



Differences in sight vocabulary achievement of dependent and independent first grade children taught by direct and indirect teaching methods
by Robert Daniel Lockett

A thesis submitted in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION
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Abstract:

The study was designed to determine if a difference existed in the mean gain sight vocabulary scores of low and high dependent and independent first grade boys and girls taught by a direct or an indirect teaching method. The purpose of the study was to conduct an experimental investigation of direct and indirect teaching methods in relationship to the context variables sex and dependent and independent personality types. Reading sight vocabulary was chosen as the criterion variable.

Seven research hypotheses were investigated. Three hypotheses were used to analyze mean gain scores of groups based on sex, personality type and teaching method. Hypotheses four, five and six addressed two-way interactions, and the seventh hypothesis considered three-way interactions.

Sex and independency groupings were found to be non-significant. The dependency grouping was significant. Research hypothesis number three addressed differences of first grade children's mean gain sight vocabulary scores based upon direct and indirect teaching methods. A significant F value was observed. A post hoc analysis revealed no significant differences between first grade children's scores based on direct and indirect teaching method. The significant F was accounted for by differences between the non-treatment group and the treatment groups. Investigations of two-way and three-way interactions were not significant.

It was found that regardless of teaching method, pupils profited from instruction. Both treatment groups achieved better results than the non-treatment group. Variations in teaching practices did not make a difference in group mean gain scores on sight vocabulary. The sex of the child and independency did not affect the level of outcome while dependency affected pupil learning of sight vocabulary words.

The investigator challenged the idea that a single preferred teaching method exists. Both direct and indirect teaching methods provided a setting in which children learned the desired outcome. Certain contextual factors which researchers and practitioners must accommodate are significant factors affecting pupil performance on dependent variables. Therefore, searching for generic teaching behaviors in different contexts recognizes the need to develop an environment in which children are taught in a variety of ways.

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AND INDEPENDENT FIRST GRADE CHILDREN TAUGHT
BY DIRECT AND INDIRECT TEACHING METHODS

by

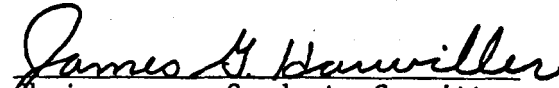
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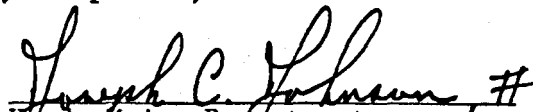
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Approved:


Chairperson, Graduate Committee


Head, Major Department


Graduate Dean

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ABSTRACT

The study was designed to determine if a difference existed in the mean gain sight vocabulary scores of low and high dependent and independent first grade boys and girls taught by a direct or an indirect teaching method. The purpose of the study was to conduct an experimental investigation of direct and indirect teaching methods in relationship to the context variables sex and dependent and independent personality types. Reading sight vocabulary was chosen as the criterion variable.

Seven research hypotheses were investigated. Three hypotheses were used to analyze mean gain scores of groups based on sex, personality type and teaching method. Hypotheses four, five and six addressed two-way interactions, and the seventh hypothesis considered three-way interactions.

Sex and independency groupings were found to be non-significant. The dependency grouping was significant. Research hypothesis number three addressed differences of first grade children's mean gain sight vocabulary scores based upon direct and indirect teaching methods. A significant F value was observed. A post hoc analysis revealed no significant differences between first grade children's scores based on direct and indirect teaching method. The significant F was accounted for by differences between the non-treatment group and the treatment groups. Investigations of two-way and three-way interactions were not significant.

It was found that regardless of teaching method, pupils profited from instruction. Both treatment groups achieved better results than the non-treatment group. Variations in teaching practices did not make a difference in group mean gain scores on sight vocabulary. The sex of the child and independency did not affect the level of outcome while dependency affected pupil learning of sight vocabulary words.

The investigator challenged the idea that a single preferred teaching method exists. Both direct and indirect teaching methods provided a setting in which children learned the desired outcome. Certain contextual factors which researchers and practitioners must accommodate are significant factors affecting pupil performance on dependent variables. Therefore, searching for generic teaching behaviors in different contexts recognizes the need to develop an environment in which children are taught in a variety of ways.

CHAPTER I

INTRODUCTION

As a teacher, a supervising principal of elementary schools and a graduate student, the investigator has long been intrigued, mystified and confused by the extent to which teacher behavior is a significant variable influencing learning in the classroom. Many writers have generalized that variations in teaching practices do not make significant differences (Gage, 1972). To the contrary, Bloom (1976) concluded that correlational studies supported by experimental evidence suggest that the quality of instruction is a causal link in determining learning and in accounting for educational achievement. A search of the literature on teacher effectiveness revealed many findings which supported a claimed relationship between specific teaching behaviors and desirable educational outcomes.

In a summary of research on classroom instruction, Rosenshine (1976) concluded that direct and indirect instructional models were the foci of this controversy. Whereas Flanders (1965) and others cited research advocating a general superiority of an indirect teaching method, Brophy and Evertson (1976) and others challenged their contention and claimed that for primary aged children a direct teaching method is superior to an indirect method.

Experimental studies were recommended by Gage (1972) and Dunkin and Biddle (1974) to provide solutions to such contradictions. Dunkin and Biddle (1974) proposed investigating independent variables associated with teachers in relation to context variables associated with pupils. Brophy and Evertson (1974) believed that a knowledge base establishing a relationship between specific teacher behaviors, specific situations and specific student outcomes was needed. According to Dunkin and Biddle (1974), only a handful of such experimental studies have appeared.

Numerous studies investigating the contextual factors of personality types in children were encountered in the literature. The effects of repeated applications of praise or blame on introverted and extroverted fifth grade children were investigated by Thompson and Hunnicutt (1944). They concluded that praise and blame should not be judged on an either/or basis but should be used to fit particular situations.

Whitehill and Jipson (1970) found extroverts work best in highly structured attention-focusing conditions while introverts were more successful in conditions that focus attention inwards to the task to be performed. They maintained that a reward or praise environment tended to focus attention outward.

A significant interaction was found between anxiety and task difficulty by Castaneda, Palermo and McCandess (1956). They

concluded that children identified as high anxious did not perform as well on difficult tasks, but that these same high anxious children performed in a superior manner on less difficult tasks.

The personality types compulsivity and anxiety were found to interact with teaching method in a study by Grimes and Allinsmith (1961). The investigators believed that implications of such findings suggests that for some children with certain personality types differences in teaching methods made a difference in pupil outcomes. Beller (1955) investigated the personality characteristics of dependency and independency of young children in the classroom. Instruments to measure these characteristics were developed by him. In a study investigating direct and indirect teaching methods on dependent-prone pupils, Amidon and Flanders (1961) concluded that dependent-prone personality type students learn more when taught by an indirect teaching method. Henderson, Long and Zellar (1965) reported retarded readers are characterized by a high degree of dependency. They claimed that dependency is disruptive to reading achievement. The nonintellectual correlates of reading, namely sex and various aspects of personality, have been researched (Harris, 1969). Although such studies generally found girls in the early grades achieve more in reading than boys, Harris was convinced that such findings are

nothing more than environmental factors. He did not believe that such issues have been clarified by research efforts. (Harris (1969: 1080) recommended:

Much more extensive research is needed to clarify the precise interaction of personality manifestations and the reading process to determine the extent to which intuitive clinical observations of these often intimate relationships may be extended to the general population.

A variety of methods to develop a reading vocabulary generally and a sight vocabulary specifically have been advocated in the literature. Most authorities generally agreed on the importance of developing a basic sight vocabulary in beginning reading. Progress in reading without developing a basic sight vocabulary was not viewed as possible (Tinker and McCullough, 1975). Dolch (1936) maintained that the pupil who recognizes his sight vocabulary of 220 service words possesses a basic word knowledge that would enable that pupil to attack most reading material and to be able to get some meaning from that reading matter. Fry (1960) found 63% of the vocabulary words used by children in the process of learning to read were contained within 300 basic words that children had come in contact with during the first three years of reading. He claimed that his data showed the need for effectively teaching a fundamental sight vocabulary so that children could instantly recognize and get meaning from these words. While studies have developed basic word lists, most recent

studies by Johnson (1971), Johns (1972), Durr (1973), Hillerich (1974) and Lowe and Follman (1974) did not discredit the present day usefulness of the Dolch list.

A major controversy existed over which method of teaching reading was better. Chall (1967) investigated methods of teaching beginning reading and concluded that a code-emphasis produced better results than a meaning-emphasis approach. She did recognize, however, that previous analyses by others of almost the same body of knowledge had provided different conclusions.

Bond and Dykstra (1967) argued that skill development in word learning is essential in beginning reading, and skills must be taught regardless of which reading method was employed. The authors suggested that a promising area for further research might be things which teachers and students do together, and the manner in which teachers and pupils interact. Their recommendation was compatible with Dunkin and Biddle's (1974) proposal for investigating independent variables associated with teachers in relation to context variables associated with pupils.

In summary, the purpose of this investigation was to conduct an experimental study in which teaching method was systematically manipulated, sex and dependent and independent personality type were identified and analyzed and reading sight vocabulary was utilized as the criterion of effectiveness.

Statement of the Problem

It was the intent of the investigation to determine if a relationship existed among teacher behaviors, a specific situation and a pupil outcome. The study was designed to determine if a difference existed in the mean gain sight vocabulary scores of low and high dependent and independent first grade boys and girls taught by a direct or an indirect teaching method.

Need For or Purpose of the Study

The purpose of this study was to conduct an experimental investigation of direct and indirect teaching methods. Dunkin and Biddle (1974) recommended differentiating between independent variables associated with teachers and context variables associated with pupils. The distinction made between the two variables by the authors was one of coping and accommodating: independent variables express strategies by which investigators and practitioners cope; and context variables concern conditions to which they must accommodate. It was claimed by the researchers that in the very few experimental designs which have incorporated pupil context variables, such research has proven to be effective. In this study the context variables investigated in relation to the independent variable were sex and dependent and independent personality types. Reading sight vocabulary was

chosen as the criterion variable because of the importance of acquiring a sight vocabulary in beginning reading.

According to Gage (1972), a need existed to conduct experimental research in education. Experimental research investigating independent variables in relation to context variables was needed in order to find solutions to existing contradictions (Dunkin and Biddle, 1974). Direct and indirect teaching methods were identified as the foci of a controversy on classroom instruction. Claims of superiority for each have been made. Questions concerning certain personality relationships to educational achievement have not been sufficiently clarified by research. Reading authorities have suggested investigating independent variables associated with teachers in relation to context variables associated with children. Even though there was a controversy as to which reading method produced better results, most authorities agreed on the importance of developing a basic sight vocabulary in beginning reading.

General Questions to be Answered

The study addressed seven general questions. The first three questions were posed in order to examine the main treatment effects. The remaining four questions pertained to interactions between and among the independent and context variables. These general questions were asked:

1. Is there a difference between first grade boy's and girl's mean gain sight vocabulary scores?
2. Is there a difference between first grade children's mean gain sight vocabulary scores when grouped by low-high dependent and low-high independent personality types?
3. Is there a difference between first grade children's mean gain sight vocabulary scores when taught by direct and indirect teaching methods?
4. Is there an interaction between sex and teaching method as determined by mean gain sight vocabulary scores?
5. Is there an interaction between sex and personality type as determined by mean gain sight vocabulary scores?
6. Is there an interaction between personality type and teaching method as determined by mean gain sight vocabulary scores?
7. Is there an interaction among sex, personality type and teaching method as determined by mean gain sight vocabulary scores?

Limitations and Delimitations

The following limitations and delimitations of the study were identified:

1. The review of literature was confined to an ERIC search, the library at Montana State University and the investigator's personal library.
2. The experimental treatments involved only four one-half hour lessons per group.
3. The lessons emphasized only twenty selected sight words.
4. There was no provision for measurement of the validity of the specific twenty sight word test used.

5. The study was limited to first grade children in the Bozeman, Montana public schools.
6. There was a small number of pupils used in the study.
7. The dependent variable was measured by mean gain scores.

Definition of Terms

The following key terms were used in the study:

1. Basic sight vocabulary. The words taught so as to be instantly recognized. The reader recognizes the word and the meaning so rapidly that the word does not come between him and the meaning (Dolch, 1950: 251).
2. Category 1 - Accepting and clarifying feelings. Teacher statements that react to student feelings or attitudes in a nonthreatening, objective manner are coded Category 1 (Flanders, Werner, Elder, Newman and Lai, 1974: 36).
3. Category 2 - Praising and encouraging. Praise and encouragement are teacher statements carrying a value judgment of approval. Encouragement consists of urging the student to continue his current behavior (Flanders, Werner, Elder, Newman and Lai, 1974: 39).
4. Category 3 - Accepting or using student ideas. Category 3 is used for teacher statements that respond and react to a student idea. Category 3 includes acknowledging student ideas, clarifying student ideas and using a student idea (Flanders, Werner, Elder, Newman and Lai, 1974: 25).
5. Category 4 - Asking questions. A Category 4 statement is based on the teacher's ideas and is made with the intent that a student will answer. It is a genuine invitation for student participation and may or may not take the form of a question grammatically (Flanders, Werner, Elder, Newman and Lai, 1974: 12).
6. Category 5 - Lecturing. A statement is coded as Category 5 when the teacher is giving information, facts, opinions or ideas to students (Flanders, Werner, Elder, Newman and Lai, 1974: 14).

7. Category 6 - Giving directions. This category is used when the teacher makes a statement calling for compliant behavior on the part of the student (Flanders, Werner, Elder, Newman, and Lai, 1974: 14).
8. Category 7 - Criticizing or justifying authority. In Category 7 a teacher discourages a particular student behavior, points out errors or corrects mistakes in a manner suggesting that the student should know better, expresses negative evaluations about students (or their work and explains or rationalizes his use of authority (Flanders, Werner, Elder, Newman, and Lai, 1974: 40).
9. Category 8 - Student talk: responding. This category is used when a student responds directly and predictably to a teacher question (Category 4) or when he responds verbally to a teacher direction (Category 6) (Flanders, Werner, Elder, Newman, and Lai, 1974: 16).
10. Category 9 - Student talk: initiating. A student is initiating his own ideas and making statements when he volunteers an opinion or idea, analyzes, synthesizes or evaluates as opposed to recalling facts or experiences and displays independence, rather than conforming to the teacher's ideas or opinions (Flanders, Werner, Elder, Newman and Lai, 1974: 27).
11. Category 10 - Silence or confusion. Category 10 is recorded whenever there is a pause, silence or confusion in the class (Flanders, Werner, Elder, Newman, and Lai, 1974: 42).
12. Context variable. Context variables include conditions associated with pupils, classroom, school and community. Context variables express conditions to which educators must accommodate (Dunkin and Biddle, 1974: 410).
13. Dependent. A rating of personality type given on the behaviors seeking help, seeking proximity, seeking physical contact, seeking attention and seeking recognition (Beller, 1957: 287-315).
14. Direct teaching. Teacher verbal behavior classified according to Flanders' System of Interaction Analysis as Categories 5, 6, and 7 (Amidon and Flanders, 1963).

15. High dependent. A child rated by his teacher using the Beller's dependency scale and having a score of 22-35.
16. High independent. A child rated by his teacher using the Beller's independency scale and having a score of 28-35.
17. Independent. A rating of personality type given on the behaviors taking initiative, trying to overcome obstacles in the environment, trying to carry activities to completion, getting satisfaction from work and trying to do routine task by oneself (Beller, 1957: 287-315).
18. Indirect teaching. Teacher verbal behavior classified according to Flanders' System of Interaction Analysis as Categories 1, 2, 3 and 4 (Amidon and Flanders, 1963).
19. Low dependent. A child rated by his teacher using the Beller's scale and having a score of 5-16.
20. Indirect teaching. Teacher verbal behavior classified according to Flanders' System of Interaction Analysis as Categories 1, 2, 3 and 4 (Amidon and Flanders, 1963).
21. Personality type. A construct according to which individuals with a certain outstanding trait or cluster of traits are considered as belonging together for descriptive purposes, for example, introvert, extrovert (Good, 1973: 417).
22. Revised direct teaching. Teacher verbal behavior classified according to Flanders' System of Interaction Analysis as Categories 6 and 7 (Amidon and Flanders, 1963).
23. Semisc scripted lesson. A written teaching exercise which provides a precise order, action and role for the teacher.
24. Revised indirect teaching. Teacher verbal behavior classified according to Flanders' System of Interaction Analysis as Categories 1, 2, and 3 (Amidon and Flanders, 1963).
25. Sight word. Experts in the field of reading do not agree on a single list of sight words. Most lists include words selected on the basis of their high utility, irregular letter sound association and commonly occurring in children's speaking vocabularies.

26. Sight vocabulary. The words that the child immediately recognizes as he reads, without resort to word-analysis techniques (Good, 1973: 644).
27. Transformed dependent. A low, medium and high grouping of children ranked by their teacher on the Beller's Child Dependency on Adult Scale. Using the cumulative frequency data, dependency scores of 5-16 were classified as low dependency; scores of 17-21 were classified as medium dependency; and scores of 22-35 were classified as high dependency.
28. Transformed independent. A low, medium and high grouping of children ranked by their teacher on the Beller's Scale of Independency or Autonomy Among Children. Using the cumulative frequency data, independency scores of 5-22 were classified as low independency; scores of 23-27 were classified as medium independency; and scores of 28-35 were classified as high independency.
29. Vocabulary exercise. A teaching or learning experience that concentrates on word recognition and word meaning (Good, 1973: 225).

Summary

The purpose of this investigation was to conduct an experimental study in which teaching method was systematically manipulated, sex and dependent and independent personality type were identified and analyzed and reading sight vocabulary was utilized as the criterion of effectiveness. It was the intent of the investigation to determine if a relationship existed among teacher behaviors, a specific situation and a pupil outcome. The study was designated to determine if a difference existed in the mean gain sight vocabulary scores of low

and high dependent and independent first grade boys and girls taught by a direct or an indirect teaching method.

Direct and indirect teaching methods were identified as the foci of a controversy on classroom instruction. Claims of superiority for each have been made. Questions concerning certain personality relationships to educational achievement have not been sufficiently clarified by research. Even though there was a controversy as to which reading method produced better results, most authorities agreed on the importance of developing a basic sight vocabulary in beginning reading.

A need to conduct experimental research in education has been identified. More specifically, experimental research investigating independent variables in relation to context variables was recommended in order to find solutions to existing contradictions.

This study addressed seven general questions. The first three questions were posed in order to examine the main treatment effects. The remaining four questions pertained to interaction between and among the independent and context variables.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Wallen and Travers (1963: 448) stated: "Research on teaching methods is the study of consistencies in the behavior of teachers and the effect of these consistencies on the learning process." The authors maintained that there has been little empirical evidence to suggest which methods of teaching are desirable. The research dealing with this issue has been ambiguous. Joyce and Weil (1971) maintained that research is hard to interpret. Evidence to date provides little encouragement for practitioners and theorists who search for a single teaching strategy. Medley (1977) stated that the literature on teacher effectiveness is vast, mostly inaccessible and difficult to evaluate. After reviewing studies addressing classroom instruction, Rosenshine (1976) reduced the controversy over instructional models to a dichotomous direct versus an indirect approach.

In this chapter the investigator reviews the research related to the independent variable, the context variables and the criterion variable.

Independent Variable

Indirect Methodology

In the early 1950's Withall (1951) investigated a means for developing a ratio to be used in studying learner centered and teacher centered situations. He attempted to measure the social-emotional climate of learning situations. In his efforts to find a ratio, Withall developed an instrument that he claimed would measure and categorize what the teacher said.

This work of Withall appears to have influenced the work of Ned Flanders. Flanders (1951) believed teacher behavior to be a significant variable within the classroom. He hypothesized that what the teacher did and said in the classroom influenced the nature of learning and the classroom instructional climate. In this early study he concluded that anxiety was a motivator and interrupted behavior related to learning. Flanders stated that direct, demeaning behavior on the part of the teacher caused the student to behave negatively toward the learning task. He claimed that accepting behavior by the teacher oriented toward the student caused the student to be more task oriented and decreased interpersonal anxiety on the part of students.

From his early works Flanders (1965) developed a research tool to study the relationship between teacher verbal behavior and

attitudes of students as determined by an inventory. He found a relationship among teacher statements, pupil attitudes toward the teacher and the classroom learning activities. Flanders (1965) maintained,

At different age levels that exist at primary, elementary junior high, and senior high school grade levels, across different combinations of pupil personality and individual differences, with different types of teaching styles, and even in two countries which differ in the formality of teacher-pupil relationships, students react similarly to the same differences in teacher influence.

He used his ten-category system of verbal interaction to assess teacher influence in the classroom. Studying teachers in naturalistic settings, the researcher identified instructors who employed a tendency toward indirect teacher influence. He noted teachers identified as indirect were capable of employing a flexible style in certain situations. Using his system of interaction analysis, Flanders was able to predict specific patterns of flexible teachers. He found flexible teachers to be indirect during the period when goals were being established and direct in their instructional style after goals had been established and work on the task was in progress. Flanders stated that all students learned more while working with flexible teachers. He hypothesized that future research might be able to determine what types of students learn more effectively while working with direct teachers.

A study using Flanders' System of Interaction Analysis was conducted by Amidon and Giammatteo (1967) to determine whether teachers

identified by their supervisors as superior teachers exhibited any characteristic verbal behavior patterns. The investigators concluded that superior teachers differ in their verbal characteristics from average teachers. The study was consistent with the findings of Flanders. Amidon and Giammatteo found superior teachers dominate their classrooms less, used indirect verbal behavior more and used direction giving and criticism less often. They stated that superior teachers asked broader questions and allowed students to interrupt their lectures more often to ask questions.

In another study using Flanders' System of Interaction Analysis, Amidon and Flanders (1961) attempted to determine whether dependent-prone eighth grade students achieved better at geometry instruction with an indirect teaching method. A post-achievement test was analyzed and a comparison of scores between the direct and indirect teaching methods was made. It was concluded that dependent-prone students learned more in classrooms in which the teacher was using an indirect teaching method. The indirect method employed techniques of giving fewer directions, less criticism, less lecturing, more praise and asking more questions in order to elicit more student verbal participation. The authors suggested an implication of the study might be that direct influence used to supervise students closely may be counterproductive and harmful to dependent-prone students.

Furst and Amidon (1967) conducted a stratified random sample study to determine differences in verbal interaction patterns of first, second, third, fourth, fifth and six grade pupils, and to determine differences in interaction patterns among the subjects of reading, arithmetic and social studies. The study used Flanders' System of Interaction Analysis to collect, categorize and analyze verbal behavior of students and teachers. They found that first and second grade teachers talked more in social studies than in reading and arithmetic, third and fourth grade teachers talked more in arithmetic, and sixth grade teachers talked more in social studies. The least amount of pupil talk in first and second grades was in social studies, while third, fourth and fifth grade students talked least in arithmetic. The researchers determined third, fourth, and fifth grade students talked more in reading and less in arithmetic. It was found that extended indirect teacher influence was greater in social studies, and extended direct influence by the teacher was greater in arithmetic. An interesting question raised by the study was what do first and sixth grade teachers have in common in their use of praise and in their flexibility in the use of extended indirect influence. A relationship between a lack of student-initiated interaction in reading and arithmetic and the teacher using limited praise and more direct teaching was hypothesized.

Optimal amounts of indirectness for teaching reading vocabulary and creativity were hypothesized by Soar (1968). However, instead of asking a linear question, he asked a curvilinear question. Soar applied statistical analyses to data previously gathered. He concluded that optimal levels of indirectness for each of the measures of pupil growth fell in the order predicted. Reading had the most direct optimal level and vocabulary a less optimal level. Clearly pointing to the limitations of his post hoc study, Soar (1968) suggested additional research might be able to specify degrees of directness which would produce the most pupil growth for a given subject or content area. He believed the results of his study did provide evidence that when presenting concrete material to pupils, the teacher should employ an indirect teaching method. Soar contended that teachers should be capable of changing style or method of teaching based on the lesson being taught.

A substantial body of knowledge exists, according to Gage (1972), to support that teachers differ in their use of teaching methods. Allowing for these differences, he concluded that indirect teaching is desirable.

Dunkin and Biddle (1974) arrived at two possible conclusions concerning indirect teaching. One conclusion was that indirectness has a variety of effects, depending on contextual conditions. The second was that indirectness is not a unitary phenomenon and should

be abandoned as a variable. In short, they believed that indirectness should be abandoned as a variable and that practitioners should cease using it as a means of conceptualizing classrooms.

Direct Methodology

In a two-year field study utilizing observational techniques, Brophy and Evertson (1976) studied second and third grade teachers and their ability to produce achievement results in children on standardized tests. The researchers used only teachers who had four or more years of experience teaching their grade levels. They studied their population using the sociological context variables of high socioeconomic status and low socioeconomic status schools. They attempted to identify a relationship among specific teacher behaviors, observed in teacher-pupil interactions, with either their superior or inferior effectiveness in producing student learning gains on standardized achievement tests of language arts (word knowledge, word discrimination, and reading) and mathematics" (Brophy and Evertson, 1976: 11).

Brophy and Evertson concluded that many discrepancies between their findings and those of other researchers such as Flanders could be accounted for by the fact that their study was specifically investigating primary age children. They claimed that previous studies were made with older children and generalized to primary children.

Teaching in the primary grades was viewed as being different from teaching intermediate age and older children (Brophy and Evertson, 1976). They believed there was a systematic interaction between children's cognitive levels and their ages. Younger children needed more structuring. Because of their level of cognitive development, primary children needed a direct teaching style. The researchers continued by saying that as children grew older, they might be able to benefit more from an indirect teaching method. Effective teachers, according to them, initiated interaction with rather than responded to pupils. In other words, effective teachers did not wait for a student to do something; they initiated situations in which students responded. These researchers concluded by suggesting investigators interested in teacher effectiveness focus on cause-and-effect relationships and build a knowledge base of effective teaching methods instead of searching for characteristics of teachers.

Rosenshine (1976) conducted a review of selected instructional variables. Based on three studies--those by Stallings and Kaskowitz (1974), Soar (1973), and Brophy and Evertson (1974)--he concluded that children of low socio-economic status achieve more in academic learning by direct instruction. He believed the results of these studies support a pattern of direct instruction.

Summarizing their research on directiveness as a teaching variable, Dunkin and Biddle (1974) stated that direct teaching as an

independent variable is not as conceptually confusing as indirectness. The authors recognized the contributions the concept of direct teaching has made to research; however, they concluded that the concept of direct teaching is inadequate.

Medley (1977) examined the relationship of teacher competence to teacher effectiveness in process-product research. He made a distinction that competence deals with how a teacher teaches, and it is measured in terms of teacher behavior. Teacher effectiveness is measured in terms of pupil learning. After reviewing 289 studies which examined the relationship between teacher behavior and pupil learning, he concluded that teachers may need to use different strategies depending on the context or situation. Medley (1977) claimed that the data reviewed consistently suggested that teachers who employed direct teaching techniques and procedures with primary-aged children classified as low socio-economic status obtain greater cognitive gains in reading and mathematics.

Context Variables

After reviewing the literature concerning direct and indirect teaching methods, the investigator conducted a review of the available literature on sex differences in learning to read and dependent and independent personality type variables associated with young children.

Sex Differences

Heilman (1967) conducted an extensive review citing fifty-three references on sex differences in learning to read. After reviewing sources from as early as 1909 to the Cooperative First Grade Studies conducted during the 1964-65 school year, he concluded that evidence appears to show differences in favor of girls in learning reading skills in the primary grades.

Girls tended to read six months earlier than boys in a study by Anderson (1956). In an investigation in which she attempted to identify approaches to reading instruction advantageous to boys, Wyatt (1967) reported that boys did not learn to read as well as girls in the primary grades.

While many of the studies reported significant learning differences in favor of girls, some evidence existed demonstrating no differences. Herman and Crisculo (1968) did not find a significant sex difference in a study working with inner city first grade children. No significant sex differences were found by Chall and Feldman (1966) in a research project in which they participated.

Harris (1969) believed that although studies generally find girls in the early grades achieve more in reading than boys, he is convinced that such findings are nothing more than environmental factors. He recommended more extensive research in order to clarify the issue.

Dependent and Independent Personality
Types in Young Children

Amidon and Flanders (1961) were interested in determining if dependent-prone students were overly concerned with following the suggestions or directions of the teacher and being more dependent on support from the teacher. Working with eighth-grade geometry pupils, they concluded that direct teaching might be harmful to dependent-prone students. They claimed that dependent-prone students learned more when the teacher gave fewer directions, criticized less, lectured less, praised more and asked more questions which increased pupil participation.

Preschool children with heightened dependency needs were found to be highly anxious when nurturance from the experimenter was withdrawn or absent. It was maintained by Hartup (1958) that such anxiety serves to facilitate simple task performance and to interfere with complex task performance. The researcher concluded that nurturance withdrawal supplied greater motivation than consistent nurturance, and nurturance withdrawal stimulated faster learning of simple tasks than nurturance. Hartup believed some second--or third order interaction existed among nurturance withdrawal, sex of the child, sex of the experimenter and dependence.

DiBartolo and Vinack (1969) utilized Beller's (1955) scale of dependency in a study. Children were rated, classified and

identified as low-dependent and high-dependent. A puzzle task was utilized as the criterion variable. They found that children rated as high-dependent and receiving no praise performed more poorly on a complex puzzle task than other children.

Much of the research on dependency and independency has been conducted with preschool children. Sears and Dowley (1963) believed that an aim of preschool educators is the achievement of some emotional independence by children from adults without undue side effects such as anxiety or insecurity.

A true-false test to measure dependency in eight- to twelve-year old children was developed by Golightly, Nelson and Johnson (1970). They claimed children's dependency scores decreased as a function of increasing grade level and that girls were more dependent than boys.

While many investigators did not distinguish between kinds of dependency and independency, Heathers (1955) discussed specific types of dependency. He referred to instrumental or "needs for help" dependency and emotional or "needs for reassurance, affection or approval" dependency. Dependency needs required interaction with others, and instrumental and emotional dependency needs were only satisfied when others responded to the child. Bandura and Walters (1963) differentiated between kinds of dependency when they discussed task-oriented dependency and person-oriented dependency.

The Dependent Variable

Finally, the investigator reviewed the literature on the dependent variable reading sight vocabulary. According to Spache (1964), people in the field of education use the term vocabulary indiscriminately as though they were speaking of a single kind of vocabulary. Throughout the literature the investigator found examples supporting Spache's contention.

Listening, speaking, reading, and writing vocabularies were discussed by Bond and Wagner (1950). These writers maintained the existence of a hierarchial relationship among the four kinds of vocabularies. Bond and Wagner not only differentiated kinds of vocabularies, they also differentiated the extent and size of the different vocabularies. They claimed that at the time of entry into school, the child's listening vocabulary is the largest among the various vocabularies with the speaking vocabulary being second largest.

While many writers did not differentiate between kinds of vocabularies, Spache (1964) referred to a sight vocabulary and a meaning vocabulary when discussing reading vocabulary. Spache (1964) stated: "When we speak of the child's reading vocabulary in the primary grade levels, we usually mean his sight vocabulary," and "when we refer to his reading vocabulary in the intermediate and upper elementary grades, we really mean his meaning vocabulary."

Bond and Wagner (1950) wrote about a sight vocabulary and used the term word recognition. They stated that there are two elements of importance in a sight vocabulary. The meaning of the word to be recognized must have meaning to the reader, and the reader must be able to get meaning from the printed symbol.

Developing a meaning vocabulary and providing instruction in word recognition were referred to by McKee (1937) as the main function in the development of reading in the primary grades. He believed that the development of meaning is a higher priority than training in word recognition.

Durrell's (1956) priorities were different from McKee's. He believed the development of a sight vocabulary to be essential in the primary grades. Even though his emphasis was different, Durrell included word recognition, word meaning, and word analysis as the essential word skills to be taught in the primary grades.

The position of Heilman (1967) was similar to McKee's in that he viewed meaning as the primary purpose in beginning reading. According to Heilman, there are three goals in the process of beginning reading: first is to develop and build a sight vocabulary; second is to develop an association between the speaking vocabulary and visual symbols; and third is to ensure reading is a process in which the reader demands and gets meaning from the symbols.

Many writers used the term vocabulary without specifically stating or defining how it is being used. Vocabulary appeared to be a multi-faceted concept and one which needed precise meaning and understanding. Deighton (1960) noted this ambiguity in the use of the term. Spache (1964: 327) stated:

Just what is the significance of our interpretation of the term vocabulary? It is important to recognize the differences among the various kinds of vocabulary growth simply to avoid the loose thinking and faulty teaching practices based on the assumption that a pupil has a "vocabulary".

Bond and Wagner (1950), Deighton (1960), Durkin (1970), and Herber (1970) used the components of a receptive and an expressive vocabulary when referring to listening, speaking, reading, and writing vocabularies. Bond and Wagner (1950), McKee (1937), and Durrell (1956) used word recognition in conjunction with vocabulary development in the primary grades. Spache (1964) and Heilman (1967) were explicit in discussing a sight vocabulary and a meaning vocabulary.

A second area related to vocabulary involved research on techniques or methods of developing a reading vocabulary. Different methods of vocabulary development were encountered, and terms were not always precisely defined when used in reference to techniques or methods described. Addy (1941) surveyed teachers and supervisors to determine their opinions on methods of vocabulary development. Gray and Holmes (1960) investigated direct and incidental training in vocabulary

development. Deighton (1960) stated five principles to be followed in vocabulary study. Karlin (1971) believed that a combination of ways to develop vocabulary are better than any single approach for producing vocabulary achievement results in children. Tinker and McCullough (1975) believed a direct study of words should occur only for important words which are encountered in context. Russell and Fea (1963) stated investigators recognize three means of vocabulary development: wide reading; direct instruction; and incidental instruction. Spache (1964) referred to direct teaching and incidental techniques for developing vocabulary. Serra (1952) discussed vocabulary in connection with concept development and concluded that a wide range of experiences of both a direct and indirect nature are needed. Kingston (1965) stated direct vocabulary instruction is more beneficial and effective with students who possess varied concepts.

In a study reported by Gray (1960), Gray and Holmes concluded direct training should be emphasized in vocabulary development. Their conclusion was made after conducting an experimental study to investigate the comparative effectiveness of direct and incidental training on vocabulary development. The study was conducted using fourth-grade pupils and fourth-grade social studies materials. Gray and Holmes (1938) concluded:

Specific, direct help in developing meaning brings greater vocabulary growth than incidental learning or meaning. Stock of "sight" words may be greatly expanded by encountering new words

in material read. Growth is stimulated if the author makes frequent use of definitions, illustrations, etc., in explaining meaning. Discussions attendant on a unit tend to expand and enrich meaning association with words. Pupils with limited vocabulary development are not able to grasp meaning of new words readily without specific help. Specific guidance in vocabulary development is of particular value with pupils of limited initial achievement and limited mental ability. Context is the chief aid to development of meaning when specific guidance is not given. When direct guidance is given in learning meanings, gains are uniform for verbs, nouns, and adjectives. When children are taught word meanings, verbs are learned most readily, nouns next and adjectives least readily.

Continuing with their conclusions, Gray and Holmes stated that a direct method of vocabulary development is beneficial in writing and speaking vocabularies and in silent reading and areas related to reading comprehension. They claimed a direct method of vocabulary development is superior in developing word recognition to an incidental method.

Four techniques for vocabulary development were discussed by Karlin (1972). His methods involved such activities as dictionary work, studying multiple meaning in words, studying words in context, and the using of context clues. He maintained that words which are initially presented to students in a meaningful context will produce more significant results in the development of a sight vocabulary.

Progress in reading without the development of a basic sight vocabulary was not viewed as possible (Tinker and McCullough, 1975). Tinker and McCullough's ideas on the merging of concepts and understandings by such activities as extensive reading, language

experiences, and direct study of words were comparable to those of Serra (1952) and Kingston (1965).

Direct and incidental methods have value, and both methods should be used in the development of vocabulary (McCullough, 1957). The deliberate study of a list of words and sentences containing words, and the study of words which occur in materials which students are currently reading were methods supported by McCullough.

Most authorities from the field of teaching reading seemed to generally agree on the importance of developing a sight vocabulary in beginning reading. Although a variety of approaches to beginning reading were advocated, code-emphasis and meaning-emphasis approaches were the center of a reading methods controversy. According to Chall (1967), children may learn to read with either approach but advocates of each method claimed superiority.

Chall (1967: 75) said that proponents of a code-emphasis method "believe that the initial stage in reading instructions should emphasize teaching children to master a code--the alphabetic code." After extensively reviewing major studies conducted from 1912 to 1965, she concluded that a code-emphasis in beginning reading was essentially superior. However, she did recognize that previous analyses of the same body of knowledge by others had concluded that a meaning-emphasis method was superior. Clearly stating that she did not recommend ignoring a meaning approach, Chall claimed that better results for

meaning are achieved when programs emphasized code in beginning programs.

Heilman (1972) stated:

The purpose of phonics instruction is to help the child develop the ability to work out the pronunciation of the printed word-symbols which at the moment he does not know as sight words. Phonics instruction in early reading does not focus on teaching the child how to pronounce words, but rather that printed letter-combinations represent a word he already knows and uses in his oral language. Learning word analysis skills, including phonics, is an absolute necessity for learning to read. No child will learn to read, at what might be designated as fluent third grade level, unless he has mastered a number of insights into cracking the code.

Bond and Dykstra (1967) maintained that skill development in word study was essential. The development of word study skills must be mastered regardless of which reading method is employed. After a comprehensive research project, they did not find one approach generally superior. Later, Dykstra (1968) agreed with Chall's position when he wrote that from the very beginning of the reading program, the pupil taught by the alphabet-code process achieved superior results in reading by the end of second grade. Harris (1972) also supported Chall's contention that a code-emphasis method was more important than meaning in beginning reading.

The meaning-emphasis method placed priority on obtaining meaning from the printed page at the very beginning of the reading process. Children were taught to expect and demand meaning from what they

read. Deriving meaning from printed symbols takes priority over the mechanics of learning a code at the initial stages of beginning reading. In beginning reading many words are learned by sight simply because many of the common basic words do not reflect phonic generalizations. According to Fay (1961: 162):

...emphasis for the beginning reader is upon meaning. The child memorizes a basic sight vocabulary and on the basis of these is directed to the study of phonetic analysis, structural analysis, word form and context clues.

Despite the controversy over which reading method was superior, a growing belief has developed that the teacher is the most important factor having an impact on the learning process. Authorities such as Chall (1967), Durkin (1969), Heilman (1969), and Karlin (1971) have concluded that the classroom teacher is the single most important variable influencing how well a child learns to read.

Summary of the Review of Related Literature

The literature search was conducted and reported according to the independent, context and dependent variables of interest to the study. A review of direct and indirect teaching methods revealed contradictory findings. While sex differences in learning to read were inconclusive, evidence existed which indicated that dependency and independency may be factors influencing learning outcomes. Even though many authorities agreed on the importance of developing a

sight vocabulary, a major controversy existed as to whether a code-emphasis or a meaning-emphasis approach produced better results. As with direct and indirect teaching methods and sex differences in learning to read, findings on the development of a sight vocabulary were contradictory and difficult to interpret.

CHAPTER III

PROCEDURES

Introduction

The study was designed to determine if a difference existed in the mean gain sight vocabulary scores of low and high dependent and independent first grade boys and girls taught by a direct or an indirect teaching method. The purpose of the study was to conduct an experimental investigation of direct and indirect teaching methods in relationship to the context variables sex and dependent and independent personality types. Reading sight vocabulary was chosen as the criterion variable because of the importance of acquiring a sight vocabulary in beginning reading. A review of the literature revealed contradictory evidence concerning direct and indirect teaching methods, inconclusive findings on sex differences in learning to read, evidence suggesting that dependency and independency may influence learning and contradictory and difficult to interpret findings on developing a sight vocabulary.

This study was designed to determine if a significant relationship existed among specific teacher behaviors (direct and indirect teaching methods), specific situations (low and high dependent and independent first grade boys and girls) and specific student outcomes (mean gain sight vocabulary scores). In this chapter the procedures

followed included: describing the setting, selecting the classes, selecting the subjects, assigning the subjects to treatment groups, describing the treatments, describing the methods of organizing the data, stating the hypotheses, explaining how the data were analyzed, identifying precautions taken to insure accuracy and summarizing the chapter on procedures.

The Setting

For purposes of this study the population was 188 first grade children from the Bozeman, Montana public schools. Intact classes were used in conducting the study, and the subjects were partitioned from nine intact first grade classes using statistical criteria. Only children enrolled on January 3, 1979 participated in the study.

The Bozeman, Montana public schools, School District No. 7, served the city of Bozeman and the surrounding rural areas. Bozeman is the sixth largest city in the state with a population of approximately 20,000. Montana State University is located in Bozeman and a large segment of the community is comprised of students and staff from the university.

The Bozeman public school system, with an enrollment of approximately 4,600 students, is organized into five kindergarten to fourth grade elementary schools; one fifth and sixth grade middle school;

one seventh, eighth and ninth grade junior high school; and one tenth, eleventh and twelfth grade senior high school.

Selecting the Classes

There were fourteen first grade classes in the Bozeman schools. The Whittier Elementary School was not used because the school used a different basal series in first grade. The remaining eleven first grade classes housed in the Emerson, Hawthorne, Irving and Longfellow schools used the same basal series in first grade. The two classes at the Hawthorne School were not retained in the study when a statistical analysis revealed the sex ratio to be non-equivalent. The 188 pupils of the population were housed in nine intact first grade classes at the Emerson, Irving and Longfellow Schools.

Selecting the Subjects

Each of the nine intact classes were administered the Basic Sight Word Test, classified as male or female, rated by their teacher on dependency using Beller's Child Dependency on Adults Scale and rated by their teacher on independency utilizing Beller's Scale of Independency or Autonomy Among Children. This data is provided in Appendix A. The Basic Sight Word Test and the Beller instruments are described in the methods of collecting data section in this chapter.

The purpose of the study was to determine if a difference in sight vocabulary achievement of dependent and independent first grade children taught by a direct or indirect teaching method existed. It was believed that the integrity of the direct and indirect treatment effects would be preserved by deleting all children from the analysis whose Basic Sight Word Test scores equaled or exceeded 180. Utilizing the cumulative frequency data from the Beller's instruments, pupils rated in the lower and upper third of dependency and independency were used in the study. Only students in Intact Classes A, B, C, F, G, and I whose Basic Sight Word Test scores were equal to or less than 180 and rated in the lower and upper third on dependency and independency were analyzed in the study. These pupils became the subjects of the study and are identified in Statistical Groups A, B, C, F, G, and I in Appendix B.

Assigning Subjects to Treatment Groups

Subjects from Statistical Groups A and I were partitioned for analysis purposes only into a direct teaching method treatment group. Statistical Groups B and G were partitioned for analysis purposes only into the indirect treatment group, and Statistical Groups C and F were partitioned for analysis purposes only into the non-treatment group. Neither classes nor subjects were physically regrouped for

treatment. The data for the direct, indirect and non-treatment groups are shown in Appendix C.

In order to determine if the direct, indirect and non-treatment groups were equivalent on sight vocabulary, sex, dependency and independency, the data in Appendix C was subjected to statistical analysis. An analysis of variance statistical procedure was used to analyze data and determine equivalency of groups on the dependent variable and a Chi-Square analysis of data were used to determine equivalency on the context variables (Nie, Hadle, Jenkins, Steinbrenner and Bent, 1975, and Ferguson, 1976). The data in Tables 1 through 5 in Chapter IV demonstrated that the direct, indirect and non-treatment groups were equivalent on the criterion variable sight vocabulary and the context variables sex, dependency and independency. The treatment groups were shown to be equivalent, but the groups could not be considered either random nor stratified since all first grade children did not have an opportunity to be selected.

The Treatment

An item analysis was conducted on the subjects in the statistical groups in order to determine the most frequently missed words on The Basic Sight Word Test. From this analysis the twenty most frequently missed sight words were selected as treatment words in the study. The treatment words were scheduled and taught five words per

session with the four selected intact classes receiving four treatment sessions. The treatment words were randomly sorted into four groups with five words per group. The treatment words and their grouping and presentation order are provided in Appendix D.

Pilot direct and indirect lessons were conducted by the experimenter on non-sample classes using non-treatment words. Pilot lessons were used to develop semiscripted lessons and to refine the proficiency of the investigator in implementing direct and indirect sight vocabulary lessons. Sample semiscripted lesson plans for a direct and an indirect exercise are provided in Appendix E.

From February 1 to February 6, 1979 separate treatments were administered to Intact Classes A, B, G, and I as per the treatment schedule in Appendix F. The classes were not physically regrouped for treatment. Intact Classes A and I each received four one-half hour direct treatment sessions, and Intact Classes B and G received four one-half hour indirect treatment sessions. Eight vocabulary exercises were taught using a direct teaching method, and eight vocabulary exercises were taught using an indirect teaching method.

The difference in lessons consisted of the investigator using a direct teaching method to teach Intact Classes A and I and an indirect teaching method to teach Intact Classes B and G.

Flanders' System of Interaction Analysis Categories (FIAC) (Flanders, et al., 1974) was used to plan and verify direct and

indirect teaching methods. FIAC is a ten-category verbal interaction system. The first seven categories, accepting feeling, praising and encouraging, accepting or using student ideas, asking questions, lecturing, giving directions and criticizing or justifying authority, are verbal statements by the teacher. The next two categories, student talk in response to the teacher and student initiated talk, are verbal statements by students. Category ten is silence or confusion. Categories 1, 2 and 3 are teacher talk which responds to pupils. Categories 5, 6 and 7 are teacher initiated talk. A recorder codes classroom verbal behavior every three seconds or whenever the category changes and obtains mutually exclusive data which is analyzed and summarized. A copy of the system is shown in Appendix I. For a more detailed procedure on observing, recording and analyzing the data the reader is referred to Amidon and Flanders (1963) and Flanders, et al., (1974). The FIAC data is presented in Table form in Chapter IV.

Methods of Collecting Data

On January 3, 1979, one hundred eighty-eight pupils from nine intact classes were administered The Basic Sight Word Test, classified according to sex, and rated by their teachers on dependency using Beller's Child Dependency on Adults Scale, and independency using Beller's Scale of Independency or Autonomy Among Children.

From this data direct, indirect and non-treatment groups were established, and the data provided in Tables 1 through 5 in Chapter IV shows the three groups to be equivalent on the criterion and context variables.

On February 1, 2, 5 and 6, 1979, treatments were administered separately to Intact Classes A, B, G, and I. Eight vocabulary lessons were taught using a direct method, and eight vocabulary lessons were taught using an indirect method. All pupils in Intact Classes A, B, C, F, G, and I were post-tested on the twenty selected treatment words on February 7, 1979. Pre-test to post-test data can be found in Appendix C. Only gain scores of the 60 selected subjects on the twenty treatment words were analyzed and reported in Chapter IV.

The following instruments were used to collect data on The Basic Sight Word Test, sex, dependency and independency, and direct and indirect teaching methods.

The Basic Sight Word Test published by the Garrard Publishing Company, Champaign, Illinois, was used to collect data on the criterion variable. The instrument was designed to test word recognition and word meaning of 220 basic sight words. Neither Dolch, Buros, the Garrard Publishing Company, nor the review of the literature reported reliability data on The Basic Sight Word Test. A test-retest method was used by the investigator with an intact

non-sample first grade class from the Bozeman public schools and a reliability coefficient was obtained. The data are provided in Appendix G. A Spearman rank correlation value of .96 was computed for The Basic Sight Word Test. Since the test was designed as a test of word recognition and word meaning of 220 basic sight words, it was reasonable to claim face and content validity on The Basic Sight Word Test.

The sex of the student was determined from the first grade enrollment forms (Appendices B and C).

The relative magnitude of dependency and independency was determined for each child from the nine intact classes by having the teacher rate each of their pupils using Beller's Child Dependency on Adult Scale and Beller's Scale of Independency or Autonomy Among Children. Copies of the instruments are provided in Appendix H.

The instruments developed by Beller (1955) consisted of five subscales of dependency and five subscales of independency with seven steps on each scale. The lowest ranking possible on either instrument is five, and the highest possible ranking on each is thirty-five. The data were treated ordinally and pupils were grouped into low, medium and high rankings on dependency and independency. Using the cumulative frequency data for all 188 pupils, equal low medium and high partitioned groups were created with dependency scores of 5-16 classified as low dependency, dependency scores of

17-21 classified as medium dependency, and dependency scores of 22-35 classified as high dependency. The cumulative frequency scores of the 188 students on independency were also equally partitioned with scores 5-22 as low independency, 23-27 as medium independency, and 28-35 as high independency. Only pupils ranked in the lower and upper one-thirds on dependency and independency were analyzed as part of the study. Pupils receiving medium rankings were not analyzed. This data is found in Appendix C and labeled Transformed Dependent Group (TDEP) and Transformed Independent Group (TIND).

Beller (1955) reported using both scales on children up to seventy-four months of age. The dependency scale contained five subscales of seeking help, seeking proximity, seeking physical contact, seeking attention and seeking recognition. The product moment coefficients reported by him for the five subscales ranged from .62 to .84 with a median reliability of .78. Using a test-retest method with a non-sample intact class, the investigator obtained a Spearman rank correlation coefficient of .71. The data may be found in Appendix G. The independency scale contained five subscales of taking initiative, trying to overcome obstacles in the environment, trying to carry activities to completion, getting satisfaction from work and trying to do routine tasks by oneself. The product moment coefficients reported for the five subscales ranged from .67 to .80 with

a median reliability of .75. The investigator obtained a Spearman rank correlation of .69.

A negative relationship between dependency and independency was hypothesized by Beller (1955). A negative value of $r = -.53$ and significant at the .01 level was found. Concurrent validity was claimed by Beller since the scales differentiated among children at the .01 level.

Eight vocabulary exercises employing a direct treatment, and eight vocabulary exercises employing an indirect treatment were audio-taped by the investigator. A Timeline Display was made for each lesson (Flanders, et al., 1974). In making a Timeline Display verbal events were treated as discrete and mutually exclusive. Every three seconds, or whenever the category changed, a tally was made classifying the verbal event as one of the ten categories of the system. Category tallies were totaled for each of the sixteen timelines obtained. An Indirect/Direct (I/D) ratio and a Revised I/D ratio was computed and reported for each exercise conducted. The data is reported in Table 17 in Chapter IV.

Methods of Organizing Data

The data was organized and summarized in tables in Chapter IV. Differences in mean gain scores on sight vocabulary were compared

according to sex, dependency, independency and teaching method. The variables were also analyzed for interaction.

Hypotheses

The study investigated seven research hypotheses. Three hypotheses were formed to test for main treatment effects and four to test for interaction. All statistical hypotheses were non-directional and tested at an .05 alpha level.

The following symbols were assigned to the variables. The algebraic symbols A = sex, B = personality type and C = teaching method, and the subscripts m = male, f = female, l = low, h = high, d = direct, i = indirect and x = interaction were used in writing the null and alternate hypotheses. The symbol \bar{X} was used to designate the mean gain scores of the dependent variable sight vocabulary.

Research Hypothesis Number 1. There is a difference between first grade boy's and girl's mean gain sight vocabulary scores.

$$H_0: \bar{X}_{Am} = \bar{X}_{Af}$$

$$H_1: \bar{X}_{Am} \neq \bar{X}_{Af}$$

Research Hypothesis Number 2. There is a difference between first grade children's mean gain sight vocabulary scores when grouped by low-high dependent and low-high independent personality categories.

$$H_0: \bar{X}_{Bl} = \bar{X}_{Bh}$$

$$H_1: \bar{X}_{Bl} \neq \bar{X}_{Bh}$$

Research Hypothesis Number 3. There is a difference between first grade children's mean gain sight vocabulary scores when taught by direct and indirect teaching methods.

$$H_0: \bar{X}_{Cd} = \bar{X}_{Ci}$$

$$H_1: \bar{X}_{Cd} \neq \bar{X}_{Ci}$$

Research Hypothesis Number 4. There is an interaction between sex and teaching method as determined by mean gain sight vocabulary scores.

$$H_0: A \times C = 0$$

$$H_1: A \times C \neq 0$$

Research Hypothesis Number 5. There is an interaction between sex and personality type as determined by mean gain sight vocabulary scores.

$$H_0: A \times B = 0$$

$$H_1: A \times B \neq 0$$

Research Hypothesis Number 6. There is an interaction between personality type and teaching method as determined by mean gain sight vocabulary scores.

$$H_0: B \times C = 0$$

$$H_1: B \times C \neq 0$$

Research Hypothesis Number 7. There is an interaction among sex, personality type and teaching method as determine by mean gain sight vocabulary scores.

$$H_0: A \times B \times C = 0$$

$$H_1: A \times B \times C \neq 0$$

Analysis of Data

A one-way, two-way and three-way analysis of variance statistical procedure (Nie, et al., 1975; and Ferguson, 1976) was used to analyze the data obtained from the reading sight vocabulary scores on the pre-test and post-tests. The criterion measure was group mean gain scores. An F test was used to determine if a statistically significant interaction existed within the cells. A five percent level of significance for a two-tailed test was required to demonstrate a statistically significant difference between mean gain scores.

Precautions Taken for Accuracy

The investigator hand-scored all pre-tests and post-tests of The Sight Word Test, Beller's Child Dependency on Adult Scale and Beller's Scale of Independence or Autonomy Among Children and Flanders' Interaction Analysis Categories Timeline Displays. All computations were performed on a calculator. Another individual hand-scored each measure and computed the same calculations in order to insure accuracy. The Xerox Sigma 7 computer at Montana State University was used to determine reliability coefficients, F values, p values and analysis

of variance scores. The Statistical Package for the Social Studies program was used in analyzing data (Nie, et al., 1975).

Summary

The study was designed to determine if a difference existed in mean gain sight vocabulary scores of low and high dependent and independent first grade boys and girls taught by a direct or an indirect teaching method. In this chapter procedures followed in conducting the study were described.

The population for the study was 188 first grade children from the Bozeman, Montana public schools. Intact classes were used and the subjects were partitioned from the nine intact classes using statistical criteria.

The 188 pupils were housed in nine classes at three of five elementary schools. Three classes at one school were not used in the study because they used a different reading program than the other eleven classes. Two classes at another school were eliminated when a statistical analyses revealed the sex ratio to be non-equivalent.

Each of the nine intact classes were administered The Basic Sight Word Test classified as male or female and rated by their teacher on dependency and independency using the Beller instruments. Only students from six of the nine classes whose sight word scores were equal to or less than 180 and rated in the lower and upper third of dependency and independency were analyzed in the study.

Subjects from statistical groups were partitioned for analysis purposes only into direct, indirect and non-treatment groups. Neither the classes nor the subjects were physically regrouped for treatment. It was demonstrated that prior to treatment the three groups were equivalent on sight vocabulary, sex, dependency, and independency.

An item analysis was conducted on the subjects in order to determine the most frequently missed sight words on the pre-test. From this analysis the twenty most frequently missed sight words were selected as treatment words.

Separate treatments were administered to four intact classes. Two non-treatment classes did not receive instruction on the twenty selected sight words. Eight vocabulary exercises were taught using a direct teaching method, and eight vocabulary exercises were taught using an indirect method.

FIAC was used to plan and verify direct and indirect teaching methods. Category were totaled for each of the sixteen lessons and I/D and revised I/D ratios were computed and reported.

Only gain scores of the 60 selected subjects on the twenty treatment words were analyzed and reported. Differences in mean gain sight vocabulary scores were compared according to sex, dependency, independency, and teaching method.

The study investigated seven research hypotheses. Three hypotheses were formed to test main treatment effects and four to test for interaction. All statistical hypotheses were non-directional and tested at an .05 alpha level.

A one-way, two-way and three-way analysis of variance procedure was used to analyze data obtained on the pre-test to post-test gains. The criterion measure was group mean gain scores. An F test was used to determine if an interaction existed within the cells.

CHAPTER IV

PRESENTATIONS AND DISCUSSIONS OF THE DATA

variables prior to treatment. A Cronbach's alpha

Introduction

employed, in order to insure a comparability of treatment groups on

These general questions were investigated in the study: is sex, personality and teaching method related to treatment. Additionally, there a difference between first grade children's mean gain sight vocabulary and three-way analysis of variance was performed on all vocabulary scores based on sex, personality type and teaching method; is there an interaction between sex and teaching method, sex and personality type, personality type and teaching method based on mean gain sight vocabulary scores; and is there an interaction among sex, personality type and teaching method. In addressing these questions

pupils in six intact first grade classes were partitioned into equivalent groups and their mean gain scores analyzed according to direct, indirect and non-treatment groups. Subjects were partitioned for analysis purposes only. Neither the classes nor the subjects were physically regrouped. Pre-test to post-test gains on The Basic Sight Word Test were analyzed in order to answer the three main treatment and four interaction questions.

Next, the writer presented and described the results of the statistical analyses used to determine treatment groups, pre-test to post-test gains on The Basic Sight Word Test and data collected employing FIAC to insure that treatments were in fact direct and indirect as claimed. A one-way analysis of variance statistical

procedure (Nie, et al., 1975, and Ferguson, 1976) was used to analyze The Basic Sight Word Test data for establishing group equivalency on the dependent variable prior to treatment. A Chi-Square analysis was employed in order to determine equivalency of treatment groups on sex, dependency and independency prior to treatment. A one-way, two-way and three-way analysis of variance procedure (Nie, et al., 1975, and Ferguson, 1976) was used in analyzing mean gains on the twenty selected treatment words from The Basic Sight Word Test. In order to attest to the integrity of treatments, category totals and ratios were derived from and reported on the FIAC data.

Analysis of Data to Determine Group Equivalency

Nine intact classes were administered The Basic Sight Word Test, classified as male or female, rated by their teacher on dependency using the Beller's Child Dependency on Adults Scale and rated by their teacher on independency using Beller's Scale of Independency or Autonomy Among Children. From this data 60 first grade pupils were partitioned to create analysis groups for treatment and post-testing which was administered within their intact classes. The results of this procedure are provided in Tables 1 through 5.

The descriptive results on the variable sight vocabulary from The Basic Sight Word Test, summarized by treatment group, are provided in Table 1.

TABLE 1

RESULTS OF THE BASIC SIGHT WORD TEST
SUMMARIZED BY TREATMENT GROUP

Treatment	Mean	Standard Deviation	Number
Direct	99.86	32.97	21
Indirect	125.90	40.49	21
Non-Treatment	120.06	37.99	18
TOTAL	111.53	37.65	60

An analysis of variance is summarized in Table 2 from which the F score was computed by treatment group on The Basic Sight Word Test. The purpose of the analysis was to determine if the direct, indirect and non-treatment groups were different on The Basic Sight Word Test prior to receiving treatment. The F value derived was 1.65 which has a significance equal to .20. From the data it was concluded that the three groups were equivalent on The Basic Sight Word Test prior to treatment.

Table 3 shows frequencies from which the Chi-Square was computed for sex. This analysis was performed in order to determine if the direct, indirect and non-treatment groups were different based on the sex composition of the three groups. A Chi-Square value with 2 degrees of freedom was computed to be .10. The probability of obtaining that value as a result of chance alone is .95. Based upon that finding it was concluded that the groups were equivalent on sex.

The Chi-Square value in Table 4 shows the frequencies for the variable dependency grouped low and high by treatment. The relative magnitude of dependency was determined by having teachers rate each of their pupils on dependency using the Beller's instrument. The dependency rating data were treated ordinally and pupils were grouped into low, medium and high rankings. Using the cumulative frequency data, dependency scores of 5-16 were classified as low dependency;

TABLE 2

ANALYSIS OF VARIANCE OF THE BASIC SIGHT WORD
TEST BY TREATMENT GROUP

Source of Variation	Sums of Squares	<u>df</u>	Mean Square	F Ratio	F Probability
Between Groups	4571.61	2	2285.81	1.65	.20
Within Groups	79061.33	57	1387.04		
TOTAL	83632.93	59			

TABLE 3

CHI-SQUARE OF SEX BY TREATMENT GROUP

Sex		Direct	Indirect	Non-Treatment	Row Total
	Number	11	12	10	33
Male	Row Pct	33.33	36.36	30.30	55.00
	Col Pct	52.38	57.14	55.56	
	Tot Pct	18.33	20.00	16.67	
	Number	10	9	8	27
Female	Row Pct	37.04	33.33	29.63	45.00
	Col Pct	47.62	42.86	44.44	
	Tot Pct	16.67	15.00	13.33	
Column Total	Number	21	21	18	60
	Tot Pct	35.00	35.00	30.00	100.00

Chi-Square value for 2 df = .10, significance = .95.

TABLE 4

CHI-SQUARE OF DEPENDENCY BY TREATMENT GROUP

Dependency	Direct	Indirect	Non-Treatment	Row Total
Number	13	13	9	35
Row Pct	61.90	61.90	50.00	58.33
Col Pct	37.14	37.14	25.71	
Tot Pct	21.67	21.67	15.00	
Number	8	8	9	25
Row Pct	38.10	38.10	50.00	41.67
Col Pct	32.00	32.00	36.00	
Tot Pct	13.33	13.33	15.00	
Column Total	21	21	18	60
Tot Pct	35.00	35.00	30.00	100.00

Chi-Square value for 2 df = .73, significance = .69.

scores of 17-21 were classified as medium dependency; and scores of 22-35 were classified as high dependency. Only pupils ranked in the lower and upper third of dependency were used in the study. While others remained physically present for treatment, medium values were statistically partitioned out during analysis. These pupils were identified as the Transformed Dependent Group (TDEP). A Chi-Square analysis of dependency was performed in order to determine if the direct, indirect and non-treatment groups were different. A Chi-Square value with 2 degrees of freedom was computed to be .73. The probability of obtaining that value as a result of chance alone is .69. Based on that finding it was concluded that the groups were equivalent on dependency.

Table 5 shows frequencies from which the Chi-Square was computed for independency. This analysis was performed in order to determine if the direct, indirect and non-treatment groups were different based on the transformed independency composition of the three groups. The degree of independency was determined by having teachers rate each of their pupils on independency using the Beller's instrument. As was done with the dependency ratings, the independency data were treated ordinally, and pupils were grouped into low, medium and high rankings. Using the cumulative frequency data, independency scores of 5-22 were classified as low independency; scores of 23-27 were classified as

TABLE 5

CHI-SQUARE OF INDEPENDENCY BY TREATMENT GROUP

Independency	Direct	Indirect	Non-Treatment	Row Total
Number	7	10	7	24
Low Row Pct	33.33	47.62	38.89	40.00
Col Pct	29.17	41.67	29.17	
Tot Pct	11.67	16.67	11.67	
Number	14	11	11	36
High Row Pct	66.67	52.38	61.11	60.00
Col Pct	38.80	30.56	30.56	
Tot Pct	23.33	18.33	18.33	
Column Total	21	21	18	60
Tot Pct	35.00	35.00	30.00	100.00

Chi-Square value for 2 df = .91, significance = .64.

medium independency; and, scores of 28-35 were classified as high dependency. Only pupils ranked in the lower and upper third of independency were used in the study. These pupils were identified as the Transformed Independent Group (TIND). The Chi-Square value of .91 with 2 degrees of freedom and a significance value equal to .64 provided results that the three treatment groups were equivalent on independency.

Nine intact classes were administered The Basic Sight Word Test, classified as male or female and rated on dependency and independency. From this data 60 first grade pupils were partitioned for treatment and post-testing. Tables 1 through 5 provides evidence that the direct, indirect and non-treatment groups were equivalent on The Basic Sight Word Test scores, sex, dependency and independency prior to the treatment.

Analysis of Experimental Results

In conducting the investigation sixty pupils were partitioned for treatment and post-testing. All pre-treatment, treatment and post-treatment procedures were conducted within intact classes. The twenty most frequently missed sight words on The Basic Sight Word Test by these sixty students were selected and used in the treatment and as the criterion variable. After treatment and post-testing, the dependent variable data were analyzed by treatment using mean gain

scores. The pre-test to post-test gain scores on the twenty selected sight words were analyzed in order to answer the three main treatment effect and four interaction questions addressed by the study.

The results of pre-test to post-test mean gains on the twenty selected treatment words are summarized by treatment group in Table 6.

The first of seven questions asked in the study addressed differences between first grade boy's and girl's mean gain sight vocabulary scores. Descriptive statistics of gains by sex are shown in Table 7. Table 8 shows an analysis of variance from which the F score was computed. The F value with 1 to 55 degrees of freedom was computed to be 1.60. The probability of obtaining that value as a result of chance alone is .21. Based upon the findings it was concluded that there is no significant differences in mean gain by sex.

The second question addressed in the study concerned differences in first grade children's mean gain sight vocabulary scores when grouped by low-high dependent and independent personality type. Descriptive statistics on mean gain scores of the transformed dependency group and transformed independency group are shown in Tables 9 and 10. The F value in Table 11 with 1 to 55 degrees of freedom equaled 3.92 with a p value of .05. Since the probability of getting the observed F and p values as a result of chance alone did not exceed alpha, it was concluded that the low-dependency pupils had a significantly higher mean gain score than high-dependency students.

TABLE 6
SUMMARY OF MEAN GAIN SCORES
BY TREATMENT GROUPS

Treatment Group	Pre-Test Mean	Post-Test Mean	Gain Mean
Direct	2.65	11.45	8.80
Indirect	3.15	10.45	7.30
Non-Treatment	3.65	8.29	4.65

TABLE 7
DESCRIPTIVE STATISTICS OF MEAN GAIN
SUMMARIZED BY SEX

Sex	Count	Mean Gain	Standard Deviation
Male	32*	6.34	4.12
Female	25*	7.92	5.28
Total	57*	7.04	4.69

*One male and two females were absent during post-testing. These data were treated as missing data.

TABLE 8
ANALYSIS OF VARIANCE OF A
ONE-WAY GAIN BY SEX

Source of Variation	Sums of Squares	<u>df</u>	Mean Square	F Ratio	F Probability
Between Groups	34.87	1	34.87	1.60	.21
Within Groups	1195.06	55	21.73		
Total	1129.93	56			

TABLE 9
DESCRIPTIVE STATISTICS OF MEAN GAIN SUMMARIZED
BY DEPENDENCY

TDEP	N	Mean Gain	Standard Deviation
Low	32*	8.09	4.58
High	25	5.68	4.55
Total	57*	7.04	4.69

*Three low dependency pupils were absent during post-testing. These data were treated as missing data.

TABLE 10
 DESCRIPTIVE STATISTICS OF MEAN GAIN
 SUMMARIZED BY INDEPENDENCY

	TIND	N	Mean Gain	Standard Deviation
	Low	23*	5.83	4.57
	High	34*	7.85	4.65
	Total	57*	7.04	4.69

*One low and two high independency pupils were absent during post-testing. These data were treated as missing data.

TABLE 11
ANALYSIS OF VARIANCE OF A ONE-WAY
GAIN BY DEPENDENCY

Source of Variation	Sums of Squares	<u>df</u>	Mean Square	F Ratio	F Probability
Between Groups	81.77	1	81.77	3.92	.05*
Within Groups	1148.16	55	20.88		
Total	1229.93	56			

*Significant at alpha = .05.

The F ratio in Table 12 with 1 to 55 degrees of freedom was 2.64 and a probability of F equal to .11. The statistics show no significant differences in mean gain scores by independency.

The third question addressed in the investigation concerned differences between first grade children's mean gain sight vocabulary scores when taught by a direct or indirect teaching method. Descriptive statistics utilized in a one-way analysis of variance of mean gain by treatment is shown in Table 13. An analysis of variance is summarized in Table 14 from which the F value was computed. The F score of 4.06 with a p value equal to .02 indicates there is a significant difference in treatment groups.

This finding suggested the possibility of three combinations of differences. A post hoc analysis was conducted to determine what observed differences were significant. The procedure revealed no difference between the direct and indirect treatments. The significant F was accounted for by the non-treatment group. The analysis provided evidence of no significant differences between first grade children's mean gain sight vocabulary scores based on direct and indirect teaching methods.

The fourth, fifth and sixth questions concerned interaction between sex and teaching method, sex and personality type and

TABLE 12
ANALYSIS OF VARIANCE OF A ONE-WAY GAIN
BY INDEPENDENCY

Source of Variation	Sums of Squares	df	Mean Square	F Ratio	F Probability
Between Groups	56.36	1	56.36	2.64	.11
Within Groups	1173.57	55	21.34		
Total	1229.93	56			

TABLE 13
DESCRIPTIVE STATISTICS OF MEAN GAIN
SUMMARIZED BY TREATMENT GROUP

Treatment Group	N	Mean Gain	Standard Deviation
Direct	20*	8.80	5.76
Indirect	20*	7.30	4.20
Non-Treatment	17*	4.65	2.55
Total	57*	7.04	4.69

*One pupil from each group was absent during post-testing. These data were treated as missing data.

TABLE 14

ANALYSIS OF VARIANCE OF A ONE-WAY
GAIN BY TREATMENT

Source of Variation	Sums of Squares	df	Mean Square	F Ratio	F Probability
Between Groups	160.65	2	80.32	4.06	.02*
Within Groups	1069.28	54	19.80		
Total	1229.93	56			

*Significant at alpha = .05.

personality type and teaching method as determined by mean gain sight vocabulary scores. Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 15 and 16 from which the F scores were derived. The F values of 1.00, .43 and .57 with p values of .38, .52 and .58, respectively, indicates no two-way interactions exist between sex and teaching method, sex and dependency and dependency and teaching method. The F ratios of .93, .10 and .93 with the probability of F equal to .40, .75 and .40, respectively, demonstrates no two-way interactions between sex and teaching method, sex and independency and independency and teaching method.

The seventh and final question of the study asked whether an interaction exists among sex, personality type and teaching method based on mean gain sight vocabulary scores. The three-way analyses of variance provided in Tables 15 and 16 do not show a three-way interaction. An F ratio of 1.07 with a p value of .35 does not show a three-way interaction among sex, dependency and teaching method. Sex, independency and teaching method analyses provided an F value equal to .49 with a probability of F equal to .61.

TABLE 15
ANALYSIS OF VARIANCE FOR SEX, DEPENDENCY
AND TREATMENT

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effect	252.77	4	63.19	3.29	.02*
Sex	32.91	1	32.91	1.72	.20
Dependency	65.99	1	65.99	3.44	.07
Treatment	127.57	2	63.79	3.33	.05*
2-way Interactions	72.97	5	14.59	.76	.58
Treatment and Sex	38.43	2	19.22	1.00	.38
Dependency and Sex	8.17	1	8.17	.43	.52
Treatment and Dep.	21.80	2	10.90	.57	.58
3-way Interactions Sex, Dependency and Treatment	40.99	2	20.49	1.07	.35

*Significant at alpha = .05.

TABLE 16

ANALYSIS OF VARIANCE FOR SEX,
INDEPENDENCY AND TREATMENT

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	227.09	4	56.77	2.82	.04*
Sex	21.99	1	21.99	1.09	.30
Independency	40.31	1	40.31	2.01	.16
Treatment	142.28	2	71.14	3.54	.04*
2-Way Interactions	78.22	5	15.64	.78	.57
Treatment and Sex	37.36	2	18.68	.93	.40
Independency and Sex	2.00	1	2.00	.10	.75
Treatment and Ind.	37.56	2	18.78	.93	.40
3-Way Interactions Sex, Independency and Treatment	19.87	2	9.93	.49	.61

*Significant at alpha = .05.

Flanders' Interaction Analysis
Categories Summarized

Flanders' Interaction Analysis Categories (FIAC) was employed to collect data on the treatments. Direct and indirect teaching method was shown through the use of a ratio of teacher verbal behavior between accepting feeling, praising and encouraging, accepting, using and/or clarifying and questioning, versus lecturing, giving directions and criticizing or justifying authority. A Revised I/D technique does not include questioning and lecturing in computing the ratios. Each of the sixteen vocabulary exercises were audio-taped. The FIAC system was used to tally, tabulate, summarize and analyze the lessons. I/D and Revised I/D ratios were computed and reported. Table 17 provides a summary of this procedure. Since a ratio was utilized to verify treatment, any value less than one is a direct lesson. A value greater than one is an indirect lesson. The degree of directness or indirectness was determined by the value of the I/D and Revised I/D ratios. From the data it was determined that direct and indirect vocabulary lessons were conducted as specified.

Summary

In Chapter IV the writer presented and described the statistical analyses used to determine treatment groups, pre-test to post-test gains on The Basic Word Test and data collected employing FIAC to insure that treatments were in fact direct and indirect as claimed.

TABLE 17

FLANDERS' INTERACTION ANALYSIS CATEGORIES SUMMARY

Category	Intact Class A Direct Lesson				Intact Class I Direct Lesson				Intact Class B Indirect Lesson				Intact Class G Indirect Lesson			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	176	175	202	147	147	178	156	138
3	3	8	4	6	10	3	4	9	67	84	102	111	59	97	109	115
4	0	5	3	1	8	7	0	3	95	98	99	93	75	113	95	125
5	116	108	129	109	104	102	127	92	85	102	82	93	78	101	67	75
6	198	175	188	213	183	189	230	218	59	57	32	24	29	25	43	21
7	39	37	51	43	46	43	64	41	1	4	5	3	9	5	10	2
8	147	125	146	122	128	131	139	123	175	177	207	200	118	196	166	180
9	1	0	0	0	0	3	0	1	42	41	27	39	29	49	40	23
10	131	140	128	122	119	95	124	114	113	114	128	153	107	125	121	122
Totals	635	598	649	616	598	573	688	602	818	853	885	864	651	889	807	801
I/D Ratio	0.01	0.04	0.02		0.05	0.03	0.01	0.03	2.37	2.20	3.36	2.93	2.42	2.96	3.00	3.86
Revised																
I/D Ratio	0.01	0.04	0.02		0.04	0.01	0.01	0.04	4.13	4.26	8.22	9.59	5.42	9.17	5.00	11.0

Nine intact classes were administered The Basic Sight Word Test, classified as male or female and rated on dependency and independency. From this data 60 first grade pupils were partitioned for treatment and post-testing. Tables 1 through 5 provided evidence that the treatment groups were equivalent on The Basic Sight Word Test scores, sex, dependency and independency prior to treatment.

A one-way analysis of variance revealed no difference on sex and independency. However, a one-way analysis of variance showed a difference on dependency. It was concluded that the low-dependency pupils had a higher mean gain sight vocabulary score than high-dependency pupils. A one-way analysis of variance of teaching method demonstrated a difference. However, a post hoc analysis revealed no difference between the direct and indirect teaching methods. The difference was accounted for by the non-treatment group. No significant two-way nor three-way interactions were obtained on sex, dependency, independency and teaching method.

FIAC was employed to collect data on the treatments. I/D and Revised I/D ratios were computed and reported. It was shown that direct and indirect lessons were conducted.

CHAPTER V

OVERVIEW, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Overview of the Study

The purpose of this investigation was to conduct an experimental study in which teaching method was systematically manipulated and studied, sex, dependent and independent personality type were identified and analyzed and reading sight vocabulary was utilized as the criterion of effectiveness.

Many writers have stated a belief that variations in teaching practices do not make significant differences in pupil learning (Gage, 1972). To the contrary, Bloom (1976) suggested that the quality of instruction is a causal link in determining learning and accounting for educational achievement. Medley (1977) claimed that the literature on teacher effectiveness is vast, inaccessible and difficult to understand. The issue is ambiguous, according to Joyce and Weil (1972); and like Medley, they too believed that the research is difficult to interpret. Rosenshine (1976) concluded that direct and indirect teaching models are the foci of this controversy.

In order to seek solutions to such contradictions, experimental research investigating independent variables associated with teachers in relation to context variables associated with pupils has been

recommended (Gage, 1972; Brophy and Evertson, 1974; and Dunkin and Biddle, 1974).

Direct and indirect teaching methods were identified as the foci of a controversy on classroom instruction. Claims of superiority for each have been made. Flanders (1965) cited research advocating a general superiority of an indirect teaching method, and Brophy and Evertson (1976) challenged their contention and claimed that for primary aged children a direct teaching method is superior to an indirect method.

Questions about certain personality relationships to educational achievement have not been sufficiently clarified by research (Harris, 1969). The literature revealed investigations addressing sex differences in learning to read to be inconclusive. Some evidence existed, however, suggesting that dependency and independency influence learning outcomes.

The nonintellectual correlates of reading, namely sex and various aspects of personality have been researched. Some reading authorities have suggested investigating variables associated with teachers in relation to variables associated with children. Even though a major controversy existed over which reading method produced better results (Chall, 1967), most agreed on the importance of developing a basic sight vocabulary in beginning reading. Therefore,

reading sight vocabulary was chosen as the criterion variable because of the importance of acquiring a sight vocabulary in beginning reading.

It was the intent of this investigation to determine if a relationship among specific teacher behaviors (direct and indirect teaching methods), a specific situation (dependent and independent first grade boys and girls) and a specific pupil outcome (mean gain scores on sight vocabulary) existed.

In conducting the study students in nine intact first grade classes were administered The Basic Sight Word Test, classified as male or female and rated by their teacher on dependency and independency using instruments developed by Beller (1955). From the data 60 pupils were partitioned for treatment and post-testing on twenty selected sight words. Subjects were partitioned for analysis purposes only. Neither the classes nor the subjects were physically regrouped for treatment. The independent variable was teaching method. Direct teaching method, indirect teaching method, and non-treatment groups were utilized in the study. The context variables were sex, dependency and independency. The dependent variable was group mean gain sight vocabulary scores. The pre-test to post-test gains of the twenty selected treatment words were analyzed in order to answer the three main treatment, three two-way and one three-way interaction questions asked in the study.

One-way, two-way and three-way analysis of variance statistical procedure were employed to analyze data from the sight vocabulary scores on the pre-test to post-test gains. An F test was used to determine if an interaction existed. The data was organized and summarized in tables and followed by a discussion.

Findings

The study investigated seven research hypotheses. Three hypotheses were used to analyze mean gain scores of groups based on sex, personality type and teaching method. Hypotheses four, five and six addressed two-way interactions, and the seventh hypothesis considered three-way interactions.

Sex categories and low-high independency groupings were found to be non-significant. The dependency grouping was significant. Research hypothesis number three addressed differences of first grade children's mean gain sight vocabulary scores based upon direct and indirect teaching methods. A significant F value was observed. However, a post hoc analysis revealed no significant differences between first grade children's mean gain sight vocabulary scores based on direct and indirect teaching method. The significant F was accounted for by differences between the non-treatment group and the treatment groups.

Investigations of two-way and three-way interactions between sex, dependency, independency and teaching method were not significant.

Conclusions

An experimental process-product study investigates the assumption that learning is influenced by or is the result of teaching. In this study it was found that regardless of teaching method, pupils profited from instruction. Both treatment groups achieved better than the non-treatment group. However, variations in teaching patterns did not make a difference in group mean gain scores on sight vocabulary. For those critics who would claim that teaching is basically ineffective this finding provides another challenge.

There are alternative explanations to account for the finding of no difference in direct and indirect teaching methods. Among these are the following: (1) there is no difference between direct and indirect teaching methods; (2) the time and number of opportunities needed to learn the sight words was not sufficient; and (3) the degree of task complexity was too simple to show differences. Some explanations provide little enlightenment while others can make a contribution to current knowledge; still others form interesting hypotheses worthy of additional research.

An obvious and plausible explanation for the finding of no difference is that direct and indirect teaching methods have the same effect on learning. The findings in this study support this conclusion.

Time on task and the opportunity to learn are important considerations for a process-product study (Bloom, 1976). In this study treatment sessions were approximately one-half hour in length. Each group received four such treatment sessions. The number of opportunities to practice was held constant at three opportunities for each activity or procedure in each lesson. This amount of time and number of opportunities for some children to learn sight words may not have been sufficient. Consequently, differences were not discrepant enough to be statistically significant. No claim is made that findings of this study support this explanation.

Thirdly, the task complexity in this study could account for the findings. The dependent variable was measured by the pupil's ability to recognize a treatment sight word when presented with three other sight words. The complexity of this task can be viewed as less complex than criterion variables used in other studies. Amidon and Flanders (1961) analyzed a post-achievement geometry test as the criterion variable in a teaching methods investigation. Word knowledge, work meaning, reading and mathematics were the dependent variables in a teacher effectiveness study by Brophy and Evertson

(1976). Had the task been more complex it is possible that the findings of this study could have been different.

As in teaching method, alternative explanations existed to interpret the findings about the context variables. In the review of literature it was demonstrated that certain personality types in young children are contextual factors affecting learning outcomes. In this study, however, the degree of independency and sex differences did not affect the criterion variable outcome. On the other hand, the relative magnitude of dependency as measured by seeking help, seeking proximity, seeking physical contact, seeking attention and seeking recognition were factors which affected pupil learning of sight vocabulary words.

A significant difference was obtained on the dependency variable. It was demonstrated that low-dependency pupils had a higher mean gain score than high-dependency students. The finding in this study supports the conclusion that low-dependency pupils achieved better on reading sight vocabulary than high-dependency pupils.

Among the alternatives to explain the null results obtained on the context variables, the following were considered: (1) there might have been other more potent contextual factors affecting the learning situation; (2) different anxiety levels may have been created by different learning environments; and (3) children's perceptions of praise and criticism may differ.

Sex, dependency and independency were the contextual factors considered in the study. Other, more potent contextual factors affecting pupil outcome may have existed (Dunkin and Biddle, 1974 and Brophy and Evertson, 1976). The possibility of other more potent contextual factors may have affected pupil outcome on sight vocabulary development. Introversiveness and extroversiveness (Whitehall and Jipson, 1970), anxiety levels (Castaneda, et al., 1956) and compulsiveness and anxiety (Grimes and Allinsmith, 1961) were examples of factors which affected pupil outcomes found in the literature.

The review of literature demonstrated that anxiety interacts with teaching method (Grimes and Allinsmith, 1961). Although no such interaction was investigated in this study, the possibility that different anxiety levels were produced by differences in the instructional and nurturant emphasis of teaching methods can be viewed as a possible explanation to account for the findings.

A pupil's perception of praise and criticism is learned behavior. Therefore, student reaction to praise and criticism can be assumed to differ. Pupil reaction to praise and criticism can be considered as a possible explanation in accounting for the findings of the study (Flanders, 1965 and Brophy and Evertson, 1976).

In conclusion, the investigator challenges the idea that a single best or preferred teaching method exists. Both direct and

indirect teaching methods, the former emphasizing the task and the latter emphasizing support for the pupil or group, provided a setting in which children learned the desired outcome. The investigator concluded that certain contextual factors which researchers and practitioners must accommodate are significant factors affecting pupil performance on dependent variables. Therefore, searching for generic teaching behaviors in different contexts gives recognition to the need for developing an environment in which children are taught in a variety of ways in order to facilitate their development.

Recommendations

Finally, in this section some recommendations seem to be warranted based upon the study. In all, three policy and six research and design recommendations are presented. Policy recommendations address the need for teaching a reading sight vocabulary, acceptance of both direct and indirect teaching methods and assessment of pupil dependency. Research and design recommendations include: two recommendations pertaining to the independent variable; two recommendations involving the context variables; one recommendation concerning the dependent variable; and, one recommendation for design considerations.

A number of lists identifying essential sight words exists (Dolch, 1936; Fry, 1960; and Hillerich, 1974). Regardless of the

list of sight words used, instruction in sight words in beginning reading has been recommended in the literature.

Recommendation: The school district's first grade reading curriculum should provide for instruction in reading sight vocabulary.

It was demonstrated in the study that teaching methods employing direct and indirect teaching techniques achieved comparable results when teaching reading sight words.

Recommendation: School district policy which specifies a preferred direct or indirect teaching method for teaching sight vocabulary is not warranted.

Dependency was shown to influence pupil learning of reading sight vocabulary. Assessment of pupil dependency should be made and provided to first grade teachers so that they can accommodate these differences through monitoring and differentiating instruction.

Recommendation: Kindergarten teachers should rate pupils on their degree of dependency at the end of the kindergarten year and provide this data to first grade teachers.

The amount of time needed to learn a specific task has been suggested as a variable affecting learning outcomes (Bloom, 1976). In this study the time variable for each vocabulary exercise was controlled and held relatively constant for both the direct and indirect teaching methods. Also, the number of opportunities to participate in order to learn a specific task has been identified as

a variable having possible effects on learning outcomes (Bloom, 1976). In this study the number of opportunities to participate was controlled and held constant in both teaching methods. Time on task and opportunity to participate address the issues of efficiency and effectiveness. Since the study showed that direct and indirect teaching methods had the same effect on learning, the question of effectiveness related to efficiency needs to be researched.

Recommendation: Research designs holding direct and indirect teaching methods constant but altering pupil time on task are needed.

Recommendation: Research designs holding direct and indirect teaching methods constant but altering pupil opportunities to participate are needed.

Many possibilities for powerful contextual factors affecting learning outcomes exist. The affective level of the child, cognitive entry behaviors, motivation, personality characteristics, instructional materials and the sex of the teacher are suggested context variables to investigate in relation to direct and indirect teaching methods. Socio-economic status has been identified as a sociological context affecting learning outcomes (Brophy and Evertson, 1976). Other studies have identified anxiety, compulsivity, introversion and extroversion as contextual factors affecting pupil performance on desired outcomes. In this study sex and independency

were not significant factors; however, dependency was demonstrated to be a significant factor in learning sight vocabulary.

Recommendation: Research designs identifying and analyzing other context factors and their relationships to direct and indirect teaching methods are needed.

Recommendation: Research designs to extend understanding of the relationships between dependency and learning outcomes established in this study are needed.

The development of a sight vocabulary is a recognition skill. Other tasks such as reading comprehension, inferential thinking, problem solving and rote learning are examples of other cognitive learning outcomes. Some tasks might be simple while others are more complex. In this study the criterion variable was recognition of a sight word.

Recommendation: Research designs holding direct and indirect teaching methods constant but altering the dependent variable and task complexity are needed.

Many studies have attempted to justify specific teaching methods. Most often questions have been addressed in a linear fashion, and it has been assumed that direct and indirect teaching exists on a continuum (Soar, 1968).

Recommendation: Research designs to investigate curvilinear relationships between methods and desired pupil outcomes are needed.

In summary, the study was designed to determine if a difference existed in the mean gain sight vocabulary scores of low and high dependent and independent first grade boys and girls taught by a direct or an indirect teaching method. The purpose of the study was to conduct an experimental investigation of direct and indirect teaching methods in relationship to the context variables sex and dependent and independent personality types. Reading sight vocabulary was chosen as the criterion variable.

Seven research hypotheses were investigated. Three hypotheses were used to analyze mean gain scores of groups based on sex, personality type and teaching method. Hypotheses four, five and six addressed two-way interactions, and the seventh hypothesis considered three-way interactions.

Sex and independency groupings were found to be non-significant. The dependency grouping was significant. Research hypothesis number three addressed differences of first grade children's mean gain sight vocabulary scores based upon direct and indirect teaching methods. A significant F value was observed. A post hoc analysis revealed no significant differences between first grade children's scores based on direct and indirect teaching method. The significant F was accounted for by differences between the non-treatment group and the treatment groups. Investigations of two-way and three-way interactions were not significant.

It was found that regardless of teaching method, pupils profited from instruction. Both treatment groups achieved better results than the non-treatment group. Variations in teaching practices did not make a difference in group mean gain scores on sight vocabulary. The sex of the child and independency did not affect the level of outcome while dependency affected pupil learning of sight vocabulary words.

Nine recommendations have been made. Three of the recommendations are practical considerations for the school system and six recommendations addressed ways to provide enlightenment on direct and indirect teaching models. Some researchers claim superiority of one method over the other. The investigator accepted the merits and contributions of both constructs and recommended additional research in order to more deeply investigate and seek understanding of direct and indirect instructional methods, their relationships to certain contextual situations and their effects on desired pupil outcomes.

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APPENDICES

APPENDIX A

INTACT CLASS A

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	179	25	23
02	Male	189	22	26
03	Male	116	26	17
04	Female	102	11	29
05	Male	157	15	34
06	Male	095	17	25
07	Male	052	29	13
08	Male	084	28	13
09	Male	109	17	16
10	Male	123	22	25
11	Female	050	33	14
12	Female	123	24	19
13	Female	154	25	26
14	Male	076	20	31
15	Female	053	19	08
16	Female	214	25	23
17	Male	058	17	20
18	Female	171	24	23
19	Female	212	13	25
20	Female	105	17	26
21	Female	131	20	16
22	Male	087	27	12

INTACT CLASS B

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	099	22	14
02	Male	091	17	25
03	Male	175	10	33
04	Female	102	15	28
05	Male	105	25	21
06	Male	145	14	32
07	Female	097	14	34
08	Male	208	19	30
09	Female	156	08	35
10	Male	155	21	21
11	Female	141	17	25
12	Male	110	12	30
13	Male	087	26	21
14	Male	058	24	25
15	Male	125	31	13
16	Male	051	19	25
17	Male	091	23	06
18	Female	205	18	34
19	Male	152	22	26
20	Male	169	07	34
21	Male	180	18	25

INTACT CLASS C

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Male	163	18	32
02	Female	214	16	35
03	Male	114	15	35
04	Male	175	14	35
05	Male	119	35	23
06	Male	205	26	35
07	Female	092	10	35
08	Male	094	20	21
09	Male	148	18	35
10	Female	089	16	31
11	Female	067	17	28
12	Female	124	20	22
13	Male	149	15	35
14	Male	114	27	16
15	Male	041	26	14
16	Female	110	22	22
17	Male	086	08	35
18	Female	107	15	35
19	Male	150	32	20
20	Female	194	16	35

INTACT CLASS D

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Male	215	09	19
02	Female	164	18	25
03	Male	010	21	20
04	Male	073	22	24
05	Female	154	18	34
06	Female	120	23	29
07	Male	114	26	21
08	Female	065	32	22
09	Female	041	29	20
10	Female	190	21	30
11	Male	140	20	27
12	Male	121	16	26
13	Female	018	27	22
14	Male	165	19	32
15	Female	142	20	20
16	Male	205	14	23
17	Female	114	17	25
18	Female	139	24	27
19	Male	185	24	30

INTACT CLASS E

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	069	27	27
02	Male	055	18	28
03	Male	112	20	19
04	Female	205	20	27
05	Male	150	30	24
06	Female	216	08	33
07	Male	113	32	26
08	Male	113	20	28
09	Male	218	10	35
10	Male	040	22	20
11	Male	211	13	35
12	Female	093	25	28
13	Female	211	24	33
14	Female	217	18	19
15	Female	051	24	23
16	Male	120	08	35
17	Male	078	19	35
18	Female	130	30	13
19	Female	173	22	27

INTACT CLASS F

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	117	16	30
02	Male	156	26	28
03	Female	181	26	22
04	Female	177	28	26
05	Female	149	26	20
06	Male	096	18	30
07	Female	169	25	15
08	Male	053	15	17
09	Male	057	17	21
10	Female	214	18	30
11	Male	142	20	30
12	Female	159	20	30
13	Male	126	21	19
14	Female	127	17	25
15	Male	146	26	30
16	Male	203	26	30
17	Male	209	18	30
18	Male	094	21	25
19	Female	184	18	30
20	Female	144	26	28
21	Female	159	28	26

INTACT CLASS G

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	207	15	35
02	Male	033	11	31
03	Male	115	17	24
04	Female	109	25	22
05	Male	126	22	25
06	Female	143	23	27
07	Female	047	28	19
08	Male	102	18	23
09	Female	149	24	16
10	Female	051	19	23
11	Male	133	16	23
12	Female	138	11	28
13	Female	090	16	25
14	Male	141	11	29
15	Male	145	15	24
16	Male	161	14	22
17	Female	206	13	28
18	Female	054	19	20
19	Male	142	13	26
20	Female	048	12	28
21	Female	035	17	24
22	Male	147	15	19
23	Female	181	17	28

INTACT CLASS H

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	115	18	23
02	Female	173	15	30
03	Female	206	18	27
04	Female	095	12	29
05	Male	199	30	12
06	Female	220	26	22
07	Female	141	15	26
08	Male	087	16	32
09	Female	217	09	28
10	Male	084	18	29
11	Male	076	12	33
12	Male	118	24	18
13	Female	206	13	33
14	Male	077	25	16
15	Female	126	28	22
16	Female	187	12	32
17	Male	218	08	35
18	Male	155	13	33
19	Male	079	16	26
20	Male	120	20	26
21	Female	110	07	33

INTACT CLASS I

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Male	082	14	21
02	Female	143	11	31
03	Female	060	20	21
04	Female	141	21	21
05	Female	133	13	35
06	Female	156	15	34
07	Female	137	16	30
08	Male	078	16	28
09	Male	072	12	25
10	Male	065	16	28
11	Female	212	10	35
12	Female	118	18	31
13	Female	218	14	35
14	Female	111	18	32
15	Female	091	15	34
16	Male	070	13	34
17	Female	075	17	32
18	Female	073	28	31
19	Male	089	19	29
20	Male	217	12	35
21	Female	104	34	29
22	Male	122	14	32

APPENDIX B

STATISTICAL GROUP A

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
03	Male	116	26	17
04	Female	102	11	29
05	Male	157	15	34
07	Male	052	29	13
08	Male	084	28	13
11	Female	050	33	14
12	Female	123	24	19
22	Male	087	27	12

STATISTICAL GROUP B

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	099	22	14
03	Male	175	10	33
04	Female	102	15	28
05	Male	105	25	21
06	Male	145	14	32
07	Female	097	14	34
09	Female	156	08	35
12	Male	110	12	30
13	Male	087	26	21
15	Male	125	31	13
17	Male	091	23	06
20	Male	169	07	34

STATISTICAL GROUP C

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
03	Male	114	15	35
04	Male	175	14	35
07	Female	092	10	35
10	Female	089	16	31
13	Male	149	15	35
14	Male	114	27	16
15	Male	041	26	14
16	Female	110	22	22
17	Male	086	08	35
18	Female	107	15	35
19	Male	150	32	20

STATISTICAL GROUP F

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Female	117	16	30
02	Male	156	26	28
05	Female	149	26	20
07	Female	169	25	15
18	Male	053	15	17
15	Male	146	26	30
20	Female	144	26	28

STATISTICAL GROUP G

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
02	Male	033	11	31
04	Female	109	25	22
07	Female	047	28	19
09	Female	149	24	16
12	Female	138	11	28
14	Male	141	11	29
16	Male	161	14	22
20	Female	048	12	28
22	Male	147	15	19

STATISTICAL GROUP I

ID Number	Sex	Dolch 220	Dependency Score	Independency Score
01	Male	082	14	21
02	Female	143	11	31
05	Female	133	13	35
06	Female	156	15	34
07	Female	137	16	30
08	Male	078	16	28
09	Male	072	12	35
10	Male	065	16	28
15	Female	091	15	34
16	Male	070	13	34
18	Female	073	28	31
21	Female	104	34	29
22	Male	132	14	32

APPENDIX C

DIRECT TREATMENT GROUP

Class	ID	Sex	Dolch 220	TDEP	TIND	Pre-Test 20 Score	Post-Test 20 Score
A	03	Male	116	High	Low	02	18
	04	Female	102	Low	High	00	18
	05	Male	157	Low	High	04	20
	07	Male	052	High	Low	01	08
	08	Male	084	High	Low	04	05
	11	Female	050	High	Low	00	06
	12	Female	123	High	Low	01	16
	22	Male	087	High	Low	02	02
I	01	Male	082	Low	Low	-- ^a	-- ^a
	02	Female	143	Low	High	06	13
	05	Female	133	Low	High	04	19
	06	Female	156	Low	High	05	15
	07	Female	137	Low	High	05	13
	08	Male	078	Low	High	05	05
	09	Male	072	Low	High	01	11
	10	Male	065	Low	High	01	07
	15	Female	091	Low	High	01	17
	16	Male	070	Low	High	04	08
	18	Female	073	High	High	02	03
	21	Female	104	High	High	02	13
	22	Male	122	Low	High	04	12

^aPupil absent during testing.

INDIRECT TREATMENT GROUP

Class	ID	Sex	Dolch 220	TDEP	TIND	Pre-Test 20 Score	Post-Test 20 Score
B	01	Female	099	High	Low	01	07
	03	Male	175	Low	High	04	11
	04	Female	102	Low	High	01	12
	05	Male	105	High	Low	01	09
	06	Male	145	Low	High	02	11
	07	Female	097	Low	High	01	16
	09	Female	156	Low	High	08	18
	12	Male	110	Low	High	02	09
	13	Male	087	High	Low	00	08
	15	Male	125	High	Low	04	07
	17	Male	091	High	Low	00	07
	20	Male	169	Low	High	06	20
G	02	Male	033	Low	High	00	03
	04	Female	109	High	Low	00	11
	07	Female	047	High	Low	00	04
	09	Female	149	High	Low	07	04
	12	Female	138	Low	High	04	10
	14	Male	141	Low	High	04	13
	16	Male	161	Low	High	09	18
	20	Female	048	Low	High	-- ^a	-- ^a
	22	Male	147	Low	Low	09	11

^aPupil absent during testing.

NON-TREATMENT GROUP

Class	ID	Sex	Dolch 220	TDEP	TIND	Pre-Test 20 Score	Post-Test 20 Score
C	03	Male	114	Low	High	01	07
	04	Male	175	Low	High	09	13
	07	Female	092	Low	High	00	03
	10	Female	089	Low	High	-- ^a	-- ^a
	13	Male	149	Low	High	04	13
	14	Male	114	High	Low	03	09
	15	Male	041	High	Low	00	00
	16	Female	110	High	Low	01	08
	17	Male	086	Low	High	01	03
	18	Female	107	Low	High	01	06
	19	Male	150	High	Low	05	11
F	01	Female	117	Low	High	05	07
	02	Male	156	High	High	09	11
	05	Female	149	High	Low	04	11
	07	Female	169	High	Low	11	12
	08	Male	053	Low	Low	00	07
	15	Male	146	High	High	04	10
	20	Female	144	High	High	04	10

^aPupil absent during testing.

APPENDIX D

TREATMENT WORDS
GROUPING AND PRESENTATION ORDER

Treatment Session Number 1

where

saw

full

came

draw

Treatment Session Number 2

write

know

went

those

once

Treatment Session Number 3

think

why

sing

three

shall

Treatment Session Number 4

laugh

these

ate

gave

thank

APPENDIX E

DIRECT
SAMPLE SEMISCRIPED LESSON PLAN

Lesson Objective

The lesson objective is for the pupil to immediately recognize the Dolch Basic Sight Words where, saw, full, came, and draw without using word-analysis techniques.

Materials Needed

1. Word Cards: where, saw, full, came, and draw
2. Chart Tablet
3. Chart Stand
4. Marking Pen

Procedures

1. Direct the class to clear everyting off the tops of their desks. Criticize and correct pupils not following directions.
2. Introduce the exercise by explaining the purpose of the lesson. In the event pupils ask questions or make comments, discourage student remarks by criticizing and repeating the directions.
3. Hold up each word card separately and say the word aloud. Direct the class to look carefully at the words on the word cards. Criticize and correct pupils not following directions. Repeat the procedure three times.
4. Tell the class to say the words on the word cards together. Tell them to look at the words carefully as they say them aloud. Criticize and correct pupils not following directions. Repeat the procedure three times.
5. Call on individual children to say the word on the word card aloud. Criticize and correct mispronounced words. Repeat three times.

6. Have the following sentences written on the chart tablet.
I know where to go. Where is Jim going After school,
where will we meet?

Read each sentence three times. Tell the children to look carefully at the underlined words as read by the experimenter. Criticize and correct children not following the directions.

7. Tell the children to look at the underlined words in the sentences as the experimenter points to them and to say them aloud. Criticize and correct pupils not following the directions. Repeat the procedure three times for each sentence.

8. Call on individual children to read a sentence. Criticize and correct mistakes. Repeat three times.

9. Tell everyone to say the underlined word which the experimenter points to. Criticize and correct pupils not following the directions. Repeat three times.

10. Hold up each word card and call on individuals to read the word aloud. Criticize and correct mistakes. Repeat three times.

11. Have the following groups of words on a chart:

when which where what

see saw say said

full fall five fly

came carry call come

down done draw don't

Call on pupils to say the word aloud when the experimenter points to it. Criticize and correct incorrect responses. Repeat three times.

12. Call on individual children to go to the chart and point to words the experimenter says aloud. Criticize and correct mistakes. Repeat three times.

INDIRECT
SAMPLE SEMISCRIPED LESSON PLAN

Lesson Objective

The lesson objective is for the pupil to immediately recognize the Dolch Basic Sight Words where, saw, full, came, and draw without using word-analysis techniques.

Materials Needed

1. Word Card: where, saw, full, came, and draw
2. Chart Tablet
3. Chart Stand
4. Marking Pen

Procedures

1. Direct the class to clear everything off the tops of their desks. Praise pupils following the directions.
2. Introduce the exercise by explaining the purpose of the lesson. In the event pupils ask questions or make comments, encourage student comments by accepting feeling, praising and encouraging and accepting, using and/or clarifying pupil remarks.
3. Hold up each word card separately and say the word aloud. Encourage pupils to look at the words carefully by praising individual pupils closely attending. Repeat the procedure three times.
4. Encourage the class to say the words on the word cards together. Encourage pupils to look at the words carefully by praising individual pupils closely attending. Repeat the procedure three times.
5. Elicit or encourage volunteers to say the word on the word cards aloud. Praise and encourage responses, and accept, use and/or clarify pupil responses. Repeat three times.

6. Elicit and encourage volunteers to provide verbal sentences using the words on the word cards. Accept, use and/or clarify pupil sentences. Elicit three verbal sentences per treatment word. Write the pupil sentences on the chart tablet. Read each sentence three times. Praise individuals attending carefully to the underlined word as read.

7. Encourage children to look at the underlined words in the sentences as the experimenter points to them and says them aloud. Repeat three times.

8. Encourage volunteers to read a sentence. Praise and accept, use and/or clarify pupil responses. Repeat three times.

9. Encourage pupils to say the underlined words the experimenter points to. Praise and encourage pupil responses. Repeat three times.

10. Hold up each word card and encourage volunteers to read the words. Praise and accept, use and/or clarify pupil responses. Repeat three times.

11. Have the following groups of words on a chart:

when	which	where	what
see	saw	say	said
full	fall	five	fly
came	carry	call	come
down	done	draw	don't

Encourage volunteers to say the words aloud which the experimenter points to. Praise student responses. Repeat three times.

12. Encourage volunteers to go to the chart and point to words the experimenter says aloud. Praise and accept, use and/or clarify pupil responses. Repeat three times.

APPENDIX F

PRE-TREATMENT TESTING AND RATING SCHEDULE

Intact Class	Event	Date	Time
B	The Basic Sight Word Test and the Beller's Scales	01-03-79	12:40 p.m.
C	The Basic Sight Word Test and the Beller's Scales	01-03-79	1:20 p.m.
A	The Basic Sight Word Test and the Beller's Scales	01-03-79	2:15 p.m.
F	The Basic Sight Word Test and the Beller's Scales	01-04-79	12:40 p.m.
D	The Basic Sight Word Test and the Beller's Scales	01-04-79	1:20 p.m.
E	The Basic Sight Word Test and the Beller's Scales	01-04-79	2:15 p.m.
I	The Basic Sight Word Test and the Beller's Scales	01-05-79	12:40 p.m.
H	The Basic Sight Word Test and the Beller's Scales	01-05-79	1:20 p.m.
G	The Basic Sight Word Test and the Beller's Scales	01-05-79	12:15 p.m.

TREATMENT SCHEDULE

Class	Treatment	Date	Time
B	Indirect Number 1	02-01-79	10:25 a.m.
A	Direct Number 1	02-01-79	11:00 a.m.
I	Direct Number 1	02-01-79	12:50 p.m.
G	Indirect Number 1	02-01-79	1:30 p.m.
B	Indirect Number 2	02-02-79	10:25 a.m.
A	Direct Number 2	02-02-79	11:00 a.m.
I	Direct Number 2	02-02-79	12:50 p.m.
G	Indirect Number 2	02-02-79	1:30 p.m.
B	Indirect Number 3	02-05-79	10:25 a.m.
A	Direct Number 3	02-05-79	11:00 a.m.
I	Direct Number 3	02-05-79	12:50 p.m.
G	Indirect Number 3	02-05-79	1:30 p.m.
B	Indirect Number 4	02-06-79	10:25 a.m.
A	Direct Number 4	02-06-79	11:00 a.m.
I	Direct Number 4	02-06-79	12:50 p.m.
G	Indirect Number 4	02-06-79	1:30 p.m.

POST-TREATMENT TESTING SCHEDULE

Class	Date	Time
C	02-07-79	9:30 a.m.
B	02-07-79	10:25 a.m.
A	02-07-79	11:00 a.m.
I	02-07-79	12:50 p.m.
G	02-07-79	1:30 p.m.
F	02-07-79	2:30 p.m.

APPENDIX G

THE BASIC SIGHT WORD TEST, BELLER'S CHILD DEPENDENCY ON
ADULT SCALE AND BELLER'S SCALE OF INDEPENDENCY OR
AUTONOMY AMONG CHILDREN TEST-RETEST
RELIABILITY COEFFICIENT DATA

ID	Sex	<i>Dolch 220</i>		<i>Dependency</i>		<i>Independency</i>	
		01-03-79	01-29-79	01-03-79	01-29-79	01-03-79	01-29-79
01	Female	069	070	27	26	27	27
02	Male	055	-- ^a	18	-- ^a	28	-- ^a
03	Male	112	090	20	19	19	22
04	Female	205	211	20	22	27	31
05	Male	150	-- ^a	30	-- ^a	24	-- ^a
06	Female	216	218	08	09	33	35
07	Male	113	141	32	35	26	17
08	Male	113	102	20	23	28	19
09	Male	218	218	10	08	35	35
10	Male	040	-- ^a	22	-- ^a	20	-- ^a
11	Male	211	217	13	05	35	35
12	Female	093	078	25	26	28	19
13	Female	211	-- ^a	24	-- ^a	33	-- ^a
14	Female	217	214	18	27	19	14
15	Female	051	042	24	28	23	16
16	Male	120	092	08	14	35	28
17	Male	078	052	19	13	35	35
18	Female	130	120	30	24	13	21
19	Female	173	173	22	12	27	35

^aPupils were absent during retesting. Scores were treated as missing data.

APPENDIX H

BELLER'S CHILD DEPENDENCY ON ADULT SCALE
AND
BELLER'S SCALE OF INDEPENDENCE OR AUTONOMY AMONG CHILDREN

Name _____ Sex _____

School _____ Teacher _____ Date _____

1. How often does the child seek help?

Help means any form of assistance from another person, e.g., doing something for the child like dressing, washing, finding a toy for him, pushing him in the swing, protecting him from another child when he is attached or when something is taken away from him, etc., giving instructions and guidance, like demonstrating how to build, play, paint, etc., giving what he asks for, e.g., a toy to play with, color to paint, etc.*

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence
7	6	5	4 3 2 1

2. How often does the child derive satisfaction from his work?

This can be judged from the following behavior: the child finishes his activity, e.g., painting, building, playing, class working, etc. without asking teacher for comment, without making derogatory comment on the work of other children, or without showing disturbance or irritation by bullying other children, by dashing off wildly destroying one's own work, etc., but instead moves away from a completed activity and gets ready for a new period.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence
7	6	5	4 3 2 1

*Note: Even numbered items are rating dependency behavior, and odd numbered items are rating independency behavior.

3. How often does the child seek recognition?

Recognition means any form of praise and approval. Child comes running to teacher showing her what he did, e.g., exclaiming, "I washed my hand"; telling her that he had carried out a command or request by the teacher, e.g., "I did my work,"; "I drank my milk,"; etc.; calling the teacher to see what he did, e.g., in the classroom, painting, doing seatwork, etc.; shouts to teacher, "Watch me!" when on the playground, when feeling he is especially good, doing something praiseworthy, etc.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence			
7	6	5	4	3	2	1

4. How often does the child attempt to carry out routine tasks by himself?

Routine tasks: dressing, washing, putting things away, etc. The rater is to put special emphasis on the child's attempts to carry out these routine tasks by himself. The occurrence of such attempts can be observed directly by seeing the child trying to dress by himself, to dress or undress at the swimming pool, trying to get the water running for washing, etc., (while the teacher assists another child), or the child may be found doing any of these in a clumsy way but doing them as best he can. (The rater must be careful to not let her feelings of a self-evident duty to assist the child in all routines when the child needs assistance interfere with an objective appraisal.)

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence			
7	6	5	4	3	2	1

5. How often does the child seek physical contact with teacher?

Physical contact: Wants to be picked up, holds on to teacher's clothing, hugs adult's knee, holds or reaches for teacher's hand, puts arm around teacher's neck (while teacher demonstrates to child, reads to group, on the playground, etc.).

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence
7	6	5	4
			3
			2
			1

6. How often does the child attempt to overcome obstacles in the environment by himself?

Obstacle means missing a necessary tool or object in play or work, having misplaced a pencil, a toy, clothing apparel, etc., desired objects that are placed out of reach, etc. The extent of the child's striving to overcome such obstacles by himself can be seen when, after his turning away from an ongoing activity (play or work), he returns and continues after having overcome the obstacle. This is distinguished from reaction to such obstacles which are characterized by the child's interrupting his play or work to join other children or another child, to scream out loud--"I need a pencil," "I need a sheet of paper,"--to go from child to child begging, demanding, and finally grabbing the desired object, or simply beginning to daydream, wandering off aimlessly or crying. How often does the child seek or strive to overcome obstacles in the environment on his own without getting distracted from his ongoing activity?

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence
7	6	5	4
			3
			2
			1

7. How often does the child seek attention?

How often does the child manage to keep others occupied with him? Getting another person to occupy himself with the child, e.g., talking to him (answering questions, explaining, watching the child, giving approval, praising the child, scolding, punishing, etc.). Try to ignore whether the child does it in a pleasant or unpleasant way, whether he is clever and skillful or clumsy or inefficient (a nuisance) in his efforts to draw attention, e.g., talking a lot, asking questions, volunteering answers, making a noise, making faces, being uncooperative, disobeying, excelling others, etc. Use as your basic criterion how often he manages to keep others occupied with him.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence
7	6	5	4
			3
			2
			1

8. How often does the child take initiative in carrying out his own activity?

When the child comes into the room or onto the playground he knows what he wants to do and proceeds to do so, e.g., reads a book, swing, etc. This can be distinguished from going out onto the playground and looking around for someone to join, clinging to the teacher, standing or wandering around aimlessly until teacher takes initiative, asking someone to play with him, or mostly wanting toys or objects which other children have already begun to use. It does not matter whether another child enters his activity occasionally, the main criteria being whether he has his own ideas and proceeds to carry them out.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence
7	6	5	4
			3
			2
			1

9. How often does the child seek to be near to others?

By being near we mean just what it says. The child manages to sit near the teacher (or another child), to play where the teacher is (or where another child or children are) regardless of whether he interacts with the other person or not. If the child is active and skillful, he may express himself in the form of playing with, working with, talking to, offering help, asking for help; on the other hand, if the child is quiet and timid he may just hang around, watch, stand or sit near another individual child, teacher, visitor or near a group. This differs from attention because it refers to proximity and does not say anything about the relationship between the child rated to other children or to the teacher when the interact.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence			
7	6	5	4	3	2	1

10. How often does the child complete an activity?

Once the task is set by the teacher or selected by the child, the child carries it out to completion, e.g., construction, play, art, etc. This is to be distinguished from giving up easily, getting quickly bored, disinterested or distracted. It is also to be distinguished from rigid perseveration, i.e., a child just keeping on doing one thing regardless whether he is successful or unsuccessful on the task. Use as your basic criterion how often a child carries an activity to its completion.

Very often and very persistently	Often and persistently	Occasionally and little persistence	Very rarely and without persistence			
7	6	5	4	3	2	1

APPENDIX I

FLANDERS' INTERACTION ANALYSIS CATEGORIES

TEACHER	<p>1. Accepts Feeling. Accepts and clarifies an attitude or the feeling tone of a student in a nonthreatening manner. Feelings may be positive or negative. Predicting and recalling feelings are included.</p> <p>Response 2. Praises or encourages. Praises or encourages students; says "um hum" or "go on"; makes jokes that release tension, but not at the expense of a student.</p> <p>3. Accepts, clarifies or uses ideas of students. Acknowledges student talk. Clarifies, builds on, or asks questions based on student ideas.</p>
TALK	<p>4. Asks Questions. Asks questions about content or procedure, based on teacher ideas, with the intent that a student will answer.</p>
	<p>5. Lectures. Offers facts or opinions about content or procedures; expresses his own ideas, gives his own explanation, or cites an authority other than a student.</p> <p>Initiation 6. Gives Directions. Gives directions, commands or orders with which a student is expected to comply.</p> <p>7. Criticizes Student or Justifies Authority. Makes statements intended to change student behavior from nonacceptable to acceptable patterns; arbitrarily corrects student's answers; bawls someone out. Or states why the teacher is doing what he is doing; uses extreme self-reference.</p>
STUDENT	<p>Response 8. Student Talk-Response. Student talk in response to a teacher contact that structures or limits the situation. Freedom to express own ideas is limited.</p>
TALK	<p>Initiation 9. Student Talk-Initiation. Student initiates or expresses his own ideas, either spontaneously or in response to the teacher's solicitation. Freedom to develop opinions and a line of thought; going beyond existing structure.</p>
SILENCE	<p>10. Silence or Confusion. Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.</p>

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