required 50

minutes of class-time, a considerable time block in the language program.

Subjects in each aptitude group (n = 36) were randomly assigned to Experimental Group A (Structural), Experimental Group B (Semantic), and Control Group C (No Practice). From the high-aptitude group (n = 36), 12 subjects were randomly assigned to Experimental Group A, 12 to Experimental Group B, and 12 to the Control Group. The same process applied to the low-aptitude group.

Since this experiment involved practicing a grammatical concept subsequent to its introduction in the classroom, it was important that all students in the experiment be taught essentially the same structures and vocabulary. Although instructor styles and teaching approaches vary, USAFA has identical student study guides (same content, objectives, etc.) for all cadets enrolled in German 131 and 132. In order to expose the students to different teaching styles, instructors change classes after the first half of each semester. Students enrolled in German 131, for example, have had at least two different teachers during that semester (in some cases even three or more

due to illness, official absences, or temporary duty of instructors).

Prior to selecting the specific grammatical concept as the practice variable, this researcher estimated that early February 1979 would be a feasible time frame for the actual experiment in terms of completing all computer exercises, criterion measurements, and pilot study. Since the present perfect tense of weak verbs was scheduled to be introduced at the Academy during that period, this grammatical concept was chosen as the practice variable. The present perfect tense, furthermore, is normally introduced and discussed at the Academy at a time when the students are able to communicate in basic sentences. In fact, it is nearly impossible to communicate without using the present perfect tense. The students participating in this experiment benefited from the practice session because this grammatical structure was part of the regular curriculum sequence and thus a function of the departmental goals. Since the natural class environment was not disturbed, validity in terms of classroom instruction was achieved.

The scheduling of the subjects for the practice session on the computer was a complex process. Half of the 10 German 132 classes meet on "M" days (five sections every other day starting with the first day of the semester) and the other half meets on "T" days (also five sections every other day starting with the second day of class). Because the subjects for this experiment represented all German 132 students who had not had any previous language training, each one of the 10 classes had at least some subjects participating in the experiment. Thus, the introduction, practice, and posttest could not take place for all students on the same day and at the same time. The experiment was, therefore, extended over a four-day period: two days (M and T) for the classroom introduction of the grammar concept and two days (M and T) for the practice session and the posttest. It was decided to retain a larger sample (n = 24 for each group) and accept the staggered time table rather than use a very small n for each group to complete the experiment in one session.

The present perfect tense of weak verbs was introduced in Block III, German 132, on February 1 and

2, 1979. The students' assignment for these dates was to read a brief introduction to this concept on page 171, Chapter 8, Deutsch heute: Grundstufe (Moeller and Liedloff, 1974), the basic text for German 131 and 132. A further assignment was to read page 96, which introduces the same concept, in German Grammar - Schaum's Outline Series (Gschossmann, 1975), another required text for German 131 and 132. (See Appendix D-1.)

Although the classroom presentation on February 1 and 2 was the first formal introduction to the present perfect tense, it is realized that the students already may have been exposed to this concept passively in German 131 or 132 as a result of instructor talk. It was felt, however, that such informal usage would not have a significant effect on the outcome of the experiment since this structure was not formally dealt with, and students were never asked to provide it.

For maximum uniformity, the presentation of the present perfect tense of weak verbs to all 10 classes of German 132 was made by the same instructor over a two-day period (five sessions per day). This instructor is an Air Force officer who possesses a Ph.D. in

Foreign Language Education and has had four years of teaching experience at USAFA. The grammar introduction for each class required approximately 15 minutes. The content in all cases was identical. To avoid interference with uncontrolled practice after the classroom presentation, all subjects in the experiment were asked not to study on their own until after completion of the experiment. Following the introduction of the grammatical concept, the subjects were orally instructed on the general use of the computer terminals and given a handout summarizing the most important points to remember when using a terminal. (See Appendix D-2.)

Subsequent to the introduction of the present perfect tense in the classroom, each subject of experimental groups A and B practiced these concepts on the computer during the next scheduled German class period (one of 10 sections on February 5 and 6). Group A practiced with structural and Group B with semantic exercises. While the experimental groups were practicing, the Control Group was administered the criterion measurement in the classroom. Upon completion of the test, the Control Group was allowed to review and practice the same grammar concept using handout exercises.

The Practice Variable

The practice variable consisted of two separate computer practice exercises, structural and semantic. (See Appendix B and Operational Definitions.) To review these concepts briefly, a structural exercise is a drill that can be accomplished by simply relying on knowledge of structure. Meaning is optional. A semantic drill, on the other hand, cannot be executed unless one understands the meaning of the item/problem. Thus, in the latter drill, meaning is a primary and structure a secondary consideration. Each exercise, structural and semantic, was composed of five practice categories, arranged from easy to more difficult. Each category contained certain tasks relating to the present perfect tense of weak verbs. While structural drills simply required a change of structure (change of infinitive to the past participle, change of a sentence from the present tense to the present perfect tense, etc.), the semantic exercises required the student to choose from a list of verbs or phrases and then make meaningful sentences in the present perfect tense. In order to avoid any bias in the two practice instruments, the two exercises were matched as closely

as possible in terms of the chosen vocabulary. At the time of the experiment (February 5 and 6), the subjects had studied a total of 35 weak verbs and 142 nouns. (See Appendix A-2.) Of these 35 weak verbs, the same 25 verbs were used in both structural and semantic exercises. (See Appendix D-3.) With the exception of a few cognates, no new nouns were added.

To validate the structural and semantic definitions used in this research, sample structural and semantic exercises, listed in random order and accompanied by a brief definition of these terms, were provided to seven German instructors. These instructors were asked to identify each drill as either structural or semantic. Without exception, every exercise was identified in the correct category. (See Appendix A-1).

The complete structural and semantic practice exercises were then submitted to five German professors, including one experienced textbook writer, for validation. (See Appendix A-2.) Following this validation, the computer exercises using programming language PL1 were then prepared and tested by the Instruction and Research Computer Center (IRCC) at The Ohio State

University. Although OSU uses an Amdahl 470 computer and the United States Air Force Academy a Burroughs 6700, a PL1 compiler and some minor modifications allowed the program to run at the Academy during the actual experiment.

The time length and the number of interactions of the practice variable had been carefully considered. Many computer programs dealing with grammatical practice indicate that a 20-25 minute practice period allows for approximately 25 interactions between student and computer. Based on the students' attention span and length of practice, as well as suggestions by other foreign language educators who have had experience in computer-assisted instruction, it was concluded that approximately 10 minutes for demonstration of and familiarization with the equipment and then 20 to 25 minutes of actual practice would suffice. The pilot study and the experiment confirmed this assumption.

Each student was asked to proceed through the required exercises only once, without going back to previously covered material. The student was allowed two tries in solving each problem. After the first

try, feedback was given by the computer praising the student for a correct answer or outlining the error and citing the appropriate grammar rule for an incorrect response. If the second try still resulted in an incorrect answer, the student was advised of the mistake and the computer then provided the correct answer. (See Appendix B-4.) As anticipated, a small difference in completion time between structural and semantic exercises existed since some students were better typists than others and some answered more questions correctly on the first try and thus needed less computer feedback. The semantic exercises, furthermore, required a deeper level of processing by the student and thus may have required a little more time than the structural exercises.

The Dependent Variable

Immediately after the practice session, a post-test was administered to the two experimental groups. (See Appendix C.) The same test was given to the Control Group in the classroom while the experimental groups were practicing. This criterion measurement consisted of two subtests, one for each level of

practice, structural and semantic. Again, in order to avoid possible bias between structural and semantic type items, the test instrument consisted of 20 multiple-choice questions, with four possible options (one keyed answer and three distractors) and 20 completion items. Twenty of the total of 40 test items were structural and 20 semantic. While the former could be completed based on structural knowledge alone, the latter required understanding of meaning first and knowledge of structure second. (See Operational Definitions.) As in the case of practice exercises, the content of the test items was restricted to the active vocabulary acquired up to the time of the experiment. The 10 structural and 10 semantic multiple-choice items in the criterion measurement were presented in random order. The 10 multiple-choice items in each group, structural and semantic required the student to provide the correct past participle in six cases and the correct form of the auxiliary verb and the past participle in four cases. The structural completion part of the instrument consisted of two groups of five items each, and the semantic completion part consisted of two five-sentence passages. The task in the first five structural

and semantic completion items was to provide the correct past participle, and in the second five structural and semantic completion items the correct form of both the auxiliary and the past participle. The complete criterion measurement is contained in Appendix C.

Analysis of Data

In order to obtain a more sensitive analysis of the test instrument, the 40-item test was analyzed as two subtests, structural and semantic. (See discussion of Dependent Variable in this Chapter.) The data obtained from the two subtests were subjected to a two-factor multivariate analysis of variance (MANOVA). According to Kerlinger (1973), MANOVA, whose main characteristics is the simultaneous analysis of multiple independent variables and multiple dependent variables on n individuals, is an extension of the univariate analysis of variance. Univariate analyses of variance were used as the principal follow-up technique of MANOVA.

All data analyses and computations were made on an Amdahl 470 computer by the Instruction and Research

Computer Center (IRCC) at The Ohio State University. The Statistical Analysis System (SAS) program was used.

The following hypotheses of no difference between groups were tested:

H_0 1: There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to identify and manipulate present perfect tense structures as measured by a structural multiple-choice/completion subtest.

H_0 2: There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to identify and manipulate present perfect tense structures as measured by a semantic multiple-choice/completion subtest.

H_0 3: There are no interactive effects between aptitude and treatment.

Pilot Study

Since the practice variable was scheduled at a specific time in the regular curriculum at the Air Force Academy, a pilot study duplicating the planned experiment was not possible. The Ohio State University, therefore, was chosen for the pilot study. The pilot study served primarily to determine time requirements for the introduction and practice of the grammar concept, to allow for refinement of the practice and test instruments, and to identify possible problem areas associated with the computer and/or the instruments.

The pilot study, which consisted of three facets, was conducted during the Fall Quarter 1978. Three different OSU German 101 classes were used. Although Deutsch heute: Grundstufe was the basic text used both at OSU and USAFA, it was recognized that OSU students had covered only material through Chapter 5, whereas the subjects at the Air Force Academy would have completed seven chapters at the time of the experiment. Thus, a discrepancy existed between these two populations. In addition, most of the students at OSU also had had previous language

training, from one to five years in German or in another foreign language, whereas the students at USAFA had had no previous language training. At OSU, furthermore, course content, manner of presentation, type of practice, homework assignments, etc., varied considerably among instructors. At the Air Force Academy, on the other hand, the program was more uniform.

The German 101 class in the first facet of the pilot study consisted of 14 students. This researcher introduced the grammar concept to the class because no real advantage could be identified in having another instructor accomplish this task for the pilot study. The introduction included the statement of the grammar rule, examples of the formation of the present perfect tense of weak verbs, and practice of this concept with personal questions/answers. The introduction phase required seven minutes. Subjects were then randomly assigned to Group A, Structural (n = 5), Group B, Semantic (n = 5), and Group C, Control (n = 4). Experimental groups A and B completed the structural and semantic practice exercises, respectively, in handout format due to nonavailability of the final computer

products at that time. The posttest was then administered to all three groups. (See Appendix A-3.) Based on item analysis of the criterion measurement, several changes were made. In the semantic section, for example, which consisted of a passage in English and five out-of-sequence dehydrated sentences in the German present tense, students were asked to (1) sequence these five sentences according to the passage and (2) type the sentences in the present perfect tense. This section of the test was found to be ambiguous because in some instances it was difficult to determine if the student really understood the passage or simply guessed at sequencing the answers. As a result of this analysis, this section was eliminated and replaced by a five-item completion passage. A review of the students' practice exercises revealed no problem areas.

The second facet of the pilot study involved a German 101 class with 10 students. In general, the same procedures as in the first study were followed. Based on the small n in that class, the 10 subjects were randomly assigned to Experimental Group A ($n = 5$) and Experimental Group B ($n = 5$) only. No control

group was used. The revised test instrument, consisting of 20 multiple-choice and 20 completion items (10 each, structural and semantic) was then administered. Review and item analysis of the revised instrument resulted in two minor changes. Again, no problems were encountered with the practice exercises.

The primary purpose of the third facet of the pilot study was to identify possible student problems with the software and to determine the time needed to complete the structural and semantic exercises. Four students practiced on the computer terminals with the structural exercises and three with the semantic ones. While performing their task, these seven students were closely monitored and observed by two computer programmers, one of whom prepared the software, and this researcher. No problems were encountered with the structural exercises. In the semantic exercises, however, some minor changes were made, including rewording of the instructions in one section. The average completion time was 25 minutes. The semantic exercises took from three to five minutes longer than the structural exercises. The slowest student, who typed with one finger only, required 31 minutes to complete the

semantic exercises. The length of the practice exercises was within the time range anticipated. Upon completion of the exercise, the students were administered the same posttest as the one in Facet II of the pilot study.

Some changes to the criterion measurement were previously discussed under the first facet of the pilot study. The revised instrument was given to all 17 students participating in the second and third facets of the study. The overall reliability of the 40-item test instrument as computed by the Kuder-Richardson 20 (KR 20) Formula was .92 ($\underline{n}$ = 17). KR 20 is an index of the internal consistency of a criterion measurement and is a function of the number of items on the test, the variability of the scores, and the proportion of students passing and failing each item. KR 20 for the structural subtest was computed as .93 and for the semantic subtest as .84.

CHAPTER IV

RESULTS OF THE STUDY

Introduction

This study investigated the effectiveness of two types of computer practice (structural and semantic) across two levels of verbal aptitude in beginning college German students. A 3 X 2 factorial design was chosen. The three levels of the task variable were structural practice, semantic practice, and no practice. (See Operational Definitions in Chapter I.) The two levels of the aptitude variable were high and low aptitude.

The criterion measure consisted of a posttest composed of two subtests: (1) a structural measure and (2) a semantic measure. With the two subtests being considered as two dependent variables, the data were submitted to a multivariate analysis of variance (MANOVA) using the Statistical Analysis System (SAS).

Results

Table 2 presents the main-effect means and standard deviations (SD) of the two dependent variables, structural and semantic, for each of the independent variables. An inspection of these means shows that the Semantic Experimental Group consistently outperformed the Structural Group and the Control Group on both measures. The table further shows that the High-Aptitude Group outperformed the Low-Aptitude Group on both the structural and semantic subtests.

From Table 3, a summary of the multivariate analysis of variance, it may be seen that both the practice and aptitude variables were statistically significant ($p < .01$). The multivariate $F(4,128)$ was 12.98 for the practice variable and $F(2,65) = 5.85$ for the aptitude variable.

The data from each dependent variable were submitted to a univariate analysis of variance. A summary of the univariate F-ratios is contained in Table 4. According to this table, the practice variable yielded a difference on both subtests beyond the .01 level of significance; $F(2,66) = 19.25$ for the structural measure and $F(2,66) = 21.70$ for the semantic measure.

Table 2. Main-Effect Means and SD's on Dependent Variables

Practice Variable Effects	Dependent Variables					
	Structural			Semantic		
	n	$\bar{x}$	SD	n	$\bar{x}$	SD
Structural Practice	24	16.58	2.14	24	9.92	3.03
Semantic Practice	24	17.58	2.10	24	12.17	3.71
No Practice	24	11.83	5.12	24	6.38	3.12

Aptitude Variable Effects	Dependent Variables					
	Structural			Semantic		
	n	$\bar{x}$	SD	n	$\bar{x}$	SD
High Aptitude	36	16.00	3.76	36	10.72	4.27
Low Aptitude	36	14.67	4.59	36	8.25	3.43

Table 3. Summary of Multivariate Analysis of Variance (Hotelling-Lawley Trace)

Source	df	F	p
Practice Variable	4,128	12.98	<.01
Aptitude Variable	2,65	5.85	<.01
Practice X Aptitude	4,128	1.16	n.s.

Table 4. Summary of Univariate F-Ratio

Structural Subtest				
Source	df	MS	F	p
Practice Variable	2	226.500	19.25	<.01
Aptitude Variable	1	32.000	2.72	n.s.
Practice X Aptitude	2	1.667	0.10	n.s.
Error	66	11.768		

Semantic Subtest				
Source	df	MS	F	p
Practice Variable	2	204.597	21.70	<.01
Aptitude Variable	1	110.014	11.67	<.01
Practice X Aptitude	2	10.181	1.08	n.s.
Error	66	9.430		

The aptitude variable, however, was only significant on the semantic measure ($p < .01$). Neither of the interactions was significant.

A post hoc analysis was performed on the practice variable using Tukey's Honest-Significant-Difference Procedure. Table 5 displays the post hoc comparison results. A significant difference was found between the structural and semantic groups (practice groups) and the Control Group (no practice) on both structural and semantic measures ($p < .01$). This significant difference between both practice groups and the no-practice group indicates the importance of practice. The main interest of this research was concerned, however, with examining learning outcome differences between structural and semantic practice groups and the Control Group. In addition to the expected differences between practice and no-practice groups, a significant difference was detected between the Structural Group on the semantic measure ($p < .05$). There was no significant difference between the Structural Group and the Semantic Group on the structural measure, though the Semantic Group did achieve a higher score.

Table 5. Significant Differences Among Practice Variable Means on Structural and Semantic Measurements (Tukey's HSD Post Hoc Comparison Procedure)

	Measurement					
	Structural			Semantic		
Practice Variable	C	A	B	C	A	B
C (Control Group)	---	**	**	---	**	**
A (Structural Group)	---	---	n.s.	---	---	*
B (Semantic Group)	---	---	---	---	---	---

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

The specific findings for each null hypothesis tested are presented below:

Hypothesis I: <u>There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to identify and manipulate present perfect tense structures as measured by a structural multiple-choice/completion subtest</u>. The experimental data do not permit rejection of this hypothesis. The difference in mean scores between the Structural Group and the semantic Group on the structural subtest failed to reveal a significant difference. It should be noted, however, that the Semantic Group outperformed the Structural Group ($\bar{x}$ = 17.58 versus 16.58) on this measure. Because the Structural Group practiced exclusively with structural concepts, it would seem reasonable that this group would outperform the Semantic Group on the structural measure. Based on the above data, however, this assumption was not confirmed.

Hypothesis II: <u>There is no significant difference in the effectiveness of structural versus semantic drill practice in developing the students' ability to</u>

identify and manipulate present perfect tense structures as measured by a semantic multiple-choice/completion subtest. On the basis of the experimental data, this null hypothesis is rejected. The mean score for the Semantic Group on this measure was 12.17 versus 9.92 for the Structural Group. This difference proved to be significant beyond the .05 level using Tukey's Honest-Significant-Difference post hoc comparison.

Hypothesis III: There are no interactive effects between aptitude and treatment. This null hypothesis remains tenable. Neither the multivariate analysis of variance (see Table 3) nor the univariate analysis of variance (see Table 4) revealed significant treatment-by-aptitude interactive effects.

Although no interactive effects were evident in this study, some general comments concerning this variable seem appropriate. The aptitude variable was significant beyond the .01 level under the multivariate analysis of variance--$F(2,65) = 5.85$. (See Table 3.) While the univariate $F(1,66) = 11.67$ for the semantic subtest was also significant ($p < .01$), the $F(1,66) = 2.72$ for the structural subtest was not significant.

(See Table 4.) The difference in the significance of aptitude effects on the two subtests may be explained in terms of the inherent difficulty of these two tests. While the High-Aptitude Group achieved a mean score of 16.00 on the structural measure, the Low-Aptitude Group mean was 14.67. The mean scores for the semantic subtest for the two aptitude groups, however, were 10.72 and 8.25 for high- and low-aptitude groups, respectively. (See Table 2.)

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Overview

The primary purpose of this study was to provide more insight into the effects of meaningful practice, a notion underlying virtually all current principles of foreign language learning. This study investigated the effectiveness of two types of computer practice, structural and semantic, and examined the relationship between the types of practice and verbal aptitude levels. The computer was chosen as the practice medium for this experiment because of its potential and possibilities as an adjunct to classroom instruction, especially in the area of drill and practice.

The experiment was conducted at the United States Air Force Academy in Colorado. Subjects (n = 72) were beginning college German students who had no previous German language training in high school nor any exposure to a second language. The 72 subjects were blocked at the median by high and low aptitude based

on the verbal score on either the SAT or ACT. Subjects in each aptitude group (n = 36) were then randomly assigned to Experimental Group A (structural computer practice), Experimental Group B (semantic computer practice), and Control Group C (no practice). After in-class introduction of the present perfect tense of weak verbs (the grammar concept in the regular curriculum at the time of the experiment) to all cadets by the same instructor, groups A and B practiced the grammatical concept on the computer with structural and semantic exercises, respectively. A structural exercise was defined as an exercise that could be accomplished by a student based on knowledge of structure alone. Thus, while structural knowledge was essential in such drills, meaning was optional. A semantic exercise, on the other hand, was defined as an exercise that could not be accomplished by a student without understanding the meaning of the items. Meaning was first and foremost, whereas structure was a secondary consideration.

The practice variable consisted of a 20-25 minute computer exercise. The structural and the semantic exercises consisted of five practice categories each, arranged from easy to more difficult. Each

category included five tasks dealing with the present perfect tense of weak verbs. In order to avoid bias between the two instruments, the same 25 verbs were used in both exercises. While the structural drills simply required a change of structure (change of an infinitive to the past participle, change of a sentence from the present to the present perfect tense, etc.), the semantic exercises required the student to choose from a list of verbs or phrases in order to make meaningful sentences in the present perfect tense. The Control Group had no practice.

After the practice session, all three groups were administered a posttest that consisted of two subtests: (1) a structural measure and (2) a semantic measure, each of which was composed of 10 multiple-choice and 10 completion items. Kuder-Richardson 20 reliability coefficients of .88 for the structural and .78 for the semantic measures were computed. The entire 40-item criterion measurement yielded a KR 20 reliability coefficient of .90.

The analysis chosen was a 3 X 2 factorial design. All data obtained from the criterion measurement were submitted to a multivariate analysis of variance to

determine the main effects of each independent variable (practice and aptitude) on the dependent variables (structural and semantic subtests) as well as the effects of interaction between the independent variables. Univariate analysis of variance was used as the principal follow-up technique.

Summary of Findings

A review of the findings revealed differences beyond the .01 level of significance for both practice and aptitude variables under the multivariate analysis of variance, but no interactive effects between practice and aptitude treatments were found. Under the univariate analysis of variance, the aptitude variable was significant in the semantic subtest ($p < .01$) but not significant in the structural subtest. There were no interactive effects between practice and aptitude in either of the two measures.

The practice variable was significant in the univariate analysis of variance beyond the .01 level. As expected, post hoc analysis using Tukey's HSD procedure revealed a significant difference ($p < .01$) on both the structural and semantic subtests between the

experimental groups and the Control Group. This significance seems to point out the importance of practice in the learning process. The main interest of this study, however, dealt with the effects of practice between structural and semantic groups. The difference in mean scores between these groups on the structural measure were not large enough to be significant, though it should be noted that the Semantic Group did outperform the Structural Group on that measure. On the semantic measure, however, a significant difference beyond the .05 level was discovered between structural and semantic groups. The Semantic Group performed significantly better than the Structural Group.

The following research questions were posed in Chapter I:

> Question I: Is the ability to identify and manipulate a particular grammatical structure influenced by the type of practice; i.e., structural versus semantic?

The results of this study show that the Semantic Group outperformed the Structural Group on the semantic

measure ($p < .05$). While the difference in mean scores between semantic and structural groups on the structural measure was not significant, the Semantic Group did achieve the higher mean (17.58 and 16.58, respectively). This lack of difference in mean scores on the structural subtest may be due to the manner in which some students performed their tasks. Knowledge of the correct prefix and suffix was the main requirement for completing a structural present perfect tense problem successfully; it was not necessary for the student to understand the meaning of each item/problem. Thus, the high mean on this measure seems to suggest that many students may have focused solely on application of the correct structure in completing the structural task. It is not known, however, how many subjects did and how many did not attend to meaning while practicing.

In contrast, the difference in mean scores between structural and semantic groups on the semantic measure was significant at the .05 level. The mean scores on this measure were lower than those on the structural measure; i.e., 9.92 versus 16.58 for the Structural Group and 12.17 versus 17.58 for the Semantic Group. The lower mean attained by both groups on

the semantic measure appears to be a function of the inherent difficulty of the semantic items/problems themselves. The semantic tasks were more difficult for the students. While knowledge of the grammatical structure was the only requirement on the structural subtest, the key to successful accomplishment of a semantic task required a deeper level of processing.

It is often said that one learns what one practices. While the results on the semantic measure are consistent with this logical assumption, this expectation was not met by the Structural Group on the structural measure. Because the Structural Group practiced exclusively with structural exercises, it could have been reasonably expected that this group would outperform the Semantic Group on the structural measurement. The experimental data shows, however, that the Semantic Group outperformed the Structural Group on the structural measure, though the mean score differences were not significant.

The data of this study seem to support the contention that retention is a function of the meaningfulness of one's experiences (learning). Because use of language for a purpose is one of the principal goals

in foreign language education, meaning seems to be an essential ingredient in this process. These findings are consistent with previous research.

Another relevant implication of this study is that meaningful learning or meaningful practice is not dependent upon interaction between people. As shown by the performance of the Semantic Group in this experiment, a deeper level of processing (meaningful content processing) resulting in better understanding can also take place by interacting with a medium, such as the computer. Thus, these findings suggest that interpersonal interactions do not necessarily seem to be a sine qua non for meaningful language practice.

Question II: Does the verbal aptitude variable interact with the task variable in terms of student learning?

The experimental data clearly showed that there were no interactive effects between aptitude and treatment. The high-aptitude students consistently outperformed the low-aptitude students in both structural and semantic measures. These findings suggest that in this study, perhaps, the limited time and limited

concepts dealt with precluded any potential interactive effects from surfacing. Replication of the study using a larger experimental condition may provide a more complete picture of the aptitude variable.

Relationship to Other Studies

While this study is not a replication of previous research, it is related to and consistent with previous research dealing with meaningful and communicative practice. Chastain and Woerdehoff (1968) found that drills stressing understanding were superior to pattern drills. Oller and Obrecht (1968) demonstrated that a pattern drill is more effective if it is related to communicative activity. Jarvis (1970) showed that contextualized (meaningful) practice achieved better results than generic practice. Finally, Joiner's (1974) results of an experiment favored oral communicative practice over non-communicative practice. All of these studies showed the importance of a deeper level of processing with meaningful and/or communicative language practice in situations of personal interrelations; i.e., interactions between teacher and student. This study shows, moreover, that the efficacy of meaningful language use

is not dependent upon interaction between people. It is instructive to point out that it seems to be the meaningfulness of the language that makes a difference *and not the way meaningful language is used among people.*

The performance by the Structural Group in this experiment also seems to support Hosenfeld's (1976) research in which she found that students processed only the information that was necessary to complete the required task; i.e., morphological-syntactic information alone rather than meaning. Hosenfeld's study and the present research seem to suggest that unless an exercise requires attention to meaning for its successful accomplishment, a student may do only what is absolutely necessary to meet the task objective, such as providing the required structure without processing the content of the item/problem. Such a student does not then make optimal use of practice time or effort.

Recommendations for Future Research

This study measured the effects of structural versus semantic grammar practice using the computer as

the practice medium. Since learning and practicing grammatical concepts is necessary in the second-language process, the computer seems to have great potential as a practice medium for such tasks, especially in developing the students' reading and writing skills. It is therefore recommended that further research with meaningful language practice using the computer be pursued. It is suggested, moreover, that additional small-scale experiments be conducted with language students at various levels of instruction. For these experiments, the same grammatical concept employed in this study may be used, or any other grammatical concept (such as prepositions, pronouns, modal auxiliaries, future tense, etc.) may be chosen as the practice variable. Similar studies may also be pursued with advanced language students using more complex grammatical concepts and computer exercises. Such experiments may yield further insight into the theories of meaningful language learning/practice.

The study of attitudes and motivation should also be made an integral part of all further experiments involving computer practice. While the present research did not deal with these variables, the many favorable

comments and the strong support for computer practice expressed by the cadets during and after the practice session seem to suggest that attitude and motivation may be extremely important when using the computer as a practice medium. The study of these two variables in conjunction with future computer experiments may provide valuable information about the students' desires and preferences.

In addition to attitude and motivation, future research dealing with meaningful computer practice may also investigate the significance of computer feedback. Because the feedback variable has been shown to be an important element in the learning process, future studies focusing on this aspect of computer practice may provide relevant information on the efficacy of the computer as a practice medium in the foreign language learning process.

APPENDIX A

Validation of Instruments

1. Validation of Structural and Semantic Categories
2. Validation of Structural and Semantic Exercises
3. Pilot Study Criterion Measurement

1. Validation of Structural and Semantic Categories

STRUCTURAL AND SEMANTIC DRILLS

Please read the following definitions carefully:

Structural Drill: A structural drill can be accomplished by a student based on his/her knowledge of structure alone. Structural knowledge is essential and meaning is optional. Whether or not a student attends to meaning in such a drill is not known.

Semantic Drill: A semantic drill cannot be accomplished by a student unless he/she understands the meaning of the items. Meaning is first and foremost; structure is a secondary consideration.

In the following sample exercises, identify each exercise as either structural or semantic by placing an "X" in the appropriate column.

STRUC	SEMAN	INSTRUCTIONS (I) AND SAMPLE DRILL (D)
		I: Type in the correct form of the auxiliary verb "haben." D: Ich _____ der Dame mein Auto gezeigt.
		I: Make two complete sentences in the present perfect tense by including one element from each category. D: Der Gast (warten) sehr gut. Das Essen (schmecken) im Restaurant.
		I: Put the following sentences into the present perfect tense. D: Er kauft der Mutter Blumen. Er _____ der Mutter Blumen _____.
		I: Supply the past participle of the verb in parenthesis: D: Ich habe es ihm nicht _____. (glauben)
		I: Complete the following statement in the present perfect tense by choosing two appropriate verbs from the list which follows the statement. Also, insert the correct form of the auxiliary verb. D: Meine Eltern _____ mehr _____ als _____. weinen stellen lachen

STRUC	SEMAN	INSTRUCTIONS (I) AND SAMPLE DRILL (D)
		I: Complete each of the following sentences with an activity taken from the following list and provide the past participle of "spielen." D: Jack Nicklaus hat viel _____ _____. John Denver hat viel _____ _____. Chris Evret hat viel _____ _____. - Tennis - Golf - Gitarre
		I: Select the appropriate verb for each sentence from the list given below. D: Ich habe die Geschichte _____. (regnen) Er hat die Zigarette _____. (glauben) Es hat die ganze Nacht _____. (rauchen)
		I: Provide the correct form of the auxiliary verb "haben" and the past participle of the verb in parenthesis. D: Wir _____ den Mann _____. (suchen)
		I: Read the following passage. "As Mrs. Braun was leaving the house to go shopping, the phone rang. It was a wrong number. She left the house and drove to the city. After she parked her car, she bought some flowers. . . ." Arrange the following sets of words into complete, present perfect tense sentences. Your first answer must be the earliest event mentioned in the passage, followed by the second event, etc. D: /das Auto/parken/sie/. /hören/Frau Braun/das Telefon/. /sie/Blumen/kaufen/.
		I: Answer the following question affirmatively. D: Haben Sie früher Fussball gespielt?

2. Validation of Structural and Semantic Exercises

October 18, 1978

Dear _____,

As you know, the purpose of this research is to compare the effectiveness of two types of computer practice, structural and semantic. A structural drill is defined as a drill that can be accomplished by a student based solely on knowledge of the structure. Meaning is optional. A semantic drill, on the other hand, is defined as a drill that cannot be accomplished by a student without understanding the meaning of the items. Meaning is paramount and application of structure is a secondary consideration.

The grammatical concept that will be used in this experiment is the present perfect tense of weak verbs. Following the introduction of this concept in the classroom, experimental groups A and B will practice the present perfect tense on the computer, using the enclosed structural and semantic exercises respectively. After the practice session, a posttest will be administered to both experimental groups and to a control group whose members did not have any practice.

At the time of the experiment, the students will have covered seven chapters in Deutsch heute: Grundstufe (Moeller and Liedloff, 1974). The active vocabulary in these seven chapters consists of 35 weak verbs and 144 nouns (see enclosed list). From the total of 35 weak verbs, the same 25 verbs are contained in both structural and semantic exercises. All vocabulary items in these exercises are limited to the vocabulary studied by the students in the first seven chapters of their text.

Please review these exercises for accuracy. Your comments and suggestions would be appreciated. Thank you for your cooperation and assistance.

Sincerely,

REINER H. SCHAEFFER

Encl.
1. Structural Exercises
2. Semantic Exercises
3. List of Weak Verbs and Nouns

Encl. #1

STRUCTURAL EXERCISES

1. Type the appropriate form of the auxiliary verb "haben" in the space provided:

Ich _____ der Dame mein Auto gezeigt.
Mein Vater und mein Onkel _____ ein Haus gebaut.
Er ____ heute nicht viel gelacht.
_____ sie (she) das Mittagessen gekocht?
Die kleinen Kinder ___ in der Schule geweint.

2. Insert the past participle of the verb in parenthesis in the space provided:

Ich habe es ihm nicht _____. (glauben)
In Deutschland hat das Bier immer gut _____. (schmecken)
Meine Bekannten haben lange in Bonn _____. (wohnen)
Haben Sie beim Krankenhaus _____? (parken)
Frau Weiss hat eine Reise nach Luxemburg _____. (machen)

3. Provide the correct form of the auxiliary verb "haben" and the past participle of the verb in parenthesis:

Wir ____ den Mann _____. (suchen)
____ er das auch schon _____? (hören)
Auf wen ____ Sie _____? (warten)
Während des Sommers ___ der Professor in Österreich _____. (arbeiten)

4. Put the following sentences into the present perfect tense:

Er kauft der Mutter Blumen.
Er _____ der Mutter Blumen _____.

Die Vorlesung dauert den ganzen Nachmittag.
Die Vorlesung _____ den ganzen Nachmittag _____.

Die Studenten rauchen wirklich zuviel.
Die Studenten _____ wirklich zuviel _____.

Der Tourist fragt nach einer Landkarte.
Der Tourist _____ nach einer Landkarte _____.

Wohin legen Sie die Zeitung?
Wohin _____ Sie die Zeitung _____?

5. Answer each of the following questions affirmatively:

Haben Sie früher Fussball gespielt?
Hat es gestern geregnet?
Hat Kaffee letztes Jahr viel gekostet?
Haben Sie in der Schule viel gelernt?
Hat Ute die Milch in den Kühlschrank gestellt?

Encl. #2

SEMANTIC EXERCISES

1. Complete each of the following sentences with an activity taken from the following list and with the past participle of the verb "spielen."

Activities: Tennis Gitarre Golf

Jack Nicklaus hat viel _____ _____.
John Denver hat viel _____ _____.
Chris Evert hat viel _____ _____.

2. Complete each of the following statements in the present perfect tense by choosing two appropriate verbs from the list of three. Also insert the correct form of the auxiliary verb "haben."

Meine Schwester ____ immer lieber _____ als _____.
Verbs: kochen wonnen lernen

Meine Eltern ____ mehr _____ als _____.
Verbs: lachen stellen weinen

Ich ____ ihn etwas _____ und er hat "nein" _____.
Verbs: legen sagen fragen

3. Select the appropriate verb for each sentence from the list given below. Type the corresponding past participle in the space provided.

Verbs: glauben machen rauchen regnen

Ich habe die Geschichte _____.
Meine Mutter hat eine Zigarette _____.
Es hat die ganze Nacht _____.
Die lange Reise hat mich müde _____.

4. In the following problems, construct two meaningful sentences each in the present perfect tense by adding one element from each category (verb-phrase) appropriate to the specified subject.

Example:

Subject	Verb	Phrase
Hans	(enden)	der Familie Haas.
Die Party	(danken)	um ein Uhr morgens.

Answer: Hans hat der Familie Haas gedankt.
Die Party hat um ein Uhr morgens geendet.

Now the problems:

A.	Der Gast	(warten)	sehr gut.
	Das Mittagessen	(schmecken)	im Restaurant.

B.	Das Auto	(bauen)	ein Einfamilienhaus.
	Mein Vater	(kosten)	viel Geld.
C.	Peter	(dauern)	Anna die Kirche.
	Das Interview	(zeigen)	nur 5 Minuten.

5. Read the following passage:

As Mrs. Braun was leaving the house to go shopping, the phone rang. She picked it up. It was a wrong number. She left the house and drove into the city. After she parked her car, she went to look for some flowers. She finally found some beautiful carnations and bought them. Mrs. Braun then returned home and spent the rest of the day working in her kitchen.

Make a complete sentence in the present perfect tense for each of the following sets of words. Then sequence the sentences according to the above passage.

/arbeiten/sie/zu Hause/.

/das Auto/Frau Braun/parken/.

/kaufen/sie/Blumen/.

/das Telefon/Frau Braun/hören/.

/die Dame/suchen/Blumen/.

Encl. #3

LIST OF WEAK VERBS AND NOUNS

Weak Verbs

antworten	arbeiten*	bauen*
danken	dauern*	enden
fragen*	führen	glauben*
haben	hören*	kaufen*
kochen*	kosten*	lachen*
leben	legen*	lernen*
lieben	machen*	meinen
öffnen	parken*	passen
rauchen*	regnen*	sagen*
schmecken*	spielen*	stellen*
suchen*	warten*	weinen*
wohnen*	zeigen*	

* used in both structural and semantic exercises.

Nouns

Chapter 1
Abend
Amerika
Frau
Fräulein
Frühling
Gespräch
Herbst
Herr
Kind
Mann
Morgen
Sommer
Sonne
Stadt
Tag
Tourist
Wetter
Wind
Winter
Wort

Chapter 2
Apotheke
Bäckerei
Brot
Butter
Drogerie
Familie
Fisch
Geschäft
Haus
Jahr
Kaffee
Kuchen
Lebensmittel
Milch
Pfund
Prüfung
Sache
Salz
Seife
Supermarkt
Tablette
Weg

Chapter 3
Amerikaner
Amerikanerin
DDR
Deutsche
Dom
Eltern
Europa
Ferien
Frankreich
Kirche
Land
Leute
Luxemburg
Mensch
Nachbar
Nachbarin
Name
Österreich
Schweiz
Sprache
Student
Studentenheim
Studentin
Süden
Wein
Zeit

Chapter 4
Auto
Bibliothek
Bier
Blume
Fuss
Gabel
Gast
Hand
Messer
Nacht
Party
Restaurant
Seite
Vorlesung
Wanderung
Wasser
Woche

Chapter 5
Antwort
Balkon
Besucher
Büro
Einfamilienhaus
Englisch
Firma
Geld
Geschichte
Glas
Minute
Onkel
Vater
Viertel
Universität
Wohnung

Chapter 6
Besuch
Fernseher
Kleidung
Koffer
Krankenhaus
Krieg
Kühlschrank
Land
Leben
Mal
Möbel
Motorrad
Nachmittag
Preis
Rad
Radio
Schule
Strasse
Telefon
Vergnügen
Verkehr
Waschmaschine
Weile
Welt
Zeitung

Chapter 7
Bekannte
Dame
Dank
Farbe
Freund
Gedicht
Gemüse
Haar
Körper
Kranke
Lied
Moment
Mutter
Natur
Obst
Professor
Reklame
Wald

3. Pilot Study Criterion Measurement

Pilot Study — PRESENT PERFECT TENSE OF WEAK VERBS - TEST INSTRUMENT

(Q 1-20) Circle the Correct Answer

1. Der junge Mann hat die hübsche Dame sehr _____.
   a. liebe
   b. geliebt
   c. lieben
   d. liebt

2. Was hat der Professor während der Prüfung _____?
   a. gestellt
   b. gelebt
   c. gesagt
   d. gepasst

3. Mein Freund ___ auf der Party viel _____.
   a. haben .... gelacht
   b. hatte .... lachen
   c. hat .... gelacht
   d. hat .... lachen

4. _____ Sie gestern neue Möbel _____?
   a. Haben .... kaufen
   b. Habt .... gekauft
   c. Haben .... gekauft
   d. Hatte .... gekauft

5. Der Nachbar hat sein Motorrad den ganzen Tag lang _____.
   a. sucht
   b. suchte
   c. gesucht
   d. suchen

6. Wie lange haben Sie in Frankreich _____?
   a. geglaubt
   b. gemacht
   c. gehört
   d. gelebt

7. Seit wann _____ sie bei der Firma Bauer _____?
   a. hat .... arbeiten
   b. haben .... gearbeitet
   c. habe .... gearbeitet
   d. haben .... arbeiten

8. Das Interview im grossen Autogeschäft hat sehr lange _____.
   a. gewartet
   b. warten
   c. gezeigt
   d. gedauert

9. Der Herr aus Italien ___ bei uns in der Schule _____.
   a. hat .... lernen
   b. habe .... gelernt
   c. hat .... gelernt
   d. haben .... gelernt

10. Mein Vater und meine Mutter _____ seit zwei Jahren in einem Einfamilienhaus _____.
   a. haben .... gewohnt
   b. haben .... leben
   c. hat .... gelebt
   d. hat .... gelegt

11. Ich habe die ganze Geschichte nicht _____.
   a. geglaubt
   b. glaubte
   c. glaubt
   d. glaube

12. Mein Onkel hat dem Touristen den Dom _____.
   a. zeigt
   b. zeigte
   c. zeigen
   d. gezeigt

13. Hoffentlich ____ es Ihnen hier bei uns gut _____.
   a. haben .... gekocht
   b. hat .... gekocht
   c. hat .... geschmeckt
   d. hat .... gekauft

14. Am Nachmittag habe ich den Besuch in die Stadt _____.
   a. geführt
   b. führt
   c. führen
   d. führe

15. Die Lebensmittel haben in der Schweiz mehr als in Amerika _____.
   a. gewohnt
   b. gekostet
   c. geschmeckt
   d. schmeckt

16. Bei schlechtem Wetter habe ich bei der Apotheke _____.
   a. gesucht
   b. geregnet
   c. geparkt
   d. regnen

17. Die Schüler haben eine Vorlesung an der Universität _____.
   a. haben
   b. hat
   c. gehabt
   d. hatten

18. Ich habe _____ und meine Schwester hat _____.
    a. gedauert .... gelacht
    b. geweint .... lacht
    c. gedauert .... geweint
    d. gelacht .... geweint

19. Nach der Schule _____ ich 20 Minuten auf ihn _____.
    a. habe .... geantwortet
    b. habe .... gewartet
    c. hat .... geantwortet
    d. hat .... gewartet

20. Warm hat die lange Reise nach Österreich endlich _____?
    a. geendet
    b. geregnet
    c. geparkt
    d. regnen

(Q 21-25) Complete the Following Sentences in the Present Perfect Tense:

21. Wir haben es nicht böse _____. (meinen)

22. Warum haben die Gäste die Tür nicht _____? (öffnen)

23. Das Mittagessen hat bei meiner Mutter lange _____. (dauern)

24. Das Gemüse hat mehr als die Milch _____. (kosten)

25. Im Restaurant habe ich viel _____. (rauchen)

(Q 26-30) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb from the List Provided:

danken	leben	arbeiten
bauen	rauchen	passen
machen	regnen	wohnen

26. Onkel Karl hat vor einem Jahr ein neues Haus _____.

27. Heute morgen haben mein Vater und ich bei meinem Onkel von 8 bis 12 Uhr im Garten _____. 28. Leider hat es ein bisschen _____. 29. Während der Arbeit hat mein Vater sehr viel _____. 30. Am Nachmittag habe ich einen Besuch bei Klaus _____.

(Q 31-35) Put the Following Sentences into the Present Perfect Tense:

31. _____ Ihnen der Kuchen _____? (schmecken)

32. Ich _____ seit vielen Jahren in der Schweiz _____. (wohnen)

33. Was _____ Hans und Inge den Professor _____? (fragen)

34. Herr und Frau Lehmann _____ ein modernes Haus _____. (bauen)

35. Unsere Nachbarin _____ die Tomaten in den Kühlschrank _____. (stellen)

(Q 36-40) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb from the List Provided:

haben	glauben	lieben
meinen	zeigen	stellen
führen	kosten	lernen

36. Auf meiner Universität in Stuttgart _____ ich wirklich sehr gutes Deutsch _____. 37. Die Universität _____ eine neue Bibliothek mit vielen interessanten Büchern _____. 38. Mein Freund Rolf und ich _____ aber den Sportplatz besonders _____. 39. Wir _____ dort viel Fussball _____. 40. Nach vielen Jahren _____ Rolf gestern endlich seinen Eltern die Universität _____.

APPENDIX B

Computer Exercises

1. Introduction to the Present Perfect Tense
2. Structural Exercises
3. Semantic Exercises
4. Structural and Semantic Feedback Examples

1. Introduction to the Present Perfect Tense

PRESENT PERFECT TENSE WITH WEAK VERBS

Before practicing the present perfect tense of weak verbs, let's get acquainted with the computer terminal and do the following two exercises:

1. Complete the following sentence with a state taken from the following list:

STATES: California Colorado Texas Ohio

The state which most closely approximates the area of Germany is _____.

Your choice is: Colorado

Correct answer.

2. Type the appropriate country in the space provided in the following sentence:

German is spoken in Germany, Switzerland, and _____.

Your choice is: Austria

Very good!

Let's now begin with the present perfect tense.

The present perfect tense is used considerably more in conversational German than it is used in English. Thus, it is often called the conversational past. It is also called a "compound tense" because it consists of two entities:

1) The present tense of the AUXILIARY VERB and
2) The PAST PARTICIPLE of the principal verb.

	AUXILIARY VERB	PAST PARTICIPLE
he	has	asked
er	hat	gefragt

In this lesson, we are only concerned with the present perfect tense of WEAK VERBS.
The past participle of regular weak verbs is formed by adding the prefix "ge" and the suffix "t" to the verb stem. The suffix "et" is added if the stem ends in d, t, Ca or Cn, where C is any consonant other than l or r.

SUFFIX	INFINITIVE	STEM	PAST PARTICIPLE
-t	lernen	lern-	GElernT
	machen	mach-	GEmachT
-et	regnen	regn-	GEregnET
	arbeiten	arbeit-	GEarbeitET

WORD ORDER: The auxiliary is the second element in the sentence and the past participle is always placed at the end of the clause.

EXAMPLE: Present Tense: Ich LERNE in der Schule.
Perfect Tense: Ich HABE in der Schule GELERNT.

2. Structural Exercises

1. Type the appropriate form of the auxiliary verb "haben" in the space provided:

Ich ____ der Dame mein Auto gezeigt.

Your choice is: habe

Sehr gut!

Mein Vater und mein Onkel _____ ein Haus gebaut.

Your choice is: haben

Prima!

Er ____ heute nicht viel gelacht.

Your choice is: hat

Ausgezeichnet!

_____ sie (she) das Mittagessen gekocht?

Your choice is: Hat

Prima!

Die kleinen Kinder _____ in der Schule geweint.

Your choice is: haben

Ausgezeichnet!

2. Insert the past participle of the verb in parenthesis in the space provided.

Ich habe es ihm nicht _____. (glauben)

Your choice is: geglaubt

Sehr gut!

In Deutschland hat das Bier immer gut _____. (schmecken)

Your choice is: geschmeckt

Prima!

Meine Bekannten haben lange in Bonn _____. (wohnen)

Your choice is: gewohnt

Ausgezeichnet!

Haben Sie beim Krankenhaus _____. (parken)

Your choice is: geparkt

Prima!

Frau Weiss hat eine Reise nach Luxemburg _____. (machen)

Your choice is: gemacht

Ausgezeichnet!

3. Provide the correct form of the auxiliary verb 'haben' and the past participle of the word in parenthesis:

Wir _____ den Mann _____. (suchen)
:
haben gesucht

Sehr gut!

_____ er das auch schon _____? (hoeren)
:
Hat gehoert

Prima!

Auf wen _____ Sie _____? (warten)
:
haben gewartet

Ausgezeichnet!

Waehrend des Sommers ___ der Professor in Oesterreich _____. (arbeiten)
:
hat gearbeitet

Prima!

Was _____ Sie dem Englaender _____? (sagen)
:
haben gesagt

Ausgezeichnet!

4. Put the following sentences into the present perfect tense by supplying the words for which blanks have been substituted:

Er kauft der Mutter Blumen.
Er ____ der Mutter Blumen _____.
:
hat gekauft

Prima!

Die Vorlesung dauert den ganzen Nachmittag.
Die Vorlesung ____ den ganzen Nachmittag _____.
:
hat gedauert

Ausgezeichnet!

Die Studenten rauchen wirklich zuviel.
Die Studenten ____ wirklich zuviel _____.
:
haben geraucht

Sehr gut!

Der Tourist fragt nach einer Landkarte.
Der Tourist ____ nach einer Landkarte _____.
:.
hat gefragt

Prima!

Wohin lesen Sie die Zeitung?
Wohin ____ Sie die Zeitung _____?
:
haben gelest

Ausgezeichnet!

```
5. Answer each of the followins questions AFFIRMATIVELY.
Remember each answer must start with the word 'Ja,'.

Haben Sie frueher Fussball gespielt?
:
Ja, ich habe frueher Fussball gespielt.

Sehr gut!

Hat es gestern geregnet?
:
Ja, es hat gestern geregnet.

Sehr gut!

Hat Kaffee letztes Jahr viel gekostet?
:
Ja, Kaffee hat letztes Jahr viel gekostet.

Sehr gut!

Haben Sie in der Schule viel gelernt?
:
Ja, ich habe in der Schule viel gelernt.

Sehr gut!

Hat Ute die Milch in den Kuehlschrank gestellt?
:
Ja, Ute hat die Milch in den Kuehlschrank gestellt.

Sehr gut!
READY
```

3. Semantic Exercises

1. Complete each of the following sentences with an activity taken from the following list and with the past participle of the verb 'spielen'.

ACTIVITIES: Tennis Gitarre Golf

Jack Nicklaus hat viel _____ _____.
:
Golf gespielt

Prima!

John Denver hat viel _____ _____.
:
Gitarre gespielt

Ausgezeichnet!

Chris Evert hat viel _____ _____.
:
Tennis gespielt

Sehr gut!

2. Complete each of the following statements in the PRESENT PERFECT TENSE by choosing TWO appropriate verbs from the list which follows the statement. ALSO insert the correct form of the auxiliary verb 'haben'.

Meine Schwester ____ immer lieber _____ als _____.

VERBS: kochen wohnen lernen

Your choices are: hat gekocht gelernt

Sehr gut!

Meine Eltern _____ mehr _____ als _____.

THE VERBS ARE: lachen stellen weinen

Your choices are: haben gelacht geweint

Sehr gut!

Ich _____ ihn etwas _____, und er hat 'nein' _____.

THE VERBS ARE: lesen sagen fragen

Your choices are: habe gefragt gesagt

Ausgezeichnet!

3. Select the appropriate verb for each sentence from the list given below.

glauben machen rauchen regnen

TYPE THE CORRESPONDING PAST PARTICIPLE AS REQUESTED.

Ich habe die Geschichte _____.

Your choice is: geglaubt

Sehr gut!

Meine Mutter hat eine Zigarette _____.

Your choice is: geraucht

Sehr gut!

Es hat die ganze Nacht _____.

Your choice is: geregnet

Sehr gut!

Die lange Reise hat mich muede _____.

Your choice is: gemacht

Sehr gut!

4. In the following three problems, construct two meaningful sentences each in the present perfect tense by adding one element from EACH CATEGORY (verb-phrase) appropriate to the specified subject.
EXAMPLE:

SUBJECT	VERB	PHRASE
Hans	(enden)	der Familie Haas.
Die Party	(danken)	um ein Uhr morgens.

ANSWER:

Hans hat der Familie Haas gedankt.
Die Party hat um ein Uhr morgens geendet.

Now the problems:

A.	Der Gast	(warten)	sehr gut.
	Das Essen	(schmecken)	im Restaurant.

Sentence no. 1 :Der Gast hat im Restaurant gewartet.

Sentence no. 2 :Das Essen hat sehr gut geschmeckt.

Sentence no. 1 is correct.
Sentence no. 2 is correct.

B. Das Auto (bauen) ein Haus.
Mein Vater (kosten) viel Geld.

Sentence no. 1 :Das Auto hat viel Geld gekostet.

Sentence no. 2 :Mein Vater hat ein Haus gebaut.

Sentence no. 1 is correct.
Sentence no. 2 is correct.

C. Peter (dauern) Anna die Kirche.
Das Interview (zeigen) nur 5 Minuten.

Sentence no. 1 :Peter hat Anna die Kirche gezeigt.

Sentence no. 2 :Das Interview hat nur 5 Minuten gedauert.

Sentence no. 1 is correct.
Sentence no. 2 is correct.

5. Read the following passage:
As Mrs. Braun was leaving the house to go shopping, the phone rang. She picked it up. It was a wrong number. She left the house and drove to the city. After she parked her car, she went to look for some flowers. She found some beautiful carnations in a little shop and bought them. She then returned home and spent the rest of the day working in her kitchen.

Your task is to ARRANGE each of the 5 sets of words into complete, PRESENT PERFECT TENSE sentences using the words given in each set. ALSO, sequence the sentences according to the events in the above passage. Your first answer must be the earliest event in the passage, followed by the second event, etc. Type all five sentences (one sentence per line) before waiting for computer RESPONSE.

1. /arbeiten/sie/zu/Hause/.
2. /Auto/Frau Braun/das/parken/.
3. /kaufen/sie/Blumen/
4. /das Telefon/Frau Braun/hoeren/
5. /die Dame/suchen/Blumen/
Your answer:
:Frau Braun hat das Telefon gehoert.
:Frau Braun hat das Auto geparkt.
:Die Dame hat Blumen gesucht.
:Sie hat Blumen gekauft.
:Sie hat zu Hause gearbeitet.

Line no. 1 is correct
Line no. 2 is correct
Line no. 3 is correct
Line no. 4 is correct
Line no. 5 is correct
READY

4. Structural and Semantic Feedback Examples

1. Type the appropriate form of the auxiliary verb 'haben' in the space provided:

Ich ____ der Dame mein Auto gezeist.

Your choice is: hat

This is incorrect. Check subject_verb agreement of the auxiliary. Try again.

Your choice is: habe

Das ist besser.

2. Insert the past participle of the verb in parenthesis in the space provided.

Ich habe es ihm nicht _____. (glauben)

Your choice is: geglauben

Leider falsch. Remember the past participle of weak verbs is formed by adding the prefix 'ge' and the suffix 't' to the verb stem.
Try again.

Your choice is: geglaubt

Das ist besser.

3. Provide the correct form of the auxiliary verb 'haben' and the past participle of the word in parenthesis:

Wir _____ den Mann _____. (suchen)
:
habe gesucht

No, this is incorrect.
Check the subject-verb agreement of the auxiliary.
Try again. Enter the auxiliary ONLY.

Your choice is: haben

Gut.

4. Put the following sentences into the present perfect tense by supplying the words for which blanks have been substituted:

Er kauft der Mutter Blumen.
Er ____ der Mutter Blumen _____.
:
hat gekaufen

Leider falsch. The past participle is wrong.
The past participle of regular weak verbs is formed by adding the prefix 'ge' and the suffix 't' to the verb stem. The suffix 'et' is added if the stem ends in d, t, Ca or Cn, where C is any consonant other than l or r.
Try again. Enter the past participle ONLY.

Your choice is: gekauft

Richtig.

2. Complete each of the following statements in the PRESENT PERFECT TENSE by choosing TWO appropriate verbs from the list which follows the statement. ALSO insert the correct form of the auxiliary verb 'haben'.

Meine Schwester ____ immer lieber _____ als _____.

VERBS: kochen wohnen lernen

Your choices are: haben gewohnt gekocht

The auxiliary is wrong.
Type in the correct form of the auxiliary verb ONLY.

Your choice is: hat

Das ist besser.
The first verb is wrong.
Try again. Fill in ALL of the blanks.

Your choices are: hat gelernt gekocht

Gut.

3. Select the appropriate verb for each sentence from the list given below.

glauben machen rauchen regnen

TYPE THE CORRESPONDING PAST PARTICIPLE AS REQUESTED.

Ich habe die Geschichte _____.

Your choice is: geregnet

You have chosen the wrong verb. Try again.

Your choice is: glaubt

You have formed the past participle wrong. Try again.

Your choice is: geglaubt

Sehr gut!

4. In the following three problems, construct two meaningful sentences each in the present perfect tense by adding one element from EACH CATEGORY (verb-phrase) appropriate to the specified subject.

A. Der Gast (warten) sehr gut.
Das Essen (schmecken) im Restaurant.

Sentence no. 1 :Der Gast hat im Restaurant schmeckt.
You have used the wrong verb.
Try again.

Sentence no. 1 :Der Gast hat im Restaurant gewartet.

Sentence no. 2 :Das Essen hat sehr gut schmeckt.

Sentence no. 1 is correct.
The second sentence is incorrect because of:
wrong past participle
The correct sentence is:Das Essen hat sehr gut geschmeckt.

APPENDIX C

Criterion Measurement

German 132 PRESENT PERFECT TENSE OF Name: _____
2-5/6-79 WEAK VERBS - TEST INSTRUMENT

(Q 1-20) Circle the Correct Answer

1. Der junge Mann hat die hübsche Dame sehr _____.
   a. geliebt
   b. liebe
   c. lieben
   d. liebt

2. Was hat der Professor während der Prüfung _____?
   a. gestellt
   b. gesagt
   c. gelebt
   d. gepasst

3. Mein Freund ____ auf der Party viel _____.
   a. haben .... gelacht
   b. hatte .... lachen
   c. hat .... gelacht
   d. hat .... lachen

4. Nach der Schule ____ ich 20 Minuten auf ihn _____.
   a. habe .... geantwortet
   b. habe .... gewartet
   c. hat .... geantwortet
   d. hat .... gewartet

5. Der Nachbar hat sein Motorrad den ganzen Tag lang _____.
   a. sucht
   b. suchte
   c. suchen
   d. gesucht

6. Wie lange haben Sie in Frankreich _____?
   a. geglaubt
   b. gemacht
   c. gehört
   d. gelebt

7. Seit wann _____ sie bei der Firma Bauer _____?
   a. hat .... arbeiten
   b. haben .... gearbeitet
   c. habe .... gearbeitet
   d. haben .... arbeiten

8. Das Interview im grossen Autogeschäft hat sehr lange _____.
   a. gewartet
   b. warten
   c. gezeigt
   d. gedauert

9. Der Herr aus Italien ____ bei uns in der Schule _____.
   a. hat .... lernen
   b. habe .... gelernt
   c. hat .... gelernt
   d. haben .... gelernt

10. Mein Vater und meine Mutter _____ seit zwei Jahren in einem Einfamilienhaus _____.
   a. haben .... gewohnt
   b. haben .... leben
   c. hat .... gelebt
   d. hat .... gelegt

11. Ich habe die ganze Geschichte nicht _____.
   a. glaubte
   b. geglaubt
   c. glaubt
   d. glaube

12. Mein Onkel hat dem Touristen den Dom _____.
   a. zeigt
   b. zeigen
   c. zeigte
   d. gezeigt

13. Hoffentlich ____ Ihnen das Essen bei uns gut _____.
   a. haben .... gekocht
   b. hat .... gekocht
   c. hat .... geschmeckt
   d. hat .... gekauft

14. Am Nachmittag habe ich mit meinem Freund im Park _____.
   a. gespielt
   b. spielt
   c. spielen
   d. spiele

15. Die Lebensmittel haben in der Schweiz mehr als in Amerika _____.
   a. gewohnt
   b. gekostet
   c. geschmeckt
   d. schmeckt

16. Bei schlechtem Wetter habe ich bei der Apotheke _____.
   a. gesucht
   b. geregnet
   c. geparkt
   d. regnen

17. Die Schüler haben eine Vorlesung an der Universität _____.
   a. haben
   b. hat
   c. gehabt
   d. hatten

18. Ich habe _____ und meine *Schwester hat* _____.
    a. gedauert .... gelacht
    b. geweint .... lacht
    c. gedauert .... geweint
    d. gelacht .... geweint

19. _____ Sie gestern neue Möbel _____?
    a. Haben .... kaufen
    b. Habt .... gekauft
    c. Haben .... gekauft
    d. Hatte .... gekauft

20. Wann hat die lange Reise nach Österreich endlich _____?
    a. geendet
    b. geregnet
    c. geparkt
    d. regnen

(Q 21-25) Complete the Following Sentences in the Present Perfect Tense:

21. Wir haben es nicht böse _____. (meinen)
22. Warum haben die Gäste die Tür nicht _____? (öffnen)
23. Das Mittagessen hat bei meiner Mutter lange _____. (dauern)
24. *Das Gemüse hat mehr als die Milch* _____. (kosten)
25. Herr Lehmann hat seinen neuen Porsche vor dem Lebensmittelgeschäft _____. (parken)

(Q 26-30) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb from the List Provided:

danken	leben	arbeiten
kaufen	kochen	passen
meinen	regnen	wohnen

26. Onkel Karl hat vor einem Jahr ein neues Haus _____.

27. Heute morgen haben mein Vater und ich bei meinem Onkel von 8 bis 12 Uhr im Garten _____. 28. Leider hat es ein bisschen _____. 29. Während der Arbeit hat meine Tante etwas Gutes _____. 30. Nach der Arbeit hat Onkel Karl uns _____.

(Q 31-35) Complete the Following Sentences in the Present Perfect Tense:

31. _____ Ihnen der Kuchen _____? (schmecken)

32. Ich _____ seit vielen Jahren in der Schweiz _____. (wohnen)

33. Was _____ Hans und Inge den Professor _____? (fragen)

34. Wohin _____ Sie das Küchenmesser _____? (legen)

35. Unsere Nachbarin _____ die Tomaten in den Kühlschrank _____. (stellen)

(Q 36-40) Complete the Following Passage in the Present Perfect Tense by Choosing the Appropriate Verb from the List Provided:

haben	glauben	bauen
spielen	zeigen	stellen
führen	kosten	lernen

36. Auf meiner Universität in Stuttgart _____ ich wirklich sehr gutes Deutsch _____. 37. Im Jahre 1950 _____ die Universität eine neue Bibliothek _____. 38. Mein Freund Rolf und ich _____ aber den Sportplatz besonders gern _____. 39. Wir _____ dort viel Fussball _____. 40. Nach vielen Jahren _____ Rolf gestern endlich seinen Eltern die Universität _____.

APPENDIX D

Miscellaneous

1. Student Study Guide Extract
2. Computer Terminal Operating Instructions
3. List of Weak Verbs

1. Student Study Guide Extract

Block III

Recitation 11 1/2 Feb 1979	SA:	1. Read TB, p. 171, Schaum, p. 96 (present perfect tense of regular verbs) 2. Write TB, p. 184, Ex. E
	CA:	1. Introduction to present perfect 2. Listen/RCE, TB, pp. 164-165 (through Line 12, p. 165) 3. Pronunciation drill 4. Dialogue introduction, TB, p. 162 (first half) BREAK 5. ACE "Wir gehen ins Kino" 6. RCE "Familiensportfest" 7. Dialogue completion exercise "Der Sport"
Recitation 12 5/6 Feb 1979	SA:	1. Read TB, p. 172, Schaum, p. 97 (present perfect tense of irregular verbs) 2. Write TB, p. 183, Ex. C
	CA:	1. Written exercise/present perfect tense of regular weak verbs 2. Listen/RCE, TB, p. 165 (through Line 33) BREAK 3. ACE "Der Sport" 4. Dialogue introduction, TB, p. 162 (second half) 5. ACE "Vor dem Olympiastadion" 6. Written exercise/present perfect tense of irregular verbs

2. Computer Terminal Operating Instructions

COMPUTER-SUPPLEMENTED GERMAN PRACTICE

Student Information Sheet

You have been chosen to participate in a research project involving the computer. In order to avoid possible problems, this instruction sheet has been prepared to give you some specific information about the computer terminal. Please read these instructions carefully before coming to the Education and Research Center (DFACS), Room 2E23, Fairchild Hall, in lieu of your regular German classroom, on Monday or Tuesday, 5 or 6 February 1979. Bring these instructions and a Number 2 pencil with you on the appropriate date.

Please do not study the present perfect tense until after this experiment. On the day of the experiment, you will be assigned to a computer terminal in Room 2E23. The following will prepare you to use the computer:

1. Press SHIFT key and hold. Then press CLEAR HOME key. This procedure will clear your screen.

2. Type in USERCODE JPT0511 and then transmit it. To transmit, do the following: (1) Hit the ETX key, (2) hit the RTAB key, and (3) hit the XMT key. Follow this procedure anytime you are instructed to transmit. Wait until the computer acknowledges with a message.

3. Now type ?+ and transmit it. This procedure will get you in the upper/lower case mode.

4. Type E SEMANTIC or E STRUCTURE and transmit it. Your program is now ready to run.

5. Read the instructions carefully. Type slowly and accurately. Pay attention to capitalization and punctuation. Instead of the "Umlaute," use the appropriate vowel followed by an "e." Example: ä = ae (Maedchen).

6. Punch ETX and XMT after each page to continue.

7. If you make a typing error in your answer, or if you would like to change your answer, hit the RTAB key and type your answer again. A change must be made prior to data transmission.

8. If you don't know the answer, make a guess. Don't waste too much time, however. If the answer is incorrect, the computer will tell you what is wrong and give you another try.

9. Upon completion of Exercise #5, type in BYE and transmit it.

You will then be given the posttest. Place your name on the test booklet. Please answer all questions, using a Number 2 pencil. Mark your digitek answer sheet for questions 1 through 20.

If you have any questions during the experiment, please raise your hand. Good luck and again many thanks for participating!

REINER H. SCHAEFFER, Captain, USAF
Researcher

3. List of Weak Verbs

LIST OF WEAK VERBS

VERB	APPEARS IN		APPEARS AS KEY IN	
	STRUC EXERC	SEMAN EXERC	STRUCT SUB-TEST	SEMANTIC SUB-TEST
antworten	-	-	-	-
arbeiten	x	x	x	x
bauen	x	x	-	x
danken	-	-	-	x
dauern	x	x	x	x
enden	-	-	-	x
fragen	x	x	x	-
führen	-	-	-	-
glauben	x	x	x	-
haben	-	-	x	x
hören	x	x	-	-
kaufen	x	x	x	x
kochen	x	x	-	x
kosten	x	x	x	x
lachen	x	x	x	x
leben	-	-	-	x
legen	x	x	x	-
lernen	x	x	x	x
lieben	-	-	x	-
machen	x	x	-	-
meinen	-	-	x	-
öffnen	-	-	x	-
parken	x	x	x	x
passen	-	-	-	-
rauchen	x	x	-	-
regnen	x	x	-	x
sagen	x	x	-	x
schmecken	x	x	x	x
spielen	x	x	x	x
stellen	x	x	x	-
suchen	x	x	x	-
warten	x	x	-	x
weinen	x	x	-	-
wohnen	x	x	x	x
zeigen	x	x	x	x
TOTAL: 35	25	25	20	20

BIBLIOGRAPHY

Adams, E. N., H. W. Morrison, and J. M. Reddy. "Conversation with a Computer as a Technique of Language Instruction." The Modern Language Journal, 52 (1968), pp. 3-16.

Allen, Edward D. and Rebecca M. Valette. Classroom Techniques: Foreign Languages and English as a Second Language. New York: Harcourt Brace Jovanovich, Inc., 1977.

Allen, John R. "ELSE at Dartmouth: An Experiment in Computer-Aided Instruction in French." The French Review, 44 (1971), pp. 902-12.

_____. "The Use of a Computer in Drilling." Die Unterrichtspraxis, 5 (1972), pp. 31-35.

Allouche, Edith Kroo and Gerard L. Ervin. "Expanding the Options: Curricula in Many Languages," in Gilbert A. Jarvis, ed., An Integrative Approach to Foreign Language Teaching: Choosing Among the Options, Vol. 8 (Skokie: National Textbook Company, 1976), pp. 245-87.

Alpert, D. and D. L. Blitzer. "Advances in Computer-Based Education." Science, 167 (1970), pp. 1582-90.

Arendt, Jermaine D. "Media in Foreign Language Teaching," in Dale L. Lange, ed., Individualization of Instruction, Vol. 2 (Skokie: National Textbook Company, 1972), pp. 157-89.

Ausubel, David P. Educational Psychology: A Cognitive View. New York: Holt, Rinehart and Winston, Inc., 1968.

_____, Joseph D. Novak, and Helen Hanesian. Educational Psychology: A Cognitive View. New York: Holt, Rinehart and Winston, 1978.

Bartz, Walter H. "A Study of the Relationship of Certain Learner Factors with the Ability to Communicate in a Second Language (German) for the Development of Measures of Communicative Competence." Columbus: The Ohio State University, 1974. (Unpublished Ph.D. Dissertation.)

Bell, Frederick H. "Why Is Computer-Related Learning So Successful?" Educational Technology, 14 (1974), pp. 15-18.

Birckbichler, Diane W. "The Effects of Orienting Tasks Requiring Different Types and Levels of Cognitive Processing on Measures of Student Achievement in Beginning College French. Columbus: The Ohio State University, 1975. (Unpublished Ph.D. Dissertation.)

_____. "Communication and Beyond," in June K. Phillips, ed., The Language Connection: From the Classroom to the World, Vol. 9 (Skokie: National Textbook Company, 1977), pp. 53-94.

Brooks, Nelson H. Language and Language Learning: Theory and Practice. New York: Harcourt Brace & World, 1964.

Carroll, John B. "Learning Theory for the Classroom Teacher," in Gilbert A. Jarvis, ed., The Challenge of Communication, Vol. 6 (Skokie: National Textbook Company, 1974), pp. 113-49.

Chastain, Kenneth. "Behavioristic and Cognitive Approaches in Programmed Instruction." Language Learning, 20 (1970), pp. 223-35.

_____ and Frank J. Woerdehoff. "A Methodological Study Comparing the Audio-Lingual Habit Theory and the Cognitive Code-Learning Theory." The Modern Language Journal, 52 (1968), pp. 268-79.

Christensen, Clay B. "Affective Learning Activities (ALA)." Foreign Language Annals, 8 (1975), pp. 211-19.

Clark, Herbert H. and Eve V. Clark. Psychology and Language - An Introduction to Psycholinguistics. New York: Harcourt Brace Jovanovich, Inc., 1977.

Clausing, Gerhard and Cecil Wood. "The Computer-Tutor in Media-Aided Language Programs." NALLD Journal, 8 (1974), pp. 11-20.

Curtin, Constance, Clayton L. Dawson, Nolen Provenzano, and Philip Cooper. "The PLATO System: Using the Computer to Teach Russian." Slavic East European Journal, 20 (1976), pp. 280-92.

Disick, Renée S. and Laura Barbanel. "Affective Education and Foreign Language Learning," in Gilbert A. Jarvis, ed., The Challenge of Communication, Vol. 6 (Skokie: National Textbook Company, 1974), pp. 185-222.

Dyer, Charles A. "A New Direction for CAI." Educational Technology, 16 (1976), pp. 56-60.

Edwards, Judith, Shirley Norton, Sandra Taylor, Ralph van Dusseldorp, and Martha Weiss. "Is CAI Effective?" AEDS Journal, 7 (1974), pp. 122-26.

Ellis, Allan B. The Use and Misuse of Computers in Education. New York: McGraw Hill, 1974.

Erickson, Gerald M. "Classics: The Teaching of Latin and Greek and Classical Humanities," in Dale L. Lange, ed., Individualization of Instruction, Vol. 2 (Skokie: National Textbook Company, 1972), pp. 275-321.

Frey, Herschel J. "Audio-Lingual Teaching and Pattern Drill." The Modern Language Journal, 52 (1968), pp. 349-55.

Gaarder, A. Bruce. "Beyond Grammar and Beyond Drills." Foreign Language Annals, 1 (1967), pp. 109-18.

Gagné, Robert M. The Conditions of Learning. New York: Holt, Rinehart and Winston, 1977.

Goyer, Robert S. "Communication, Communicative Process, Meaning: Toward a Unified Theory." The Journal of Communication, 20 (1970), pp. 4-16.

Grittner, Frank M. Teaching Foreign Languages. New York: Harper and Row, 1977.

Grundlehner, Philip E. "Computer-Based Education: PLATO in German." Die Unterrichtspraxis, 7 (1974), pp. 96-105.

Gschossmann, Elke. German Grammar - Schaum's Outline Series. New York: McGraw-Hill Book Company, 1975.

Haas, Werner. Personal Communication, 1979.

Hosenfeld, Carol. "Learning about Learning: Discovering Our Students' Strategies." Foreign Language Annals, 9 (1976), pp. 117-29.

Jakobovits, Leon A. Foreign Language Learning: A Psycholinguistic Analysis of the Issues. Rowley: Newbury House Publishers, Inc., 1970.

Jarvis, Gilbert A. "A Comparison of Contextualized Practice with Particularized Referents vs. Practice with Generic Meaning in the Teaching of Beginning College French." Lafayette: Purdue University, 1970. (Unpublished Ph.D. Dissertation.)

_____. "We Think We Are Evening in Paris, But We're Really Chanel." Foreign Language Annals, 8 (1975a), pp. 104-10.

_____. "Molecule by Molecule: Building Hope for Man." The Modern Language Journal, 59 (1975b), pp. 221-24.

_____. "The 200th Year: More Need Than Ever Before for Foreign Language Study." The Modern Language Journal, 60 (1976), pp. 240-47.

_____. "Hypotheses About Humanistic Outcomes of Language Study." Canadian Modern Language Review, 34 (1978), pp. 668-79.

_____, Thérèse M. Bonin, Donald E. Corbin, and Diane W. Birckbichler. Connaître et se connaître. A Basic Reader. New York: Holt, Rinehart and Winston, 1976.

_____. Vivent les différences - An Intermediate Reader for Communication. New York: Holt, Rinehart and Winston, 1977a.

_____. Passeport pour la France. A Beginning Reader for Communication. New York: Holt, Rinehart and Winston, 1977b.

_____. Invitation. French for Communication and Cultural Awareness. New York: Holt, Rinehart and Winston, 1979.

Johnson, Ronald E. "Meaning in Complex Learning." Review of Educational Research, 45 (1975), pp. 425-59.

Joiner, Elizabeth G. "Communicative Versus Non-Communicative Language Practice in the Teaching of Beginning College French: A Comparison of Two Treatments." Columbus: The Ohio State University, 1974. (Unpublished Ph.D. Dissertation.)

Kerlinger, Fred N. Foundations of Behavioral Research. New York: Holt, Rinehart and Winston, 1973.

Knorre, Martha L. "The Role of Cognitive Processing in Second-Language Learning: A Study of the Effects of Depth of Processing and Task Type on Measures of Student Learning in Elementary College Spanish." Columbus: The Ohio State University, 1975. (Unpublished Ph.D. Dissertation.)

_____, John Lett, Jr., William F. Ratliff, Patricia Boyland, and Aristóbulo Pardo. Cara a cara - A Basic Reader for Communication. New York: Holt, Rinehart and Winston, 1977.

Lipton, Gladys. "Curricula for New Goals," in Dale L. Lange, ed., Foreign Language Education: A Reappraisal, Vol. 4 (Skokie: National Textbook Company, 1972), pp. 187-218.

Mathieu, G. Bording. "Teaching Procedures for Pattern Practice: A Self-Test." Die Unterrichtspraxis, 1 (1968), pp. 46-53.

Miller, Harry G. and Kevin Swick. "Appropriate Uses of Drill Exercises." Educational Technology, 16 (1976), pp. 26-30.

Moeller, Jack and Helmut Liedloff. Deutsch heute: Grundstufe. Boston: Houghton Mifflin Company, 1974.

Mortensen, C. David. Communication: The Study of Human Interaction. New York: McGraw-Hill Book Company, 1972.

Nelson, G. E., Jean Renard Ward, Samuel H. Desch, and Roy Kaplow. "Two New Strategies for Computer-Assisted Language Instruction (CALI)." Foreign Language Annals, 9 (1976), pp. 28-37.

Oller, John W., Jr. and Dean H. Obrecht. "Pattern Drill and Communicative Ability: A Psycholinguistic Experiment." International Review of Applied Linguistics in Language Teaching, 6 (1968), pp. 165-74.

O'Neil, Harold F., Jr., John J. Hedl, Jr., Frank C. Richardson, and Wilson A. Judd. "An Affective and Cognitive Evaluation of Computer-Managed Instruction." Educational Technology, 16 (1976), pp. 29-34.

Ornstein, Jacob. "Programmed Instruction and Educational Technology in the Language Field: Boon or Failure?" The Modern Language Journal, 52 (1968), pp. 401-10.

_____, Ralph W. Ewton, Jr., and Theodore H. Mueller. Programmed Instruction and Educational Technology in the Language Teaching Field. Philadelphia: The Center of Curriculum Development, Inc., 1971.

Osgood, Charles E. "Comments on Professor Bousfield's Paper," in Charles N. Cofer and Barbara S. Musgrave, ed., Verbal Learning and Verbal Behavior (New York: McGraw-Hill, 1961), pp. 91-106.

Paulston, Christina Bratt. "Structural Pattern Drills: A Classification." Foreign Language Annals, 4 (1970), pp. 187-93.

_____ and Howard R. Selekman. "Interaction Activities in the Foreign Language Classroom, or How to Grow a Tulip-Rose." Foreign Language Annals, 19 (1976), pp. 248-54.

Reinert, Harry. "Extending the Teacher: From Text to Context," in Gilbert A. Jarvis, ed., The Challenge of Communication, Vol. 6 (Skokie: National Textbook Company, 1974), pp. 275-98.

Rivers, Wilga M. The Psychologist and the Foreign Language Teacher. Chicago: University of Chicago Press, 1964.

_____. "From Linguistic Competence to Communicative Competence." TESOL Quarterly, 7 (1973), pp. 25-34.

_____. Speaking in Many Tongues: Essays in Foreign Language Teaching. Rowley: Newbury House Publishers, Inc., 1976.

Rosenbaum, Peter S. "The Computer as a Learning Environment for Foreign Language Instruction." Foreign Language Annals, 2 (1969), pp. 457-65.

Ruplin, Ferdinand A. "CAI: The State of Art." Die Unterrichtspraxis, 6 (1973), pp. 70-78.

_____ and John R. Russell. "Towards Structured Foreign Language Study: An Integrated German Course." The Modern Language Journal, 54 (1970), pp. 174-83.

Sampson, Gloria Paulik. "A Real Challenge to ESL Methodology." TESOL Quarterly, 11 (1977), pp. 241-55.

Savignon, Sandra J. Communicative Competence: An Experiment in Foreign Language Teaching. Philadelphia: Center for Curriculum Development, 1972.

_____. "Talking With My Son: An Example of Communicative Competence," in Frank M. Grittner, ed., Careers, Communication and Cultures in Foreign Language Teaching - Selected Papers from the 1974 Central States Conference (Skokie: National Textbook Company, 1976), pp. 26-40.

Scanlan, Richard T. "Computer-Assisted Instruction: Plato in Latin." Foreign Language Annals, 5 (1971), pp. 84-89.

Schulz, Renate A. Wolf. "Discrete-Point Versus Simulated Communication Testing: A Study of the Effect of Two Methods of Testing on the Development of Communicative Proficiency in Beginning College French Classes." Columbus: The Ohio State University, 1974. (Unpublished Ph.D. Dissertation.)

_____, Roswitha O. Burkey, Ursula E. Vogel, and Michael M. Morris. Lesen, Lachen, Lernen: A Basic Reader. New York: Holt, Rinehart and Winston, 1978.

Smith, Frank. Comprehension and Learning: A Conceptual Framework for Teachers. New York: Holt, Rinehart and Winston, 1975.

Stevick, Earl W. Memory, Meaning and Method. Some Psychological Perspectives of Language Learning. Rowley: Newbury House Publisher, Inc., 1976.

Suppes, Patrick and Max Jerman. "Computer-Assisted Instruction." National Association of Secondary School Principals Bulletin, 54 (1970), pp. 27-40.

Taylor, Heimtraut F. "DECU/TUCO - A Tutorial Approach to Elementary German Instruction." Foreign Language Annals, in press.

Turner, Ronald C. "CARLOS: Computer Assisted Instruction in Spanish." Hispania, 53 (1970), pp. 249-52.

Walton, Wesley W. "Computers in the Classroom: Master or Servant?" National Association of Secondary School Principals Bulletin, 54 (1970), pp. 9-17.

Woodworth, John A. "On the Role of Meaning in Second-Language Teaching." Language Learning, 23 (1973), pp. 75-88.

Zelson, Sidney N. J. "A Relevant Curriculum: Linguistic Competence + Communicative Competence = Proficiency," in Renate A. Schulz, ed., Teaching for Communication in the Foreign Language Classroom (Skokie: National Textbook Company, 1976), pp. 18-32.