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The Use of Advance Organizers in the Teaching of English Grammar to Emotionally Impaired Adolescents

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THE USE OF ADVANCE ORGANIZERS IN THE TEACHING
OF ENGLISH GRAMMAR TO EMOTIONALLY
IMPAIRED ADOLESCENTS

by

Garrett Boersma Jr.

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Doctor of Education

Western Michigan University
Kalamazoo, Michigan
April 1979
DEDICATION

To my wife, Laura, who walked with me through this experience and brought new dimensions to the word "together."
ACKNOWLEDGMENTS

Throughout every phase of this dissertation I have benefited from the counsel of my major advisor, Dr. Alonzo E. Hannaford, and committee members Dr. Abraham W. Nicolaou and Dr. Galen Alessi. Sara Yankoviak's cheerful technical assistance was also greatly appreciated. In a very real sense, my motivation in pursuing academic interests in special education can be attributed to the leadership of Dr. Joseph Eisenbach. In addition, the interest and encouragement that my parents, Garrett and Clara Boersma, have shown at critical points of my educational career have provided a strong impetus to complete this task.

Garrett Boersma Jr.
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CHAPTER I
INTRODUCTION

The education of all children is a legislated dictum, if not an existent actuality. No longer is it permissible to view education as a privilege to be bestowed upon deserving children and young people. Current federal (PL 94-142) and Michigan State law (PA 198) mandate a free public education for all children and young people regardless of handicapping conditions. Educators must now select from a plethora of materials and strategies those approaches that will result in significant educational gains for the students they serve. There exists, then, a need for empirical evidence supporting the efficacy of theory based educational practices applicable to a generic student body.

This research investigated the influence of an experimental videotaped advance organizer on the learning and retention of English grammar by emotionally disturbed adolescents. The advance organizer was designed according to criteria derived from subsumption learning theory (Ausubel, 1963) to enhance the learning of meaningful verbal material. The research was designed to answer the following question: Are advance organizers effective in structuring the learning situation to maximize the learning of English grammar by emotionally impaired adolescents?
Rationale

In 1975 the United States Office of Education estimated that 2% of the school-aged population were emotionally disturbed. Of this handicapped population 82% were receiving inadequate services or no services at all (Hewett & Furness, 1977, p. 78). To comply with the spirit as well as the letter of the law, it is necessary to investigate various theoretical constructs and operationalize those instructional techniques that may result in cognitive gains for emotionally disturbed students.

Currently there is disagreement among educators over the intellectual potential of emotionally impaired (E.I.) students as a group as well as the level of their academic achievement. The findings of Morse, Cutler, and Fink (1964) that E.I. students, in general, have higher IQ scores than regular education students are at variance with the findings of other investigators who report a greater frequency of lower IQ scores (Graubard, 1964; Motto & Lathan, 1966; Motto & Wilkens, 1968). There seems to be a disproportionate number of disturbed children testing within the dull normal range of intelligence. Since there is a high positive correlation between IQ and academic achievement, one could predict a greater frequency of academic failure for this population on the basis of IQ alone.

Tamkin (1960) found that emotional problems could not be construed as a cause of educational disability since only one-third of the emotionally disturbed sample had accompanying educational disabilities. Stone and Rowley (1964) replicated Tamkin's study with a
larger sample (N = 116 vs. N = 34) and found the majority of E.I. students to be academically deficient. This finding was supported by Bower (1969), Kotting and Brozovich (1969), Motto and Lathan (1966), and Motto and Wilkens (1968). Thus the literature seems to substantiate the general existence of depressed academic performance among disturbed children.

Literature also seems to indicate that the relationship between academic performance and behavior disorders exhibited by E.I. students is a reciprocal one. In the past, studies have been carried out with the strategy of having teachers modify overt behavior in the hope of improving performance on academic tasks (Hewett, Taylor, & Artuso, 1968; Rubin, Simson, & Betwee, 1966). It has been suggested that direct modification of academic performance will effectively eliminate certain classroom behavior problems (Glavin, Quay, & Werry, 1971).

Academic learning is often the result of a well organized approach to classroom instruction. Haring and Phillips (1962) carried out an extensive experiment assessing the impact of the highly structured classroom upon the behavior and achievement of E.I. youngsters. After 2 years in such a program the E.I. students were "functioning better at home and had significantly higher school progress than previously attained" (p. 80). Hoffman (1974) reported that E.I. students exposed to a highly structured program adapted better to grade level expectations upon re-entry to the regular classroom than E.I. students in a less structured program. Several other studies reported similar gains when instruction is provided in structured settings (Gallagher, 1972; Haubrich & Shores, 1976; Hewett, 1968).
The structure imposed in these settings manifested itself as attempts to arrange the learning environment in such a way as to minimize the potential for behavior problems and provide optimal learning conditions. Structure included such variables as classroom environment, scheduling, reinforcement techniques, prescriptive academic programs, and the sequencing of curricular materials. Learning theories in general, and behavior modification techniques in particular, were translated into teaching procedures and implemented in the academic environment (Kauffman, 1977).

Kauffman (1977) reported that E.I., as well as learning disabled and mentally retarded students, exhibit the following characteristics: hyperactivity, distractibility, and impulsivity. The combination of these characteristics results in difficulties with selective attention. Relevant stimuli are not discerned from irrelevant stimuli. Difficulties in developing learning processes as well as difficulties in acquiring knowledge of specific subject matter are apparent in these children. These learning difficulties, coupled with behavior disorders, make it paramount for the teacher to structure the total learning environment in such a way that the student can acquire skills in learning how to learn as well as mastering academic material.

Structure can be provided by the optimal arrangement of the sequence of instruction. Ausubel and Robinson (1969, p. 115) theorize that the sequence of instruction should be initiated by the instructor explicitly pointing out the relationship between what is to be learned to what has been learned. Such an introduction, called an advance organizer, would link relevant existing ideas to new concepts.
Ausubel and Robinson (1969) postulate that there is a tendency toward the hierarchical organization of new information. The more inclusive ideas are at the apex, and will be remembered the longest. Progressively less inclusive ideas are linked to each other in a hierarchical fashion. Less inclusive ideas tend to blend together, become indistinguishable from the most inclusive idea, and are obliterated from the memory (Ausubel & Robinson, 1969, p. 112). A major factor in the memory process is the strength of the initial anchoring idea under which new concepts will be subsumed. When novel material is presented, and students cannot relate it to previously learned concepts, it becomes paramount that the teacher provide an advance organizer in the form of an anchoring idea under which new information can be hierarchically arranged.

Advance organizers appear to provide a technique for structuring the presentation of academic material in such a way that the student is provided with an initial overview of the material to be learned so that relevant bits of information can be identified and internally structured in a manner that has meaning to the student. It is hoped that external cues concerning the subsumption of data to existing concepts can be faded with the results that the student will structure new learning experiences on his own.

This structuring of the sequence of instruction and the providing of appropriate advance organizers are posited as educational strategies that will enable emotionally disturbed students to key on relevant aspects of novel material, arrange the material mentally, and recall it later. Advance organizers have the potential for negating
inappropriate learning behaviors by cueing the student to form a broad mental picture of what is to come.

To research the efficacy of advance organizers in such a way that the results could be generalized to other classroom settings, it was necessary that a realistic unit of material be presented to the subjects. The topic of English grammar was chosen for this research for several reasons:

1. English grammar is typically a requisite part of high school curricula, and therefore would have relevance to the students.

2. The logical and sequential nature of the subject matter makes it possible to isolate certain facets of English grammar and arrange them as packaged lessons.

3. Adolescent students generally are not familiar with the more technical aspects of English grammar, therefore, the effects of prior learning will be minimized.

4. It is possible to speculate that gains in the knowledge of English grammar could increase the linguistic options available for self-expression. Such gains would intrinsically have scholastic as well as therapeutic value.

Hypotheses

The general hypotheses addressed by this study are as follows:

1. The presentation of a videotaped organizer prior to a lesson on verbal phrases or principal parts of verbs will enhance the student's ability to answer factual questions concerning the material presented and apply the concepts learned to novel situations.
Rationale: There is evidence that advance organizers facilitate the learning and retention of meaningful verbal material (Ausubel, 1960; Ausubel & Fitzgerald, 1961, 1962).

2. Advance organizers presented prior to lessons on verbal phrases and principal parts of verbs will have a greater positive effect on students with a poor background in this material than on students with a good background in this material.

Rationale: While not consistent, there seems to be evidence that advance organizers are of greater help to students with a poor background in the material to be learned (Allen, 1970; Ausubel & Fitzgerald, 1961).

3. Advance organizers presented prior to lessons on verbal phrases and principal parts of verbs will have a greater positive effect on the student's ability to apply these forms to novel situations than on the student's ability to recall factual information pertaining to these forms.

Rationale: Investigation of the influence of advance organizers on various levels of the cognitive domain is lacking in the literature. Allen's (1970) study is an exception. He found no significant facilitative effects in one domain as opposed to another. Barnes and Clawson (1975) recommend that further research be done in this area.

4. Students taught with advance organizers will retain their skills of applying these concepts to novel situations and recalling factual information pertaining to these concepts longer than students taught without them.
Rationale: There is evidence in the literature that subjects exposed to advance organizers prior to a lesson retain the information from the lesson longer than students not exposed to an advance organizer (Ausubel & Fitzgerald, 1961). It is felt that only after a long time interval will the natural retention loss be sufficiently great to provide evidence that the organizer had a facilitating influence.

Theoretical and Operational Definitions

According to Ausubel (1963, p. 81), an advance organizer is simply an outline of the novel ideas presented at a high level of generality and abstraction. There are two kinds of organizers, expository and comparative. An expository organizer is used in relating new material to whatever relevant knowledge exists in the learner's cognitive structure. A comparative organizer is used when presenting a concept which is similar to one already learned. This type of organizer points out explicitly the similarities and differences between the two concepts (Ausubel & Robinson, 1969, p. 146).

This study is concerned with the facilitative effects of an expository advance organizer. The intent of such an organizer is to provide ideational anchorage when concepts not related to previously learned material are presented (Ausubel, 1963). For example, children may be instructed that the primary center of growth in plants is at the end of the stems. This statement is an advance organizer. Subsequent instruction may lead them to observe the size of the leaves, length of the internodes, and the general contrast between the
morphology of stems near the ends in contrast to the lower region (Novak, Ring, & Tamir, 1971).

Despite Ausubel's (1978) assertions to the contrary, advance organizers are not clearly operationally defined in the literature. This state of affairs has resulted in the proliferation of varying kinds of advance organizers, not all of which adhere to some basic criteria. An advance organizer in this study was operationally defined as a 5 minute videotape introduction presented prior to a lesson on English grammar and possessing the following characteristics:

1. Promoting later subsumption.
2. Establishing a non-arbitrary relationship with the new knowledge.
3. Presenting introductory material at a higher level of abstractness, generality, and inclusiveness than the lesson.
4. Excluding material that might enhance posttest performance.

Other definitions relevant to this study are as follows:

Emotionally impaired adolescent--an adolescent who has exhibited maladaptive social and/or emotional behaviors to such an extent as to warrant admission as an inpatient at a private residential mental health facility following the recommendation of a psychiatrist or clinical psychologist.

English grammar--the study of classes of words and their various constructions, especially as this pertains to their functions and relations in sentences. The specific classes of words under study were nouns, verbs, and adjectives. The constructions under study were participles, infinitives, and gerunds.
CHAPTER II

REVIEW OF THE LITERATURE

The intent of this review of the literature is four fold:

1. To document the difficulties in learning experienced by emotionally impaired students.
2. To communicate the main tenets of subsumption theory.
3. To provide empirical evidence documenting the efficacy of presenting instructional material in a manner consistent with this theory.
4. To relate the theoretical suppositions to the unique needs of emotionally disturbed adolescents.

This information is intended to provide a historical and theoretical perspective for the present study.

The psychological literature is replete with studies comparing the learning abilities of normal and educationally retarded children. Such comparisons, however, have been mainly within the rather restricted range of paired associate, discrimination and serial learning (Stevenson & Zigler, 1961). Faw and Waller (1976) report that the rise of behaviorism was accompanied by a suppression of interest in the cognitive processes. Difficulties in the ability to generalize the results of associative learning research to the classroom setting provided the impetus for the more recent emphasis on cognitive learning. The great increase in professional journal articles dealing with learning from prose seems to substantiate this
renewed interest in cognitive processes (Frase, 1973). It is thought that Ausubel's (1963) work on meaningful verbal learning is one of the major reasons for this current trend (Faw & Waller, 1976).

Ausubel (1963) argued that the type of learning typical in the classroom was qualitatively different from learning as studied in the laboratory i.e., associative learning. He proposed the direct study of meaningful verbal learning. Ausubel's (1963) subsumption theory of learning, with its emphasis on the cognitive structure of the student, forced educators to consider two factors: (a) the importance of the organization of the material to be presented, and (b) the primal importance of what the student brought to the learning situation (Faw & Waller, 1976).

Learning Characteristics of Emotionally Impaired Children

In reviewing the literature on emotionally impaired (E.I.) children, Campbell, Douglas, and Morgenstern (1971) report that a number of researchers offer the following descriptions of E.I. children: distractibility, low frustration tolerance, short attention span, inability to sit still, and school failure. Swift and Spivack (1969) identified the following behaviors which distinguished low achievers from high achievers at the secondary school level: unethical behavior, defiant-resistive, heterosexual interest, hyperactive-expansive, poor emotional control, dependency, schizoid withdrawal, bizarre speech and cognition and bizarre actions. While these descriptions indicate the more global aspects of the behavior of E.I.
children, it is necessary to take a closer look at behaviors exhibited during a structured learning situation.

In studies where the performance of E.I. students and normal students was compared, the following is reported:

1. E.I. students are more impulsive on measures of cognitive tempo (Epstein, Hallahan, & Kauffman, 1975; Keogh & Donlon, 1972).

2. E.I. students are more distractible, less attentive, and more physically active (Campbell, Douglas, & Morgenstern, 1971; Hallahan, Kauffman, & Ball, 1973).

3. E.I. children are more dependent on the background of a stimulus that is presented than on the distinguishing characteristics of the stimulus (Campbell, Douglas, & Morgenstern, 1971; Keogh, 1973).

4. E.I. children are less able to ignore intrusive information (Campbell, Douglas, & Morgenstern, 1971).

In analyzing the performance of E.I. children on subtests of the Wechsler Intelligence Scale for Children, Keogh, Wetter, McGinty, and Donlon (1973) found that the lowest scores occurred on attention-concentration items.

As indicated in Chapter I of this study, E.I. children frequently have lower than normal IQ's and often experience academic difficulties. Whether the behaviors exhibited by these children result in academic failure or whether academic failure results in inappropriate behavior is a moot point. It may be said with some certainty, however, that E.I. children are easily distracted from academic tasks and have difficulty attending to relevant stimuli.
Subsumption Theory

Subsumption theory uses the hypothetical construct of cognitive structures as a mechanism for explaining meaningful verbal learning and retention. Ausubel (1963) defines cognitive structures as, "an individual's organization, stability, and clarity of knowledge in a particular subject matter field at any given time" (p. 26). The particular model of cognitive organization that the theory proposes is characterized by conceptual traces hierarchically arranged in descending order of inclusiveness, generality, and abstraction. Within the context of subsumption theory, "trace" refers to a residual of initial learning and not to any speculative neurological entity. Traces are a hypothetical construct used to account for the continuing representation of past experience in the nervous system and in present cognitive structure (Ausubel, 1963, p. 24).

Cognitive structure refers to the hierarchical arrangements of ideas relating to a specific subject area. The basic organizational principle of cognitive structure, then, is progressive differentiation of conceptual traces from systems of greater to lesser inclusiveness. Less inclusive systems are linked to higher order systems through the process of subsumption. That is, less general ideas are subsumed under more inclusive ideas higher in the structure.

Cognitive structure may be seen, therefore, as an ideational scaffolding that makes possible the reception of new material and the emergence of new meaning (Ausubel & Fitzgerald, 1962). Meaningful learning takes place when new propositions are subsumed under existing
systems in cognitive structure. Existing cognitive structure is the major factor affecting meaningful learning and retention (Ausubel, 1963, p. 25). Therefore, the properties of the individual's cognitive structure determine both the validity and clarity of the meanings that emerge as he is exposed to new material.

If cognitive structure is clear, stable, and suitably organized, accurate and unambiguous meanings emerge and tend to retain their dissociability strength or availability. If, on the other hand, cognitive structure is unstable, ambiguous, disorganized, or chaotically organized, it tends to inhibit meaningful learning and retention. Thus it is largely by strengthening relevant aspects of cognitive structure that new learning and retention can be facilitated. (Ausubel, 1963, p. 26)

There are three aspects of cognitive structure that must be intact for meaningful reception learning to take place. The first is the availability of relevant subsuming concepts that are appropriately inclusive. If these are not present in the learner, the teacher may introduce appropriate subsumers and make them part of the student's cognitive structure prior to the presentation of the learning task. The introduced subsumers become advance organizers for the reception of new material (Ausubel, 1963, p. 81).

Another aspect of the cognitive structure that is critical to meaningful learning is the degree to which concepts existing in cognitive structure are discriminable from the features of the new learning material. If the uniqueness of the new material is not perceived, all
that would be remembered would be the original concept and not the
distinguishing features of the new material (Ausubel, 1963, p. 29).
Highlighting the similarities and differences between the new material
and its subsumer, coupled with repeated presentation, would enhance
discriminability.

The third variable of importance is the stability of subsumers
used in initial learning. If unstable concepts are used in initial
learning, not only will acquisition of new material be difficult, but
retention will be jeopardized (Ausubel, 1963, p. 29). Practice and/or
repetition can act to increase the stability of appropriate subsumers.

Ausubel (1963) claims that, over time, the subsumption process
that is the basis for learning provides the basis for later forget-
ting. He refers to this paradoxical development as "obliterative
subsumption" (p. 26). In effect, Ausubel (1963) theorizes that the
discriminatory aspects of new material become incorporated into the
central subsumer under which it was originally categorized. The
result is that distinguishing aspects of learning material become
obliterated, over time, and all that can be recalled is the general
subsumer. This phenomenon may be counteracted to some extent by
increasing the "dissociability strength" (Ausubel, 1963, p. 26) of a
proposition from its subsumer. This is traditionally accomplished
through practice, repetition, the use of examples and multi-contextual
presentations. Ausubel (1963, p. 26) breaks with this tradition, how-
ever, and advocates the manipulation of the existing cognitive struc-
ture in ways that maximize learning and retention. This strategy
involves the use of introductory materials prior to the presentation

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of the actual learning task. These introductory materials are referred to as advance organizers (Ausubel, 1963, p. 29).

Ausubel (1964) explains the function of the advance organizer as, providing ideational scaffolding for the stable incorporation and retention of the more detailed and differentiated material that follows in the learning passage, as well as to increase discriminability between the latter and related interfering concepts in cognitive structure. (p. 316)

In other words, the organizer is not just a mediator between existing cognitive structure and material to be learned. More precisely, expository organizers become part of the cognitive structure so that more detailed information can be subsumed. Comparative advance organizers enhance the distinguishing characteristics of the new material so that it can be discriminated from other concepts in the cognitive structure that may interfere with the learning of the new material. In the case of completely unfamiliar material, an expository advance organizer is used to provide relevant subsumers. These organizers must be presented in terms already familiar to the learner. In the case of relatively familiar material, a comparative organizer is used both to integrate new concepts with similar concepts that exist in the cognitive structure, as well as to highlight the differences between new and existing ideas (Ausubel, 1964).

The difference between advance organizers and overviews (Ausubel, 1963, p. 214; Ausubel & Robinson, 1969) is not definitively explained. Overviews are written at the same level of abstraction and generality as the learning materials and accomplish their effects through
repetition and selective emphasis on key words. Organizers are written at a higher level of abstraction and generality and provide relevant subsuming concepts. This fine distinction becomes blurred when Ausubel (1968, p. 157) advocates the use of comparative advance organizers to explicitly point out in what ways previously learned ideas are similar to or different from new ideas to be learned. The distinction between advance organizers and overviews becomes critical in experiments with advance organizers in which the control group is presented with an overview of the material to be learned.

Ausubel's (1963) particular theory of learning was developed to explain how the learner processes meaningful verbal information as it is presented within the classroom setting. He theorizes that whatever prior knowledge is brought by the student to the learning situation is structured in a hierarchical fashion. The most inclusive ideas are at the top of this structure. The least inclusive ideas are at the bottom. New ideas presented in the learning situation are filed under existing more inclusive ideas. If there are no existing inclusive ideas available, the teacher should present them prior to the lesson in the form of advance organizers. The presentation of these advance organizers will allow for the subsumption of novel concepts and assure that new concepts will be distinguished from prior knowledge.

In summary, Ausubel's (1963) theory of meaningful learning has at its base three assumptions:

1. The most important factors influencing learning is the quality, clarity, and organization of the learner's present knowledge. This present knowledge, which consists of the
facts, concepts, propositions, theories, and raw perceptual data that the learner has available to him at any point in time, is referred to as his cognitive structure. (Ausubel & Robinson, 1969, p. 51)

2. The material to be learned must be potentially meaningful to the learner. That is, it must be able to be related in some sensible fashion to the cognitive structure of the learner. (Ausubel, 1963, p. 22)

3. The learner must actually attempt to relate, in some sensible way, the new ideas to those which he presently possesses. (Ausubel & Robinson, 1969, p. 46)

Empirical Evidence Relating to the Subsumption Theory of Learning

Ausubel's experiments proceed from the assumption that cognitive structure is hierarchically organized in terms of highly inclusive concepts under which are subsumed less inclusive subconcepts and informational data (Ausubel, Robbins, & Blake, 1957). There is no empirical evidence substantiating Ausubel's (1963) subsumption theory of learning in its entirety. After reviewing the literature investigating various aspects of this theory, Lawton and Wanska (1977) conclude that Ausubel's theory is inherently logical.

Superordinate concepts always subsume related subordinate concepts. Therefore, it is impossible to disprove the existence of the single crucial cognitive variable in the theory—that is, stable, clear, hierarchically organized
subject matter knowledge. (p. 239)

The facilitative effects of prior learning were originally studied by Ausubel, Robbins, and Blake in 1957. Their findings indicated that the presentation of similar material prior to a lesson enhanced the learning and retention of the lesson material by elementary students. Ausubel (1960) attempted to isolate the introductory material that best facilitated subsequent learning. He concluded that the deliberate introduction of subsuming concepts (an advance organizer) prior to the learning of unfamiliar academic material would enhance learning and retention. The introductory passage took the form of an expository advance organizer. It was read by a group of college students prior to a lesson on metallurgy. A control group received an introductory passage designed to heighten interest without providing subsuming ideas. A retention test was given 3 days later. It was found that the experimental group did significantly better than the control group. These findings provided support to the theory that advance organizers affect the cognitive structure of the learner by calling upon existing subsuming concepts under which the new material could be subsumed and/or providing an initial ideational anchor for the new material.

Ausubel and Fitzgerald (1961) followed a similar format in investigating the facilitative affects of comparative advance organizers. This type of organizer was designed to enhance the discriminability of similar material i.e., Buddhism and Christianity. Students presented with the comparative organizers received higher scores than the control group. But, only those students with a poor background
knowledge of Christianity did significantly better than the controls. This seems to indicate that advance organizers are more helpful for those students who are not capable of forming their own subsuming concepts. This finding was not corroborated by Ausubel and Fitzgerald (1962). In an experiment measuring the facilitative effects of an expository advance organizer in a lesson on endocrinology, Ausubel and Fitzgerald found that the organizer enabled students with better background knowledge of the material to put this knowledge to use in structuring the unfamiliar material. Also in this experiment, it was found that the mean retention scores for the experimental and control groups were not significantly different. The difference in retention scores for students with poor verbal ability were more nearly significant than those scores for students with better verbal ability. As a result of these findings Ausubel and Fitzgerald (1962) caution that advance organizers must be presented in terms of concepts that are already familiar to the learner. They add that the more unfamiliar and esoteric the material, the more difficult it becomes to do this.

The role of cognitive structure in the learning and retention of controversial material was studied by Fitzgerald and Ausubel (1963). They presented a group of high school students from Illinois with Northern and Southern interpretations of the causes of the Civil War. The experimental group received an advance organizer and, subsequently, scored higher than the controls on a retention test. Students with a better background knowledge did better on the retention test than those students with more limited background information. The lack of cognitive structure was judged to contribute more to forgetting than

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interference from affective factors. In summarizing the above studies a case can be made in support of the following aspects of the subsumption theory of learning:

1. Prior learning facilitates subsequent learning.

2. This facilitation is the result of changes in cognitive structure that allow for the subsumption of subsequent material.

3. Changes in cognitive structure can be brought about by the purposeful introduction of advance organizers.

4. The introduction of advance organizers improves retention.

5. Advance organizers facilitate the learning of students with poor verbal skills.

At present it is uncertain whether advance organizers are more effective with students who have a good background knowledge of material to be learned or students with poor background knowledge.

The results of studies in which an experimental group receives an advance organizer and a control group does not may be deceptive, especially if control subjects spontaneously generate their own organizers. The fact that this indeed occurred is reported in a number of studies involving elementary and high school students (Christie & Schumacher, 1976; Dooling & Lachman, 1971; Schumacher, Liebert, & Fass, 1975). Factors influencing the spontaneous generation of organizers were age (Christie & Schumacher, 1976) and ability (Dooling & Lachman, 1971; Schumacher, Liebert, & Fass, 1975). Older and more able students were more adept at this skill. The students who generated their own organizers were found to do better on retention tests (Schumacher, Liebert, & Fass, 1975) presumably because they were
forced to interact more with the material.

Support for the idea that advance organizers facilitate the learning of students with poor verbal ability was found by Allen (1970). He found that advance organizers affected students of different ability levels in different ways. Advance organizers helped students with poor verbal skills learn specific facts. Students with good verbal skills had the learning of general concepts facilitated through the presentation of advance organizers.

Lawton (1977a; 1977b; 1977c) combines Ausubelian and Piagetian theory in studying how advance organizers can facilitate the acquisition of high level concepts and logical operations in 6 and 10 year old children. Lawton (1977a; 1977b) used advance organizers in testing whether hierarchically organized concepts and propositions might enhance children's language use. He found an improvement in the use of "because" resulting from a meaningful understanding of high-order concepts and propositions presented in lessons preceded by advance organizers. This seems to indicate that exposure to advance organizers results in changes to the cognitive structure.

Lawton (1977c) found that the prior learning of social studies concepts and hierarchical classification facilitated transfer of learning to subsequent related subject matter and process concepts, thus supporting the findings of Ausubel (1963) and Ausubel, Robbins, and Blake (1957) that prior learning facilitates subsequent learning.

Researchers who support the importance of context to retention have lent support to the facilitative effects of advance organizers. Advance organizers have been presented as topic sentences that provide
superordinate context cues. Students exposed to these cues did significantly better on tests of retention than students without them (Bransford & Johnson, 1972; Gagné, 1969; Gagné & Wiegand, 1970; Rickerts, 1975).

It would be misleading to infer from the above studies that the literature is unanimous in reporting the facilitative effects of advance organizers. Studies by Barron, 1971; Livingston, 1970; Lucas, 1972; and Woodward, 1966, found little or no support for the theory in experiments with normal secondary school students. Rather than tabulate an array of researchers for and against advance organizers, it might be more profitable to consider the recommendations made in major surveys of the literature.

After reviewing the literature on advance organizers and pointing out the deficiencies in certain studies, Faw and Waller (1976) make the following observations:

1. Realistic control groups which establish essential comparison levels are indispensable.

2. Information pertaining to the amount of time available to the student for study should be reported for both the experimental and the control group.

3. Every effort should be made to keep materials, instructions, and experimental conditions as realistic as possible.

4. Long term studies assessing the continued use of advance organizers are needed.

Ausubel never operationally defines an advance organizer, therefore, there is a great deal of disparity regarding what one looks like.
The imprecise nature of the organizers, coupled with the methodological deficiencies present in many studies, e.g., lack of control groups, inequity of study time for treatment groups, nonrandom assignment to treatment groups, and invalid advance organizers, account for a confusing body of information relating to the efficacy of advance organizers. Barnes and Clawson (1975) analyzed 32 studies of advance organizers and concluded that advance organizers do not facilitate learning. Novak, Ring, and Tamir (1971) cautiously give support to Ausubel's (1963) theory after reviewing 156 studies. Their caution is the result of the methodological deficiencies found in many of the studies. Lawton and Wanska (1977) took exception to the findings of Barnes and Clawson (1975). They felt that there was no support for the findings that advance organizers did not facilitate learning.

Barnes and Clawson (1975) made several recommendations for further studies, including emphasizing the need for operationally defined advance organizers. The following recommendations are especially relevant to this research:

1. Studies should be conducted in a variety of subject areas that are within the construct of prose learning.

2. Studies using a wide variety of nonwritten advance organizers should be conducted.

3. Studies should be conducted to determine the facilitative effects of advance organizers on learning at all levels of the cognitive domain.
Summary of Literature Review

The subsumption theory of learning is based on one major tenant, that is, that new information is subsumed by the existing cognitive structure of the learner. The more stable, clear, and organized that cognitive structure is the easier new information may be learned and the less susceptible it is to forgetting. Ausubel (1963) proposes the use of advance organizers to provide the appropriate anchor for new information and/or to call up existing cognitive structure that may subsume new information.

This theory of learning has led to a large body of literature that, in most cases, seems to support Ausubel's (1963) theory. Prior learning has been shown to facilitate subsequent learning. Context cues do seem to enhance retention. It is in the area of the purposeful introduction of advance organizers that the literature gives less than unanimous support. Some researchers think students learn more when they generate their own organizers. Others feel that advance organizers help the poor student. Still others find no benefit in advance organizers. The fact that an operational definition of an advance organizer is rare in the literature is a further complication. It becomes impossible to judge the efficacy of something that appears in the literature in so many forms and has its characteristics so poorly defined. The imprecise nature of advance organizers in the literature, coupled with the methodological deficiencies that appear in many of the studies, highlight the need for well defined and procedurally correct experiments with advance organizers in a variety of
Special education provides a possible academic setting for further research on the efficacy of advance organizers. Federal and state laws mandate the education of E.I. students. This population's behavioral, intellectual, and academic deficits must be considered when implementing educational strategies. Several behaviors exhibited by E.I. students which interfere with the learning process are reported in the literature: responding impulsively and, therefore, making frequent errors; not attending to important aspects of the lesson; an inability to distinguish the "figure" from the "ground" of the lesson; and an inability to ignore irrelevant information. This pattern of behavior, coupled with depressed IQ scores, frequently results in academic failure.

The possibility seems to exist then for operationalizing subsumption theory within a special education classroom for the purpose of ameliorating the learning difficulties of E.I. students. An advance organizer presented prior to the lesson could provide students with a broad clue as to what was to come. In effect, the advance organizer would be much more than a clue; it would alter the cognitive structure of the learner and provide the framework for organizing new concepts. This accomplished, the E.I. student could better attend to relevant stimuli, differentiate the "figure" from the "ground," and ignore irrelevant stimuli.
Current Study

This study represents an attempt to employ a videotaped advance organizer in the teaching of English grammar to emotionally impaired adolescents. It is an attempt to ascertain whether a unique introduction will facilitate the learning of traditional academic material by a population that typically has depressed academic skills.

Implicit in the subsumption theory of learning is the need for highly structured materials and procedures. The material to be learned must be progressively differentiated. That is, the most general and inclusive ideas of the discipline are presented first and are then progressively differentiated in terms of detail and specificity (Ausubel, 1964). New material must be related to existing knowledge and significant similarities and differences between ideas must be pointed out (Ausubel, 1964). The implementation of such a teaching approach would certainly allow the teacher to provide some of the structure that emotionally impaired children need to alleviate their academic deficits.

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CHAPTER III

METHOD AND PROCEDURE

Method

Subjects

The subjects employed consisted of 46 residents of a private mental hospital. Twenty-eight of these inpatients were females and 18 were males. The mean age of the subjects was 16 years, with a range from 13 years 10 months to 19 years 6 months. While results of formal intelligence tests were not available, the admitting psychiatrists reported that all but two of the patients were of average to above average intelligence. The two exceptions were both diagnosed as having schizoid personalities which made an accurate assessment of intelligence impossible. Subjects were selected on the basis of their assignment to one of eight regularly scheduled English classes. These English classes included students from the 10th, 11th, and 12th grades.

The patients had been referred to this hospital by any or all of the following: their parents, the courts, social agencies, and family physicians. Prior to admission these patients had exhibited a variety of maladaptive behaviors i.e., substance abuse, suicide attempts, conflicts with authority figures, sexual acting out, or extreme withdrawal.

The average length of stay at this hospital is 6 months. During that time patients are involved in a therapeutic milieu that includes
a regular high school program, social activities, individual therapy, group therapy, and family therapy.

Table 1 presents a breakdown of the subjects by initial diagnoses. As can be seen from the table, the first three categories comprise the bulk of the sample (n = 23, 63%). Included in these groups were the more typical adolescent behavior problems of drug dependency, low self-esteem, and anti-social behavior. The category of Personality Disorder included three individuals who were schizophrenic, two individuals who had hysterical personality disorders, and two individuals who had anti-social personalities. The last three categories included individuals who exhibit neurotic behavior due to depression or anxiety, and individuals who could become quite disruptive and were diagnosed as having explosive character disorders.

Table 1

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressive Reaction of Adolescence</td>
<td>12</td>
<td>26</td>
</tr>
<tr>
<td>Adjustment Reaction of Adolescence</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Unsocialized Aggressive Reaction of Adolescence</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Personality Disorder</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Depressive Neurosis</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Anxiety Neurosis</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Explosive Character Disorder</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Totals</td>
<td>46</td>
<td>100</td>
</tr>
</tbody>
</table>

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Materials

It was necessary to develop four units of instruction prior to initiating the study. The topic of English grammar was chosen for this research for several reasons:

1. English grammar is typically a requisite part of high school curricula, and therefore would have relevance to the students.

2. The logical and sequential nature of the subject matter makes it possible to isolate certain facets of English grammar and arrange them as packaged lessons.

3. Adolescent students generally are not familiar with the more technical aspects of English grammar, therefore, the effects of prior learning will be minimized.

4. It is possible to speculate that gains in the knowledge of English grammar could increase the linguistic options available for self-expression. Such gains would intrinsically have scholastic as well as therapeutic value.

The four lessons on English grammar (Appendix A) included the following topics: principal parts of a verb, participle phrases, gerund phrases, and infinitive phrases. These lessons were prepared as pamphlets to be read by the students while listening to a tape recording of the same material. In this way, it was possible to partially control for differences in reading ability, and to ensure that students proceeded through the lessons at an equal pace.

These lessons were loosely based on material from an eighth grade composition book (Stegner, Saver, Rummel, & Hach, 1964). The
concepts of principal parts of a verb and verbal phrases were sequentially developed in individual lessons. Interspersed within the factual information were numerous examples illustrating the application of these concepts. Exercises calling for the recall of factual information, as well as for the application of these concepts to novel situations, followed each lesson.

Objectives for these lessons were written to address two areas of the cognitive domain i.e., knowledge and application. Bloom, Englehart, Furst, Hill, and Krathwohl (1956) have developed a taxonomy of behavioral objectives and, although they do not behaviorally define categories of the cognitive domain, it is possible to determine from their examples what kinds of behaviors students must exhibit in meeting the various kinds of objectives. Bloom et al. (1956) indicate that knowledge objectives require the student to reproduce a response in the same form as it was presented to him. The student states specific facts, rules, or definitions. In meeting application objectives the student must solve problems that differ from ones he has seen before.

In order to assess the extent to which these objectives had been met, it was necessary to develop an instrument. This instrument was a series of four quizzes to be administered following the presentation of each lesson (Appendix B). Each quiz consisted of 20 items, 10 knowledge items and 10 application items. Knowledge skills were assessed by means of multiple choice responses. Application skills were assessed by items that required the student to combine two sentences into one by means of a verbal phrase. Total time allotted
for the lesson and quiz was 45 minutes.

To measure background knowledge of principal parts of a verb or verbal phrases it was necessary to develop a pretest to be administered the week prior to the presentation of the first lesson. This same test was administered during the week following the fourth lesson to determine what gains were achieved by individual students. The pre/posttest consisted of 40 items, 5 assessing knowledge skills and 5 assessing application skills on each of the four lessons. All items required a written response by the student.

To judge the content validity (VanDalen, 1966, p. 313) of the 80 quiz items and the 40 pre/posttest items, a panel of three English teachers were asked to indicate whether each of the 120 items pertained to either principal parts of verbs, participle phrases, gerund phrases, or infinitive phrases. At the same time the judges were asked to indicate whether each test item related to knowledge or application skills. The panel of judges achieved 93% agreement in assigning each of the 120 items to the above two categories.

To determine if there was the possibility of a ceiling or basal effect, the pre/posttest was field tested on a population of 27 normal ninth grade students. The possibility of a basal or ceiling effect was discounted after the field test population achieved a mean of 13.33 correct answers with a standard deviation of 6.17.

The four lessons were field tested on a population of normal junior high students (n = 78). The purpose of the field testing was to seek answers to the following questions:
1. Is 45 minutes a realistic time limit for completing the reading of the lesson, doing the exercises, and answering the quiz items?

2. Are the directions for the lessons, exercises, and quizzes understandable?

3. Is the format of the lesson pamphlets unambiguous?

After field testing the lessons on a number of classrooms of various ability levels, it was determined that the average time for completing a lesson was 25 minutes. The field tested lesson pamphlets included a statement of objectives that were to be met for each lesson. Subsequent review of the literature indicated that awareness of objectives functioned as an advance organizer, thus contaminating the effects of the videotape advance organizer. Therefore, lessons used with the experimental and control populations included no lists of objectives.

The field tested population made several favorable comments concerning the facilitative effects of hearing the tape recording of the lessons while reading the lessons. Not all comments were favorable, however. Students were critical of the format of the pamphlets. They found it difficult to know which questions were exercises that could be done by looking back in the lesson, and which questions were quiz items which had to be completed without looking back. As a result, the pamphlets were redesigned.

The field testing also yielded information concerning the tendency for students to respond to application items in an inappropriate manner. Students simply wrote in a single word verbal, instead of
completely rewriting two sentences as one with the use of a verbal phrase. As a result, the directions for the quiz were reworded. The field testing also indicated some inconsistencies in the text of the lessons. These were subsequently corrected.

Once the behavioral objectives had been established, lessons had been written to meet these objectives, and instruments had been designed to assess the mastery of these objectives, it was necessary to construct advance organizers for each of the four lessons. Given the fact that the literature characterizes emotionally impaired students as hyperactive, impulsive, and distractible (Kauffman, 1977), it was felt that the advance organizers should be presented through two sensory modalities to insure optimal acquisition of subsumers. Loveless, Brebner, and Hamilton (1970) found that bisensory presentations yield higher rates of detection of detail than unimodality presentations. Levie and Dickie (1973) report that when presenting verbal material to a group, it is best to use audiovisual techniques since some learners are more proficient auditorily and others are more proficient visually. With this in mind, videotapes were developed in which the students were presented the concepts to be learned in an informal, abstract, general, and inclusive way. The introductory presentations of these concepts were designed to relate to the lessons in a non-threatening non-arbitrary manner. The videotaping of the advance organizers assured a standardized presentation to the experimental subjects. The video component of the presentation augmented the audio component with the introduction of concrete examples, both as physical props and chalkboard examples. Care was
taken to insure that materials relating directly to the lesson were not included in the organizer.

It was methodologically important to provide a control (non-organizing) introduction for the control group in order that any obtained differences in retention outcomes between the experimental and control groups be attributed to the organizing properties of the experimental introduction rather than its presence per se, i.e., the Hawthorne effect. The non-organizing introduction or placebo, was in fact an advance organizer, but not for the material in these lessons. The two placebos were advance organizers for lessons on semantics and word structure, topics related to English but unrelated to verbal phrases. The fact that they were advance organizers insured that their format would be similar to the organizers designed for the lessons.

These placebos were used to train a group of three judges (one professor of special education, two special education doctoral students) in identifying advance organizers. The characteristics of abstractness, generality, and inclusiveness were identified as defining attributes. The function of providing an ideational anchor was also identified as a defining characteristic. Advance organizers were not to provide direct information that would enhance posttest performance.

After training the judges in identifying these characteristics in the placebos, the judges were requested to answer yes or no to the following questions relating to each of the four advance organizers used in the lessons:
1. Is this advance organizer sufficiently abstract?
2. Is this advance organizer sufficiently general?
3. Is this advance organizer sufficiently inclusive?
4. Does this advance organizer provide an ideational anchor?
5. Does this advance organizer provide material that is so direct that it would improve posttest performance?

The judges were in agreement on 59 of the 60 responses (98%) indicating that the introductory videotape presentations did indeed meet the criteria for advance organizers.

Design

A counter-balanced design (Campbell & Stanley, 1963) was employed in this study. Eight intact English classes were presented four English grammar lessons in randomized order. The eight classes were randomly assigned to a control group or an experimental group for the first lesson. These assignments were reversed for lesson 2, returned to the original configuration in lesson 3, and reversed again in lesson 4. A pretest and posttest was administered to all groups. Table 2 depicts the research design.

Selection of a research design necessitates consideration of the extent to which factors jeopardizing internal and external validity of the study are controlled. Internal validity is required for the effects of treatment to be determined. Without internal validity the research is uninterpretable in that the observed results may be attributed to factors other than treatment. External validity refers to the extent to which the results of an investigation can be
generalized.

Table 2
Research Design

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Treatment&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>X₁ X₂ X₃ X₄ Y Posttest</td>
</tr>
<tr>
<td>1</td>
<td>A B</td>
</tr>
<tr>
<td>2</td>
<td>B A</td>
</tr>
<tr>
<td>3</td>
<td>A B</td>
</tr>
<tr>
<td>4</td>
<td>B A</td>
</tr>
</tbody>
</table>

<sup>a</sup>Treatment designation:

X₁ = first advance organizer  A = English classes meeting periods 2, 3, 4, and 6.
X₂ = second advance organizer  B = English classes meeting periods 1, 5, 7, and 8.
X₃ = third advance organizer
X₄ = fourth advance organizer
Y = placebo

Factors which may result in lack of internal validity have been identified by Campbell and Stanley (1963). These consist of the following: history, maturation, testing, instrumentation, regression, selection, mortality, and the interaction of these factors. History refers to events occurring in the environment at the same time that the experimental variable is being tested which may, in addition to the treatment, affect the results. Maturation refers to the process of change that takes place within those persons who are participating...
in the experiment. This change may influence the results. Testing refers to the effects of taking a pretest on the subsequent posttest performance of individuals. Instrumentation refers to changes that occur in the measurement or observation procedures during an experiment. Regression is the phenomenon which operates to move both higher and lower scores toward the mean score regardless of treatment. Selection refers to factors which may be present in selecting subjects that result in biased or non-representative selection. Differential loss of subjects from the samples constitutes mortality. There may also be an interaction between these various factors which can reduce internal validity.

Campbell and Stanley (1963) also indicate sources of external invalidity. These consist of: the reactive or interactive effects of testing, the interaction effects of selection bias and the experimental variable, reactive effects of experimental arrangements, and multiple treatment interference which is likely to occur whenever multiple treatments are applied to the same respondents, because the effects of prior treatments are not usually erasable.

The counter-balanced design rotates out differences between subjects, i.e., superior intelligence, and hence attains a kind of group equation (VanDalen, 1966, p. 280). Since all treatments are administered to all groups, the results obtained for each treatment cannot be attributed to history, maturation, testing, instrumentation, regression, selection, or mortality. Further, since all groups receive all treatments and the occasion of that treatment is randomly assigned, it is unlikely that an interaction of group and occasion
would imitate a main effect of the treatment (Campbell & Stanley, 1963).

There are two major weaknesses in the design. First, there are systematic selection factors involved in dealing with intact classes. These factors can be expected to have main effects and to interact with history, maturation, and practice effects thus contaminating the effects of the treatment. A second weakness is that, although the lessons were presented in randomized order, the effect of an exposure to one lesson may carry over and be combined with the effect of the next lesson, thus making the findings generalizable only to studies in which the lessons were presented in an identical order. The external validity of the study could be improved by frequent replications in which the lessons were presented in all possible sequences. However, it was felt that the advantages inherent in a design that permitted subjects to function as their own controls were of sufficient magnitude to justify the use of the counter-balanced design.

Procedure

Eight intact English classes, consisting of an average of six emotionally disturbed adolescents, were randomly assigned to either a control or experimental group. A pretest assessing background knowledge of the material was administered to all subjects 1 week prior to the implementation of treatment. The investigator had frequently worked with these patients as a psychiatric aide prior to this experiment, thus partially controlling for investigator variable. Four lessons on various functions of verbs were presented over a 2-week period.
Two lessons were presented each week. The counter-balanced design necessitated the rotating of control and experimental groups with each new lesson. The experimental group was exposed to an advance organizer prior to the lesson. The control group was exposed to a placebo. During the week following the fourth lesson, a posttest was administered to all subjects.

In order to test the second hypothesis it was necessary to divide the subjects into two groups in terms of background knowledge of English grammar. Pretest performance (n = 46, \( \bar{X} = 5.6 \), s.d. = 3.3) was used to group students into either a high or low background knowledge category. The mean score was rounded to 6, and it was used to dichotomize the population. Those with a pretest score of 6 or above (n = 18) were assigned to the High group. Those scoring 5 or below (n = 28) were assigned to the Low group.

Treatment

The four presentations on English grammar were as follows: a lesson on the principal parts of verbs, a lesson on participles, a lesson on gerunds, and a lesson on infinitives. The principal parts of a verb are the first person singular of the present indicative, the first person singular of the past indicative, and the past participle. Through the use of these parts tense is established. A participle is a verbal which has some of the properties of a verb and some of the properties of an adjective. It is used, like an adjective, to modify a noun or pronoun; and it may, like a verb, take an object. The gerund is a verbal noun ending in ing. The gerund may, like any
verb, take an object. It may be modified by an adjective or adverb. The gerund is the name of an action. The infinitive is the form of the verb usually introduced by the word to. The infinitive may function as a noun, adjective, or adverb.

The English lessons were presented by the experimenter to all subjects during their regularly scheduled English class and in the normal classroom. For the experimental groups, each lesson began with the presentation of a 5-minute videotaped advance organizer. Following the videotape, a copy of the text of the lesson was distributed to each student. A tape recording of the text was played as the students read the material. Comments or replies to questions by the experimenter were kept to a minimum. Following the reading of the text, the students were requested to do the exercises at the end of the lesson. Students were reminded that they could look back in the lesson to answer these questions. After completing the exercises students were told to turn to the quiz and answer all questions without reference to the text. It was necessary for the experimenter to circulate among the students to insure that they were working on the correct page, not looking back in the text, and not sharing answers. Upon completion of the quiz, the pamphlets were returned to the experimenter. These procedures were followed for the control groups as well, with the exception being that the control group received a videotape placebo instead of an advance organizer.

Figure 1 presents a Program Evaluation and Review Technique (PERT) network depicting the procedures followed during each lesson. As can be determined from this figure, a typical lesson required 41
<table>
<thead>
<tr>
<th>Event</th>
<th>Event Description</th>
<th>Immediate Predecessor</th>
<th>Activity Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Start</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>Class enters</td>
<td>A</td>
<td>3 min.</td>
</tr>
<tr>
<td>C</td>
<td>Equipment set up</td>
<td>A</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>Teacher leaves</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>Tardy bell rings</td>
<td>B,C,D</td>
<td>0</td>
</tr>
<tr>
<td>F</td>
<td>Introductions made</td>
<td>E</td>
<td>1</td>
</tr>
<tr>
<td>G</td>
<td>Videotape presentation given</td>
<td>F</td>
<td>5</td>
</tr>
<tr>
<td>H</td>
<td>Pamphlets distributed</td>
<td>G</td>
<td>1</td>
</tr>
<tr>
<td>I</td>
<td>Tape recorded presentation given</td>
<td>H</td>
<td>10</td>
</tr>
<tr>
<td>J</td>
<td>Lessons read by students</td>
<td>H</td>
<td>10</td>
</tr>
<tr>
<td>K</td>
<td>Instructions completed for exercises</td>
<td>I,J</td>
<td>1</td>
</tr>
<tr>
<td>L</td>
<td>Students complete exercises</td>
<td>K</td>
<td>8</td>
</tr>
<tr>
<td>M</td>
<td>Instructor circulates</td>
<td>K</td>
<td>8</td>
</tr>
<tr>
<td>N</td>
<td>Instructions given for quiz</td>
<td>L,M</td>
<td>1</td>
</tr>
<tr>
<td>O</td>
<td>Quiz taken by students</td>
<td>N</td>
<td>10</td>
</tr>
<tr>
<td>P</td>
<td>Pamphlets handed in by students</td>
<td>O</td>
<td>1</td>
</tr>
<tr>
<td>Q</td>
<td>Class dismissed</td>
<td>P</td>
<td>1</td>
</tr>
<tr>
<td>R</td>
<td>Finish</td>
<td>Q</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 1. PERT network of lesson activities.

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minutes of class time. During this time students were actively involved or sitting quietly in their seats.
CHAPTER IV

RESULTS

This study addressed the effects of a videotaped advance organizer on the learning and retention of English grammar by emotionally disturbed adolescents. The subjects functioned as their own controls in a counter-balanced design in which four lessons were preceded by either an advance organizer or a placebo. Four types of comparisons were made: (a) a comparison of the performance of an experimental and a control group in responding to quiz items following lessons on English grammar; (b) a comparison of the effects of advance organizers on students with a good background knowledge in English grammar and students with poor background knowledge; (c) a comparison of students' performance on application questions with their performance on knowledge questions following lessons that had been preceded by advance organizers; and (d) a comparison of the long term application abilities with the long term recall abilities of students who had been exposed to an advance organizer prior to a lesson on English grammar.

Methods of Analysis

The design of the study and the nature of the resulting data necessitated utilization of two primary statistics: the $t$ test and the chi-square test.

For such statistics to be employed certain conditions and assumptions must be met. For the $t$ test to be employed: (a) the scores on
the dependent variable must be interval or ratio in nature; (b) the treatment groups must have been randomly selected from the population; (c) the variance for each of the treatment groups must be the same; (d) the distribution of scores on the criterion measures must be normal in the parent population; and (e) the observations must be independent of each other.

Both the pre/posttest scores and the individual lesson quizzes, which comprised the criterion measures, yielded scores that were interval in nature. In addition, homogeneity of variance in both of the criterion measures was assessed by the use of the F test (Winer, 1971). The results of these analyses showed that on both measures the assumption of homogeneity of variance was met (Appendix C).

Although it was not feasible to randomly assign individual students to experimental or control groups, it was possible to randomly designate intact classes as experimental or control groups. The counterbalanced design allowed for the rotation of these designations and, in addition, allowed these groups to function as their own controls.

It is not known whether the criterion scores for each variable were normally distributed within the population, but as indicated in Lindquist (1953) the t test is "amazingly insensitive to the form of the distribution of criterion measures in the parent population" (p. 81).

The chi-square test for two independent samples was used to analyze the distribution of high and low gain scores achieved by students with poor background knowledge in English grammar and students with a good background knowledge. Certain assumptions are associated
with this nonparametric statistical test, i.e., that observations are independent and that the variable under study has underlying continuity (Siegle, 1956). These assumptions were satisfied by the fact that the gain scores were on a continuum of equal intervals that could be dichotomized, and by the fact that all subjects were assigned to either a group which had a good background or a poor background in English grammar, on the basis of pretest scores.

Results of Analysis

There were four main hypotheses presented for study (see Chapter I). These hypotheses were stated in the null form for purposes of statistical testing. The .05 level of significance was utilized for all analyses. As Tuckman (1972) states: "When statistics are employed by behavioral scientists, the 5% level (i.e., p < .05) often is considered an acceptable level of confidence to reject the null hypothesis of equal means between the control and experimental groups" (p. 224). A more stringent level of significance is unwarranted because should the results prove to be statistically significant no great expense would be incurred in the practical application of the findings within special education classrooms. Furthermore, if the research indicates that advance organizers are a viable option for the special education teacher, then educationally significant results may be discarded (i.e., Type II error) if too stringent a level of significance is chosen. All results reported in this section were analyzed through the use of the Western Michigan University Computer program, STATPAK; and thus, it was possible to report exact probabilities.
Hypothesis 1

Emotionally impaired students receiving advanced organizers will not differ in knowledge and application of English grammar concepts from emotionally impaired students who do not receive advance organizers. A one tailed t test was used to determine if the mean quiz scores were significantly different for the group receiving an advance organizer and the group receiving a placebo, i.e., an unrelated advance organizer. This was done for each of the four lessons. The results of the analyses are presented in Tables 3, 4, 5, and 6.

Table 3
Analysis of Quiz Scores on Lesson 1 for Advance Organizer and Placebo Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
<th>t</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>20</td>
<td>14.80</td>
<td>2.53</td>
<td>.247</td>
<td>.4030</td>
</tr>
<tr>
<td>Placebo</td>
<td>18</td>
<td>15.00</td>
<td>2.45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There was no significant difference ($p > .05$) between the mean quiz scores for the two groups on Lesson 1.
Table 4
Analysis of Quiz Scores on Lesson 2 for Advance Organizer and Placebo Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
<th>$t$</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>20</td>
<td>7.60</td>
<td>4.56</td>
<td>.877</td>
<td>.1930</td>
</tr>
<tr>
<td>Placebo</td>
<td>21</td>
<td>9.05</td>
<td>5.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There was no significant difference ($p > .05$) between the mean quiz scores for the two groups on Lesson 2.

Table 5
Analysis of Quiz Scores on Lesson 3 for Advance Organizer and Placebo Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.E.</th>
<th>$t$</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>20</td>
<td>12.60</td>
<td>4.87</td>
<td>.518</td>
<td>.3040</td>
</tr>
<tr>
<td>Placebo</td>
<td>21</td>
<td>13.33</td>
<td>4.18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There was no significant difference ($p > .05$) between the mean scores for the two groups on Lesson 3.
Table 6
Analysis of Quiz Scores on Lesson 4 for Advance Organizer and Placebo Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>$\overline{X}$</th>
<th>S.D.</th>
<th>t</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>17</td>
<td>12.76</td>
<td>4.09</td>
<td>-1.14</td>
<td>.1310</td>
</tr>
<tr>
<td>Placebo</td>
<td>19</td>
<td>11.05</td>
<td>4.84</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

There was no significant difference ($p > .05$) between the mean scores for the two groups on Lesson 4.

The advance organizer groups did not score significantly higher than the placebo groups ($p > .05$) on any of the quizzes. Therefore, the hypothesis that the presentation of a videotaped organizer prior to a lesson on verbal phrases or principal parts of a verb will enhance the student's ability to answer factual questions concerning the material presented and apply the concepts to novel situations cannot be supported.

**Hypothesis 2**

There will be no significant difference between the distribution of gain scores of those students with a poor background knowledge of English grammar and those with a good background knowledge, who were exposed to an advance organizer prior to lessons on English grammar.

Pretest performance ($N = 46$, $\overline{X} = 5.6$, S.D. = 3.3) was used to group students into either a high or low background knowledge category. The mean score was rounded to 6, and it was used to dichotomize
the population. Those with a pretest score of 6 or above (n = 18) were assigned to the High group. Those scoring 5 or below (n = 28) were assigned to the Low group. The results of the chi-square analysis of the pretest to posttest performance of the two groups are presented in Table 7.

Table 7
Distribution of Gain Scores for Students Exposed to Advance Organizers

<table>
<thead>
<tr>
<th>Difference between pre and posttest scores</th>
<th>Improved</th>
<th>Stayed the same</th>
<th>Regressed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Background Knowledge</td>
<td>16</td>
<td>11</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>Low Background Knowledge</td>
<td>28</td>
<td>19</td>
<td>5</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>30</td>
<td>10</td>
<td>84</td>
</tr>
</tbody>
</table>

\( \chi^2 = .683, \text{ df = 2, } p > .05 \)

A chi-square test resulted in \( \chi^2 = .683 \) (df = 2) which indicates the observed distribution was not significantly different (\( p > .05 \)) from the expected distribution of scores. The hypothesis that advance organizers presented prior to lessons on verbal phrases and principal parts of verbs will have a greater positive effect on students with a poor background in this material than on students with a good background in this material cannot be supported.
Hypothesis 3

Hypothesis 3 was divided into 4 subhypotheses so that the results could be analyzed lesson by lesson.

Hypothesis 3-A. There will be no significant difference between the mean number of correct knowledge items and the correct number of application items obtained by students on a quiz following a lesson on principal parts of a verb, that had been preceded by an advance organizer. Since two measures for the same subjects compose the data, a one-tailed correlated $t$ test was used to determine if the mean application scores were significantly greater than the mean knowledge scores. The one-tailed test was chosen since, on the basis of prior research, directionality was hypothesized. The results of the analysis used to test this hypothesis are presented in Table 8.

Table 8
Analysis of Knowledge and Application
Scores on Lesson 1

<table>
<thead>
<tr>
<th>Scores</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
<th>$t$</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>20</td>
<td>6.6</td>
<td>1.76</td>
<td>4.21</td>
<td>.0002</td>
</tr>
<tr>
<td>Application</td>
<td>20</td>
<td>8.2</td>
<td>1.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean of the application scores was significantly higher ($p < .001$) than the mean of the knowledge scores on this lesson, thus null hypothesis 3-A is rejected. This finding supports the research hypothesis that advance organizers have

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greater positive effect on the student's ability to apply new concepts than on the student's ability to recall factual information pertaining to these concepts.

Hypothesis 3-B. There will be no significant difference between the mean number of correct knowledge items and application items obtained by students on a quiz following a lesson on participles, that had been introduced by an advance organizer. Again a one tailed correlated $t$ test was used to determine if the mean application scores were significantly greater than the mean knowledge scores. The results of the analysis used to test this hypothesis are presented in Table 9.

Table 9
Analysis of Knowledge and Application
Scores on Lesson 2

<table>
<thead>
<tr>
<th>Scores</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
<th>$t$</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>20</td>
<td>4.6</td>
<td>2.48</td>
<td>-1.50</td>
<td>.076</td>
</tr>
<tr>
<td>Application</td>
<td>20</td>
<td>3.5</td>
<td>3.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean of the scores were not significantly different ($p > .05$). There is no evidence to warrant the rejection of the null hypothesis.

Hypothesis 3-C. There will be no significant difference between the mean number of correct knowledge items and application items obtained by students on a quiz following a lesson on gerunds, that had
been preceded by an advance organizer. Again a one tailed correlated $t$ test was used to determine if the mean application scores were significantly greater than the mean knowledge scores. The results of the analysis used to test this hypothesis are presented in Table 10.

Table 10
Analysis of Knowledge and Application
Scores on Lesson 3

<table>
<thead>
<tr>
<th>Scores</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
<th>$t$</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>20</td>
<td>6.85</td>
<td>2.21</td>
<td>-1.80</td>
<td>.044</td>
</tr>
<tr>
<td>Application</td>
<td>20</td>
<td>5.75</td>
<td>3.28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean of the application scores was significantly higher ($p < .05$) than the mean of the knowledge scores on this lesson. Thus, null hypothesis 3-C is rejected. This finding supports the research hypothesis that advance organizers have a greater positive effect on the student's ability to apply new concepts than on the student's ability to recall factual information pertaining to these concepts.

**Hypothesis 3-D**. There will be no significant difference between the mean number of correct knowledge items and application items obtained by students on a quiz following a lesson on infinitives, that had been preceded by an advance organizer. A one tailed correlated $t$ test was used to determine if the mean application scores were significantly greater than the mean knowledge scores. The results
of this analysis are presented in Table 11.

### Table 11
Analysis of Knowledge and Application

Scores on Lesson 4

<table>
<thead>
<tr>
<th>Scores</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>S.D.</th>
<th>t</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>17</td>
<td>5.71</td>
<td>1.69</td>
<td>4.24</td>
<td>.0003</td>
</tr>
<tr>
<td>Application</td>
<td>17</td>
<td>7.65</td>
<td>1.69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean of the application scores was significantly higher ($p < .001$) than the mean of the knowledge scores, thus null hypothesis 3-D is rejected. This finding supports the research hypothesis that advance organizers have a greater positive effect on the student's ability to apply new concepts than on the student's ability to recall factual information pertaining to these concepts.

Overall, a consistent trend is indicated lending support to the hypothesis that advance organizers presented prior to lessons on verbal phrases and principal parts of verbs will have a greater positive effect on the student's ability to apply these forms to novel situations than on the student's ability to recall factual information pertaining to these forms.
Hypothesis 4

Hypothesis 4 was divided into 4 subhypotheses so that the results could be analyzed lesson by lesson. A one tailed $t$ test was used to determine if the mean posttest scores for each lesson were significantly different for the group that received advance organizers and the group that received a placebo.

**Hypothesis 4-A.** There will be no significant difference between the mean posttest scores on principal parts of verbs for the organizer and placebo groups. The analysis used to test this hypothesis is presented in Table 12.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>$X$</th>
<th>S.D.</th>
<th>$t$</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>20</td>
<td>4.25</td>
<td>1.55</td>
<td>.68</td>
<td>.250</td>
</tr>
<tr>
<td>Placebo</td>
<td>22</td>
<td>4.64</td>
<td>2.06</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean scores are not significantly different ($p > .05$). There is no evidence to support the rejection of the null hypothesis.

**Hypothesis 4-B.** There will be no significant difference between the mean posttest scores on participles for the organizer and placebo groups. The results of the analysis used to test this hypothesis are presented in Table 13.
Table 13
Analysis of Posttest Scores on Participles for Organizer and Placebo Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>X</th>
<th>S.D.</th>
<th>t</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>22</td>
<td>1.64</td>
<td>1.97</td>
<td>.65</td>
<td>.305</td>
</tr>
<tr>
<td>Placebo</td>
<td>20</td>
<td>2.05</td>
<td>2.11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean scores are not significantly different ($p > .05$). Thus, the null hypothesis was retained.

Hypothesis 4-C. There will be no significant difference between the mean posttest scores on gerunds for the organizer and placebo groups. The results of the analysis used to test this hypothesis are presented in Table 14.

Table 14
Analysis of Posttest Scores on Gerunds for Organizer and Placebo Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>X</th>
<th>S.D.</th>
<th>t</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>20</td>
<td>2.30</td>
<td>2.32</td>
<td>.83</td>
<td>.205</td>
</tr>
<tr>
<td>Placebo</td>
<td>22</td>
<td>2.86</td>
<td>2.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean scores are not significantly different ($p > .05$). There is no evidence to warrant the rejection of the null hypothesis.
Hypothesis 4-D. There will be no significant difference between the mean posttest scores on infinitives for the organizer and placebo groups. The results of the analysis used to test this hypothesis are presented in Table 15.

Table 15
Analysis of Posttest Scores on Infinitives
for Organizer and Placebo Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>X</th>
<th>S.D.</th>
<th>t</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Organizer</td>
<td>22</td>
<td>1.91</td>
<td>1.99</td>
<td>-.65</td>
<td>.259</td>
</tr>
<tr>
<td>Placebo</td>
<td>20</td>
<td>1.55</td>
<td>2.06</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the mean scores are not significantly different (p > .05). Therefore, the null hypothesis was supported. The advance organizer groups did not score significantly higher than the placebo groups (p > .05) on any of the sections of the posttest. Therefore, the hypothesis that students taught with advance organizers will retain their skills of applying these concepts to real situations and recalling factual information pertaining to these concepts longer than students taught without them cannot be supported.

Summary

Of the four main hypotheses stated in Chapter I, only one was even conditionally supported by the results. Subhypotheses 3-A, 3-C, and 3-D, wherein students who had received advance organizers scored
significantly higher ($p < .05$) on application items than on knowledge items, lent support to the third research hypothesis. Thus, the tendency of advance organizers to improve application skills, as opposed to recall skills, was indicated. However, the results indicate that the hypotheses relating to the overall facilitative effects of advance organizers could not be supported.
CHAPTER V

SUMMARY AND DISCUSSION

Prior research has documented the unique learning needs of emotionally impaired students. The literature has also addressed the effectiveness of advance organizers as part of a systematic sequencing of instructional material resulting in more successful learning of prose material. A definitive interpretation of this body of literature has been hampered by methodological deficiencies present in many of the studies as well as by the absence of an operational definition of an advance organizer.

Research was needed to investigate the idea that advance organizers facilitate learning. The applicability of advance organizers to a special education population required substantiation.

This study investigated the efficacy of the use of videotaped advance organizers in teaching English grammar to emotionally impaired adolescents. Of special concern was the effect of advance organizers on two kinds of learning, the influence of background knowledge on the effect of advance organizers, and the effect of advance organizers on long term retention of skills.

A pretest of each subject's knowledge of specific aspects of English grammar was given 1 week prior to treatment. The treatment consisted of the presentation of videotaped advance organizers prior to lessons on English grammar. The control group was presented with a placebo which consisted of a videotaped advance organizer unrelated
to the subsequent lesson. One week following the last lesson, a post-test was administered.

The hypotheses were tested by means of \( t \) tests and chi-square. The results indicated that there were no significant differences between the performance of the experimental and control groups on quizzes following each lesson. The distribution of gain scores made by students with a poor background in English and those with a good background was not significantly different from that which could have been expected. On three of the four lessons the treatment group did significantly better on application items than on knowledge items. There was no significant difference on posttest performance for the two groups.

Assumptions and Limitations

Inasmuch as the subjects were used as their own controls in the counter-balanced design implemented in this study, it was assumed that most of the effects jeopardizing internal validity were eliminated. However, certain systematic selection factors involved in the previous assignment of subjects to the existing groups may have contaminated the results. Some groups were more stable than others. Some subjects had been inpatients longer than others, as a result they had progressed further in therapy; and, therefore, were more amenable to participate in an educational experiment. Other groups were much less predictable and cooperative. The effects of treatment could conceivably have been distorted if a class had been uncooperative during lessons presented with advance organizers, and cooperative during
lessons presented with placebos. Twice during the course of the study a fire occurred on the ward the morning before school. Both times it occurred during the same configuration of experimental and control groups. Such traumatic events, occurring during this unit of instruction, were bound to influence the student's ability to concentrate and invest in academic lessons.

Since the same person presented all the lessons, it was assumed that the teacher variable was not a significant factor in the study. Furthermore, the videotaping of the advance organizers assured the uniformity of these presentations. The tape recording of the lessons also assured the students would receive the same information and progress at a predetermined rate. It was assumed that this multi-media exposure would have a positive effect on the learning of the material.

The pretest, though necessary for the testing of certain hypotheses, did present limitations on the interpretations of some of the results. By its very nature a pretest may function as an advance organizer for subsequent material, thus contaminating the effects of the treatment. It was assumed that these effects would be minimal in that both treatment and control groups were exposed to the pretest 1 week prior to any lesson; also, the counter-balanced design would negate any possible effect.

It was assumed that the attrition rate had negligible effects on the results of the study. Five individuals were discharged from the hospital during the course of the study. Class attendance was difficult to insure in this residential setting. Several factors could preclude school attendance e.g., visits, therapy, and discipline.
An average of seven students were absent from each lesson. On the average four were from the organizer group and three from the placebo group.

It was assumed that maturation (processes within the individual which are a function of time) had little effect on the study since the subjects functioned as their own controls. However, all subjects were involved in intensive therapy concurrent with attending school. Since by definition these students were emotionally disturbed, the day to day performance of any one of them could be a function of how things were progressing in therapy. Since all four lessons were given within a 2 week period, it appeared that the effects might be minimal. However, maturity and its effect on individuals and groups cannot be discounted as a factor in the final analysis.

The regression factor (the phenomenon which operates to move both higher and lower scores toward the mean) was not considered significant in the final analysis of the data since the students were not selected on the basis of high and low pretest scores. The effects of the tendency for the posttest scores of this handicapped population to approach the mean was controlled by limiting comparisons of scores to groups within this limited population.

The test and quiz instruments were assumed to be reliable and valid. Knowledge items were assessed through multiple choice questions. Application items required the student to write out sentences. Knowledge and application items were assumed to be equivalent even though responding to knowledge items required much less effort. It was also assumed that student learning could be adequately assessed
through the relatively small sampling of information (10 knowledge items and 10 application items per quiz). It was also assumed that a posttest given 1 week after the last lesson would provide a representative measure of long term gains.

Interpretation of the Results

An analysis of the literature related to the efficacy of the introduction of advance organizers indicates somewhat equivocal results. A clear interpretation of previous studies is difficult, however, in that many studies have methodological deficiencies and rarely was an advance organizer operationally defined. The main hypotheses in this study were designed to address issues emanating from these previous studies. The main hypotheses formulated for this study were examined and interpreted from the perspective of the predicted and actual results.

The first hypothesis stated that advance organizers would enhance the student's ability to answer factual questions and apply new concepts related to lesson material. The rationale for this hypothesis was based on Ausubel's (1960) and Ausubel and Fitzgerald's (1961, 1962) findings that advance organizers facilitate learning. Barnes and Clawson (1975) recommend that studies be made of the effect of advance organizers on different kinds of learning. Knowledge and application were the two kinds of learning addressed in this study. Tasks were designed to assess learning in these two areas of the cognitive domain based on the taxonomy of behavioral objectives developed by Bloom, Englehart, Furst, Hill, and Krathwohl (1956).
The results indicated that exposure to advance organizers did not result in significantly better performance on knowledge or application items than no such exposure. The following limitations discussed in the previous section may have affected the results: systematic selection factors, attrition, maturation, and sensitivity of the test instrument. The results indicate that the performance of the control and experimental group were not significantly different. One possible interpretation is that the material in the lesson was so sequential and systematic that all subjects were able to subsume the information equally well. The possibility of this occurring is reported in a number of studies involving elementary and high school students (Christie & Schumacher, 1976; Dooling & Lachman, 1971; Schumacher, Liebert, & Fass, 1975). Another possibility is that the principle of the progressive differentiation of internalized knowledge does not prevail or, that if it does, advance organizers do not facilitate this process.

The second hypothesis stated that advance organizers would have a greater facilitative effect on the learning of students with a poor background in the material to be learned than on students with a good background. The rationale for this hypothesis was found in Ausubel and Fitzgerald's (1961) and Allen's (1970) findings that students who were unable to form their own subsuming concepts benefited from exposure to advance organizers.

The results indicated that the proportion of students from these two groups (those with a poor background, those with a good background) who achieved posttest scores that were higher, the same, or
lower than their pretest scores was not significantly different from that which was to be expected. In other words, exposure to advance organizers did not result in students with a poor background knowledge doing any better than students with good background knowledge. Background knowledge may not have been as significant a factor as those previously discussed i.e., systematic selection factors, attrition, and maturation. Another possible interpretation of the results is that the informal, non-technical approach utilized in the advance organizers, coupled with the multi-media approach of the lessons canceled out the effects of background knowledge or verbal ability.

The third hypothesis stated that advance organizers will have a greater positive effect on the student's ability to apply concepts than on the student's ability to recall factual information. The dearth of studies concerned with the effect of advance organizers on various levels of the cognitive domain contributed to the rationale for this hypothesis. Also, intuitively Ausubel's (1963) theory of obliterative subsumption seems to support the idea that more general aspects of material to be learned i.e., applying concepts, will be retained longer than very specific aspects i.e., discrete facts.

The results indicated that a definite trend existed supporting this hypothesis. After lessons on principal parts, infinitives, and gerunds, the treatment group performed significantly better on application items than on knowledge items. The nature of the response required for knowledge and application items limits, to some extent, the interpretation of the results. Knowledge items required the students to choose among four possible answers. Application items
required the students to generate their own sentences.

One possible interpretation of the results is that the discrete facts embedded in the lesson were not adequately discriminated from the subsuming concepts introduced in the advance organizer and elaborated on in the lesson. The abstract, general, and inclusive nature of the advance organizer coupled with the examples provided in the lesson enabled students to relate application practices to their existing cognitive structure more readily than concrete, specific, exclusive data.

The fourth hypothesis stated that students taught with advance organizers will retain their knowledge and application skills longer than students taught without them. It is felt that only after an extended time interval will the natural retention loss be sufficiently great to provide evidence that the organizer had a facilitating influence.

The results indicated that there was no significant difference between those students taught with advance organizers and those students taught without them. The fact that the posttest was administered only 1 week after the last lesson is a definite limitation in the interpretation of the results. The relatively small sample of items on the posttest must also be considered in the interpretation of the results.

One possible interpretation of the results of this hypothesis is that the logical and sequential nature of lesson materials affected the long term gains of all the students indiscriminate of the control and experimental groupings. Subjects gained an average of five points
from pre to posttest. It appears that an interval greater than 1 week may be necessary for the negative effects of obliterateive subsumption to be differentiated from the facilitative effects of advance organizers.

Conclusions

Given the results of this study, a number of conclusions can be drawn:

1. No significant positive facilitative effects of advance organizers could be discerned. Advance organizers had no general effect on learning, as evidenced by these specific sample performances. The lack of a measurable positive effect of advance organizers may have been due to the systematic organization of the material to be learned, the multi-media mode of presentation, and a lack of sensitivity in the assessment instrument.

2. The background knowledge that a student brings to the learning situation appears not to be a significant factor in predicting the facilitative effects of advance organizers.

3. As predicted, advance organizers had a greater positive effect on application skills than on recall abilities.

4. Students taught with advance organizers did not retain their knowledge and application skills longer than students taught without them. Possibly, a time interval in excess of 1 week is necessary in order to detect any long term effects of advance organizers.

5. Advance organizers were not effective facilitators in teaching English grammar to emotionally impaired adolescents.

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Implications and Recommendations

The results indicated that videotaped advance organizers did not significantly affect the ability of emotionally disturbed adolescents to learn English grammar. Although gains made by students receiving advance organizers were not statistically significant, from an educational point of view, it appears that this kind of advance organizer may be an important component in a systematic program of instruction. The deficits in attending and concentration skills often exhibited by E.I. students may be remedied to some degree by exposure to videotaped advance organizers. The research did support the contention that advance organizers of this type resulted in gains made in applying concepts to be learned to novel situations.

The following are offered as considerations for future investigations into the efficacy of advance organizers in the teaching of handicapped students:

1. Research is needed to determine the effect of other types of nonwritten advance organizers. The use of manipulative materials in providing subsuming concepts should certainly be investigated. Video presentations should be examined as a possible means of providing comparative advance organizers.

2. The effect of advance organizers on areas of the cognitive domain other than knowledge and application should be studied.

3. A longitudinal study should be made to determine the long range effects of advance organizers on learning.
4. Research is needed on the feasibility of using advance organizers as part of a systematic program of instruction for students with a variety of handicapping conditions.

5. The effect of the attitudes, motivations, and expectations of E.I. students on their ability to relate new material to previously learned material should be investigated.


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Lawton, J. T. The development of causal and logical connectives in children. *British Journal of Educational Psychology, 1977, 47, 81-84.* (a)
Lawton, J. T. Effects of advance organizer lessons on children's use and understanding of the causal and logical 'because'. *Journal of Experimental Education*, 1977, 46, 41-46. (b)


Appendix A

Lessons on English Grammar
Lesson I
Principal Parts of a Verb

No sentence can be complete unless it contains a verb. The verb is the most important word in the sentence. It is a word that sparks a sentence and gives it life. Without a verb a sentence would be like an automobile without a motor or a light bulb without electricity. The other words in the sentence need a verb to give them direction and meaning.

Some verbs are used to express action such as carry, give, talk, eat, throw and grow.

Examples:
Mrs. Paul gave me a cracker.
I carry my books to school.
He grew angry at her suggestion.

Many times, more than one verb is needed to give a sentence a more exact meaning. Now let's read these sentences with additional words added and the verb changed slightly.

Examples:
Mrs. Paul will give me a cracker.
I have carried my books to school.
He had grown angry at her suggestion.

As you can see, gave, carry, and grew have changed spelling. In all three sentences additional verbs have been added. Such verbs added to the main verb are called helping verbs.

Two words often used as helpers are the verbs be and have and all their various forms. Notice how these words are used with main verbs in the following chart.
Since all actions that a verb expresses take place in time, one of the most important jobs of the verb is telling when something happened. Verbs are our chief means of knowing whether something happens now, at the present time; whether it happened before, in the past; or whether it will happen or continue to happen in the future. This time value of a verb is known as tense.

Verbs have four basic forms from which all tenses are made. These are called the Principal Parts of a verb. The names for these parts are: (1) present part, (2) present participle, (3) past part, (4) past participle. Here, in their four principal parts, are four verbs:

<table>
<thead>
<tr>
<th>main verb</th>
<th>helper made from be added</th>
<th>helper made from have added</th>
</tr>
</thead>
<tbody>
<tr>
<td>I complete</td>
<td>I am completing</td>
<td>I have completed</td>
</tr>
<tr>
<td>He runs</td>
<td>He is running</td>
<td>He has run</td>
</tr>
<tr>
<td>You talk</td>
<td>You are talking</td>
<td>You had talked</td>
</tr>
</tbody>
</table>

The job of these parts is to help make the tense of the verb. The first two parts of a verb are used to make all conditions of present time. Notice that the present part can act by itself to indicate present time, while the present participle requires the helpers am,
is, are.

Examples:
I hear the bell.
You wait here.
It crouches quietly.

I am hearing the bell.
You are waiting here.
It is crouching quietly.

The first two parts are also used to establish future time. To do this we use the helper will alone with the first part and with be when using the second part.

Examples:
I will wait.
She will hear.
I will be waiting.
She will be hearing.

Probably the most frequently used tense is the past tense. We can do a number of things to a verb to show past tense. For example:

(1) We can add d, ed, or t to the present part, as in heard, walk-walked, mean-meant.

(2) We can use the helpers was or were with the second principal part, as in, he was walking, they were playing.

(3) We can use the helpers have, has, or had with the fourth part, as in, I have seen you before, they had eaten lunch, he has been kind.

Summary:
Problems in establishing the time of a sentence can be reduced if we:

(1) use the correct helper

(2) use the correct part of the verb.

Things would be easy if all verbs formed their parts in the same way. Unfortunately, they don't. Some verbs follow no pattern in forming the past part and the past participle. Sometimes in making these parts the spelling of the original verb changes completely.
The best thing to do is to memorize the four parts. A help in remembering is to fit the parts of the verb into this pattern:

I ______ today.  
I am ______.  
Yesterday I ______.  
I have ______.

Example: I think today.  
I am thinking.  
Yesterday I thought.  
I have thought.

It would be wise to learn as many of the following verbs and their principal parts as you can:

<table>
<thead>
<tr>
<th>Present Part</th>
<th>Present Participle</th>
<th>Past Part</th>
<th>Past Participle</th>
</tr>
</thead>
<tbody>
<tr>
<td>do</td>
<td>doing</td>
<td>did</td>
<td>done</td>
</tr>
<tr>
<td>go</td>
<td>going</td>
<td>went</td>
<td>gone</td>
</tr>
<tr>
<td>blow</td>
<td>blowing</td>
<td>blew</td>
<td>blown</td>
</tr>
<tr>
<td>drink</td>
<td>drinking</td>
<td>drank</td>
<td>drunk</td>
</tr>
<tr>
<td>sink</td>
<td>sinking</td>
<td>sank</td>
<td>sunk</td>
</tr>
<tr>
<td>bring</td>
<td>bringing</td>
<td>brought</td>
<td>brought</td>
</tr>
<tr>
<td>ride</td>
<td>riding</td>
<td>rode</td>
<td>ridden</td>
</tr>
<tr>
<td>draw</td>
<td>drawing</td>
<td>drew</td>
<td>drawn</td>
</tr>
<tr>
<td>begin</td>
<td>beginning</td>
<td>began</td>
<td>begun</td>
</tr>
<tr>
<td>swing</td>
<td>swinging</td>
<td>swung</td>
<td>swung</td>
</tr>
</tbody>
</table>

Exercises - Refer to the lesson in answering the following questions in writing.

1. Which helpers go with what parts of a verb?

2. What is needed to make the tense or time of a sentence?

3. Underline the correct part of the verb that is in parenthesis in the next 10 sentences. You may look back in the lesson. Remember these clues: A. Decide what time you want to show, then pick the part that is needed to show that time, 
B. What helpers are already in the sentence? Pick the part that goes with that helper.

   a. I (did, done) my spelling before my arithmetic. Has Mac (did, done) all his homework?

   b. We have (went, gone) to every hockey game so far this winter. Why hasn't Ted (gone, went) with us?

   c. A strong wind had (blowed, blew, blown) for three days. Has a fuse (blew, blown)?
d. How many glasses of punch have you (drank, drunk)? The Smith twins (drunk, drank) all the orange soda before the party (began, begun).

e. Many ships have been (sank, sunk) off this part of the coast. Just last year a freighter (sank, sunk) in these waters. A famous artist has (drew, drawn) a picture of it.

f. He (drew, drawed) a picture of the wreck moments after the action had (began, begun).

g. By the time he was a man, Wild Bill had (ridden, rode) every kind of horse. He even (rode, rid) a mountain lion.

h. You have (brought, brung) many neat presents. We (brang, brought) some for you, too.

i. I (swung, swang) until I got dizzy.
Lesson I - Quiz

I. Circle the letter of the correct answer (may have to circle more than one answer).

1. What are the 4 parts of the verb bring?
   a. bring bringing brang brung
   b. bring bringing brought brung
   c. bring bringing brought brought
   d. bring bringing brung brought

2. What are the 4 parts of the verb do?
   a. do doing did done
   b. do doing done did
   c. do doing did did
   d. do doing done done

3. What 2 things must be remembered in making the tense of a verb?
   a. person and place
   b. correct part and the correct helper
   c. correct capitals and correct punctuation

4. What is tense?
   a. the time of the sentence
   b. the place of the sentence
   c. correct capitals and correct punctuation

5. What is the spark plug of the sentence?
   a. noun
   b. verb
   c. adjective

6. What helpers go with the past participle?
   a. am, is, are
   b. was, were
   c. have, has, had

7. What helpers go with the present participle?
   a. am, is, are
   b. was, were
   c. have, has, had

8. What jobs do the principal parts of a verb have in a sentence?
   a. help tell where things happen
   b. help tell when things happen
   c. help tell who did things
9. What are the 4 parts of the verb begin?
   a. begin beginning began began
   b. begin beginning began begun
   c. begin beginning begun begun
   d. begin beginning begun began

10. Which part(s) of a verb may be used to show past time?
    a. present part
    b. past part
    c. present participle
    d. past participle

II. Fill in the blank with the correct part of the verb that is in parenthesis.

   1. (do) The President ________ what he thought was right.
   2. (go) We should have ________ before the Browns left.
   3. (ride) You could have ________ with us.
   4. (begin) I believe that we are tardy, for our class has ________.
   5. (draw) The artist ________ my picture.
   6. (blow) The wind is ________ so hard that I can't hear you.
   7. (drink) We ________ our pop and left.
   8. (sink) Will this boat ________ if I pull this plug?
   9. (bring) I ________ my favorite book to class.
   10. (swing) He ________ at the baseball and missed.
Lesson II
Participle Phrases

Lesson I was concerned with verbs and their helpers. We learned that verbs show actions. Remember that we can change the time of a sentence by changing what part of the verb we use and by changing the helper we use with it. This lesson is about a way of using various parts of a verb to describe a person or an object.

In the following sentences:

The team was running down the field.
Jim had broken his arm before the game.

the underlined words are actions that happened in the past. They are VERBS. Somebody in the sentences did those actions.

In the following sentences:

The troops had to cross a running stream.
We had to drive over broken glass.

running and broken are not used as verbs. The persons in these sentences are not doing those things. Instead, running describes the stream, and broken describes the glass. Verbs used to describe things are called PARTICIPLES. Notice these examples of participles:

the smiling girl
a typed report
the finished paper
a stolen car

You see that participles end in ing or en or ed.

Participles are made from the second or fourth part of the verb. For example, the four parts of begin are: (1) begin, (2) beginning, (3) began, (4) begun. The second part is used as a participle in this sentence: The bell beginning the school day just rang. The
fourth part is used as a participle in this sentence: The work begun by Kennedy was finished by Johnson. In the first example, "beginning the school day" describes bell. In the second example, "begun by Kennedy" describes work. The underlined groups of words in the examples above are called PARTICIPLE PHRASES. Participle phrases are made up of the participle and the words that go with it.

Participle phrases are used to combine two separate sentences into one smooth sentence.

Examples: (the participle phrases are underlined)

sentence A The house was struck by lightning.
sentence B The reporter photographed the house.
A & B combined The reporter photographed the house struck by lightning.

sentence A The girl was frightened by his question.
sentence B She wondered what he meant.
A & B combined The girl, frightened by his question, wondered what he meant.

When combining two sentences through the use of a participle phrase, it is important to remember the following two things:

1. Keep the more important idea as a sentence; rewrite the less important idea as a phrase.

2. The phrase should be placed next to the word it describes.

If the participle or participle phrase is placed incorrectly, you end up with something like this:

The reporter, struck by lightning, photographed the house.

One final example is given illustrating how two sentences can be combined into one by changing the less important idea into a participle phrase.
Example:

sentence A I was telling her about the movie.
sentence B I forgot all my problems.
A & B combined Telling her about the movie, I forgot all my problems.

Exercises:

I. You may look back in the lesson to answer these questions in writing.

1. What is a participle?
2. What makes up a participle phrase?
3. How are participles different from verbs?
4. What parts of a verb are used to make participles?

II. Study the following pairs of sentences. Decide which sentence is less important. Then rewrite the two sentences as one, changing the less important idea to a participle phrase.

1. The jeep was damaged beyond repair.
   It was towed to the junk yard.

2. The doctor offered many a kind word and a quick smile.
   He walked down the hall.

3. Several men stood by.
   They offered advice to the unhappy driver.

4. He jumped up and down with joy.
   He cheered the team as it came off the field.

5. A carton was brought from the library.
   It was filled with books.
Lesson II - Quiz

I. Circle the letter of the correct answer (may have to circle more than one answer).

1. A participle is a ________.
   a. verb used to show action in the past
   b. verb used to describe something
   c. word that tells where something happened

2. What parts of the verb are used to make participles?
   a. first part
   b. second part
   c. third part
   d. fourth part

3. What makes up a participle phrase?
   a. the action verb and its helper
   b. the participle and the words that go with it
   c. the participle and the word it describes

4. What job can a participle phrase do?
   a. combine two separate sentences into one
   b. tell the time that something happened
   c. add more action to a sentence

5. Where should a participle phrase be placed?
   a. always at the front of the sentence
   b. it depends on the verb
   c. near the end, since it's less important
   d. next to the word it describes

6. When combining two sentences, which one should be made into a participle phrase?
   a. the more important one
   b. the less important one
   c. the one with the most words
   d. the one that describes the action

7. How are participles different from verbs?
   a. there are no differences
   b. verbs stand alone, participles need helpers
   c. verbs show action, participles describe
   d. participles show action, verbs describe

8. Participles
   a. always end in \textit{ing}
   b. never end in \textit{ing}
   c. sometimes end in \textit{ing}
   d. always end in \textit{en, d, or t}
9. Participles
   a. always have a subject
   b. sometimes describe the subject
   c. may act as the subject
   d. may act as the verb of the subject

10. When combining two sentences by using a participle phrase, the more important idea should be
    a. written so that it could be a sentence
    b. written first
    c. written as a participle phrase
    d. written in capital letters

II. Rewrite the following pairs of sentences as one sentence by changing one sentence into a participle phrase. You may not need to use all the words. You may add your own words.

1. There by the trash can sat a huge bear. The bear blinked in the harsh sunlight.

2. Edith swallowed her fear. Then she raised her hand.

3. All of the people volunteered to help. They were shocked by news of the disaster.

4. I read the book carefully. I marked the important passages.

5. The Army was no match for the Navy. It was weakened by the loss of its regular tackle.

6. The man was marking the shirts. He owns the laundry.

7. George answered the phone at once. He was hoping for a call.

8. The good news was welcome. It was brought by Jerry.

9. Jack didn't flinch. He held his pose perfectly.

10. Many wild creatures sleep in caves. The caves are hidden in the forests.
Lesson III  
Gerund Phrases  

Lesson II was about participles, or verbs that describe things. We learned that they were made from the second and fourth principal parts of a verb. Participles can be used to combine two sentences into one. This lesson is about another way of using the second part of the verb, the part that ends in **ing**.

Look at how the verb *wash* is used in the following sentences:

Fred is *washing* the windows.  
Fred hates *washing* the windows.

In the first sentence Fred is doing the action of washing the windows. In the second sentence Fred is talking about an activity that he dislikes.

Here’s another example:

*Playing* tennis is good exercise.  
*Joyce was playing* tennis.

In the first sentence the *activity* of playing tennis is commented on. In the second sentence the *action* of playing tennis has happened.

When a word shows action, it is a verb. When a word names an activity, it is a noun. "Playing" and "washing" may be either verbs or nouns. What they are depends on how they are used in a sentence. When verbs ending in **ing** name activities, they are nouns and are given the fancy name, gerunds. Gerunds are parts of a verb that name activities.

Gerunds are words that are made from the second principal part of a verb. Gerunds all end in **ing**. Every gerund names an activity.
Gerunds do NOT show action (verbs do) or describe things (participles do); gerunds just name activities.

Examples:

verb - He was selecting his favorite records.
participle - The man selecting the records is my brother.
gerund - Selecting records can take a long time.

Sometimes gerunds are used with other words to form phrases. These are called GERUND PHRASES. Gerund phrases are made up of the gerund and words related to it. These phrases can appear almost anywhere in the sentence.

Examples: (gerund phrases are underlined)

Diving into shallow water is risky.
No good driver would be guilty of driving through a red light.
Her job is cleaning the house every time her parents have a party.

A gerund phrase may be used in the same way other phrases are, that is, to add additional ideas to a sentence. Two sentences may be combined into one by expressing the idea of one sentence as a gerund phrase.

Examples:

sentence A Mary makes people laugh.
sentence B It was her one talent.
sentences A & B combined using a gerund phrase
        Making people laugh was Mary's one talent.

sentence A Nick is president of the club.
sentence B He enjoys this position.
sentences A & B combined using a gerund phrase
        Nick enjoys being president of the club.

sentence A You can pass the history test.
sentence B You can use my notes.
sentences A & B combined using a gerund phrase
        You can pass the history test by using my notes.
Remember: Gerunds are activities that are mentioned in sentences; they aren't the action of the sentence.

Exercises:

A. You may look back in the lesson to answer these questions in writing.
   1. Review what a gerund is, where a gerund comes from, and what part of speech a gerund is.
   2. How may gerunds be used in your writing?
   3. How are gerunds different from verbs?

B. Combine the following pairs of sentences, making one of them a gerund phrase.
   1. You can get the phone number. You must call the operator.
   2. Squirrels bury nuts and corn in the fall. This is how they can survive winters with heavy snows.
   3. For an hour we studied in the library. Then we went to a movie.
   4. His assignment was difficult. He had to conduct an experiment with butterflies.
   5. All the campers enjoyed the activities. Their favorite was tennis.
Lesson III - Quiz

I. Circle the letter of the correct answer.

1. What is a gerund?
   a. parts of verbs that describe things
   b. parts of verbs that name activities
   c. parts of verbs that show actions
   d. the fourth part of a verb

2. What part of speech is a gerund?
   a. preposition
   b. adverb
   c. noun
   d. interjection

3. What part of the verb is used to make a gerund?
   a. present part
   b. past part
   c. present participle
   d. past participle

4. What letters come at the end of gerunds?
   a. ed, n, t
   b. am
   c. has
   d. ing

5. What words make up a gerund phrase?
   a. the gerund and words that relate to it
   b. the gerund and the verb
   c. the gerund and words that end in ing
   d. the gerund and the action words

6. How are gerunds different from verbs?
   a. verbs describe things; gerunds show action
   b. verbs show tense; gerunds tell where
   c. verbs show action; gerunds name activities
   d. verbs never end in ing; gerunds always end in ing

7. How can gerunds be used in your writing?
   a. to show more action
   b. for combining two ideas into one sentence
   c. to describe people in more detail
   d. to make shorter sentences
8. Words that name activities are
   a. pronouns
   b. participles
   c. verbs
   d. gerunds

9. Gerunds may be
   a. part of a phrase
   b. part of a clause
   c. a sentence standing alone
   d. made up of subjects and verbs

10. Gerund phrases may appear
    a. at the beginning of a sentence
    b. in the middle of a sentence
    c. at the end of a sentence
    d. at any of the places mentioned above

II. Combine the following pairs of sentences, making one of them a
    gerund phrase (you do not have to use all the words).

1. I waited a long time. I found that tiresome.
2. Their working hours were shortened. This resulted in more spare time.
3. Joan likes to draw animals. It is one of her hobbies.
4. Sam's job was to paint the chairs. He found this difficult.
5. Karate may be an important skill to have. It may be used to protect yourself.
6. Mr. Frank sells children's toys. It is his occupation.
7. I like to swim in the ocean. It is good exercise.
8. Many people like to sail. It is a popular sport.
9. He acts in the school play. It is a form of relaxation for him.
10. It is difficult to study. There is too much noise.
Lesson IV

Infinitive Phrases

This is the last lesson on the uses of verbs and their principal parts. So far we have learned that verbs have four principal parts that can be used to show action, name activities, or describe things.

This lesson is about another use for the first principal part of the verb. The first part of the verb may be used to make an INFINITIVE. An infinitive is simply the word to plus the first principal part of the verb.

Examples:

\[
\begin{align*}
\text{to eat lunch} & \\
\text{to go home} & \\
\text{to play my guitar} & \\
\text{to look happy} & 
\end{align*}
\]

I wouldn't doubt that all of you have said, "I like sleeping in on Saturday." Perhaps you express the same idea another way, "I like to sleep in on Saturday." Both sentences say exactly the same thing. What differs is the means of expression. To sleep is an infinitive. In this sentence it names an activity that we all probably enjoy.

Infinitives may be used to name activities. When infinitives name activities, they are nouns.

Examples: (infinitive phrases are underlined)

\[
\begin{align*}
\text{To run a mile} & \text{ is hard work.} \\
\text{My girl friend, Mary, likes to dance.} & \\
\text{My goal is to get out of here.} & 
\end{align*}
\]

In all of the examples the infinitives answer the question "What?", for example, "What? is hard work," "Mary likes What?"; "My goal is What?" When infinitives answer the question what, they are acting...
as nouns.

Infinitives can also be used to describe things.

Examples:

I need new shoes to wear to church.
George left to call home.

To wear to church tells what kind of shoes I need. The infinitive here is describing the noun "shoes." To call home tells why George left. The infinitive in this sentence describes the verb "left."

Summary: Infinitives can be used to describe nouns or verbs, or to name activities.

Infinitives may stand alone, as in "To be or not to be, that is the question." Infinitives may be followed by words that relate directly to them, as in, "I want to see your new Honda." "To see your new Honda" is an INFINITIVE PHRASE. An infinitive phrase is made up of the infinitive plus the words related directly to it.

Infinitive phrases may name activities or describe nouns and verbs. To avoid confusion the infinitive phrase should be placed near the word that it is describing.

The infinitive phrase offers another way of combining the ideas of two sentences into one.

Examples: (infinitive phrases are underlined)

sentence A We are planning a carnival in February.
sentence B It will raise money for our class trip.
A & B combined We are planning a carnival in February to raise money for our class trip.

Sometimes, when combining a number of ideas, the word to is written in front of the first infinitive but not in front of every other infinitive in the list.
Examples:

Poor writing:  When I get home this weekend, I will see my friends. I will visit my sister. I will buy some new clothes.

Better writing:  When I get home this weekend, I plan to see my friends, visit my sister, and buy clothes.

The word to is not written in front of "visit" and "call," but it is understood to be there since it is written in front of "see," which was the first activity in the list.

Exercises:

A. Refer to the lesson in answering the following questions in writing.

1. What part of a verb is used to make an infinitive?

2. What word is used to make an infinitive?

3. What are the uses of an infinitive in a sentence?

4. What is included in an infinitive phrase?

5. How can infinitive phrases be used in your writing?

B. Combine the following pairs of sentences into one sentence by using an infinitive phrase.

1. They went to the movie theater. They saw "Saturday Night Fever."

2. Many people came to the party. They celebrated Bill's birthday.

3. The rider led the horse into the stable. He then brushed and fed him.

4. John put the medicine on the cut. It stopped the cut from bleeding.

5. Amy took her puppy to school. She showed it to her class.
Lesson IV - Quiz

I. Circle the letter of the best answer (may need to circle more than one answer).

1. What part of the verb is used to make the infinitive?
   a. present part
   b. present participle
   c. past part
   d. past participle

2. What is an infinitive made up of?
   a. the word to plus a noun
   b. the word to plus a verb
   c. the word to plus a word ending in ing
   d. the word in plus a verb

3. What does the infinitive do when it is a noun?
   a. it can't be a noun
   b. shows action
   c. describes a verb
   d. names an activity

4. What kinds of things can an infinitive describe?
   a. nouns
   b. verbs
   c. conjunctions
   d. interjections

5. What makes up an infinitive phrase?
   a. a subject and a verb
   b. a gerund plus related words
   c. an infinitive plus related words
   d. the past part of the verb plus words that go with it

6. How can infinitive phrases be used in your writing?
   a. combine two sentences into one
   b. combine two verbs into a compound verb
   c. show more action in a sentence
   d. make compound sentences

7. Where should an infinitive phrase be placed in a sentence?
   a. always by the verb
   b. at the beginning of the sentence for emphasis
   c. at the end of the sentence to summarize things
   d. near the word they describe
8. When may the word *to* be omitted in an infinitive?
   a. never
   b. when it is present in the first infinitive in a list of infinities, the other infinitives don't necessarily require it
   c. when it starts a sentence, since you should never start a sentence with *to*
   d. when it comes after the verb

9. Infinitives are:
   a. part of a verb acting either as a noun or a describer
   b. part of a verb acting as a noun
   c. part of a verb showing action
   d. part of a verb that describes things

10. An infinitive:
   a. usually ends in *ing*
   b. usually takes a helping verb
   c. only answers the question *what?*
   d. usually begins with *to*

II. Combine the sentences in each of the following groups into one sentence by using an infinitive phrase. You may not need to use all the words. You may add your own words.

1. Don't whisper in front of guests. It is bad manners.

2. Our neighbor shovels his own snow. In this way he saves money.

3. We shall bring our own food. This will keep expenses down.

4. When I leave, I will pack my bags. Then I will say good-bye. Then I will run to the car.

5. Mr. Smith read the book to the little boy. This kept the boy happy.

6. Larry hitchhiked to the highway. He loved watching the trucks.

7. She asked the postman for an airmail stamp. With the airmail stamp she could speed delivery of the letter.
8. He worked hard all his life. He achieved success.

9. He had one goal in life. He wanted riches and fame.

10. Getting along with people requires skill. You must consider their feelings.
Appendix B

Assessment Items for Measuring

Skills in English Grammar
Test on Verbals

1. What uses do principal parts of a verb have in a sentence?
2. What is a tense?
3. What two things must be remembered in making the tense of a verb?
4. What are the four parts of the verb "bring"?
5. What helpers go with the past participle of a verb?
6. What is a participle?
7. What makes up a participle phrase?
8. When combining two sentences, which one should be made into a participle phrase?
9. Where should a participle phrase be placed in a sentence?
10. How are participles different from verbs?
11. What is a gerund?
12. What part of a verb is used to make a gerund?
13. What letters come at the end of gerunds?
14. How can gerunds be used in your writing?
15. What part of speech is a gerund?
16. What part of the verb is used to make an infinitive?
17. What is an infinitive made up of?
18. When may the word to be omitted in an infinitive?
19. How can an infinitive phrase be used in your writing?
20. What does the infinitive do when it is a noun?

Rewrite the following pairs of sentences as one sentence by changing one sentence into a participle phrase. You may not need to use all the words. You may add your own words.

21. The animal jumped gracefully over the wall. The animal disappeared.
22. A carton was brought from the library. It was filled with books.

23. Baby bears stay in the den until spring. They are born during hibernation.

24. The jeep was damaged beyond repair. It was towed to the junk yard.

25. I walked across the campus. I saw many new faces.

Combine the following pairs of sentences, making one of them a gerund phrase (you do not have to use all of the words).

26. He acts in the school play. It is a form of relaxation for him.

27. Nancy has two hobbies. She likes to bake cakes, and she likes to make dolls.

28. It is easy for an Eskimo to build an igloo. He can do it in a few hours.

29. Squirrels bury nuts and corn in the fall. This is how they can survive winters with heavy snows.

30. We used to have a family custom. It was to pop corn on Sunday evening.

Combine the sentences in each of the following groups into one sentence by using an infinitive phrase. You may not need to use all the words. You may add your own words.

31. You may disagree with me. It is your privilege.

32. John wrote a friend. He inquired about a summer job.

33. The team set a high goal. It was winning the championship.

34. They went to the movie theater. They saw "Saturday Night Fever."

35. John put the medicine on the cut. It stopped the cut from bleeding.

Fill in the blank with the correct part of the verb that is in parenthesis.

36. (do) The wind ________ much damage.

37. (swing) She ________ at the golf ball and missed.

38. (drink) I can't believe you ________ all the juice.
39. (ride) The dog should have ______ in the baggage compartment.

40. (go) We should have _______ before the rain.
Appendix C

Results of $F$ Tests
### F Tests at .05 Confidence Level

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<tr>
<th>Hypothesis</th>
<th>F value</th>
<th>Degrees of Freedom</th>
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<td>4-D</td>
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</table>

**Note.** None of the above F values proved to be significant at the .05 confidence level.