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SIMULATION ACTIVITIES AS A MEANS OF CHANGING
ATTITUDES AND TRANSMITTING KNOWLEDGE OF
ADAPTATIONS AND TECHNIQUES FOR HANDICAPPED
INDIVIDUALS TO TEACHER TRAINEES

by

Jo-Alyce K. Peterson

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

Western Michigan University
Kalamazoo, Michigan
December 1977

DEDICATION

To Gladys L. Peterson Wooldridge and the late
Daniel J. Peterson, my parents, who encouraged us
to seek a higher education and who sacrificed much
to support our educational endeavors.

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In writing this dissertation, I have benefited from the advice, encouragement, and constructive criticism of Dr. Alonzo E. Hannaford, my major advisor, and from Dr. Joseph P. Stoltman, Dr. Abraham W. Nicolaou, and Dr. R. Hunt Riegel. This study would not have been possible without the support of Dr. Joseph J. Eisenbach, Mr. Isadore Turansky, Dr. Dona Icabone, Dr. Julie Clarke, the faculty and staff of the Special Education Department at Western Michigan University, and the special education teacher trainees who participated in this study. In addition, I received a great deal of encouragement from my brother Dan and his family, Mary Lou, Danny Jim, and Debbie; my sister Nicole and her family, Thor and Erin; my stepfather, William Wooldridge; and Betsy Ross Roellchen who encouraged me to seek a career in special education.

Jo-Alyce K. Peterson

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CHAPTER I

INTRODUCTION

The purpose of educating the handicapped is the same as for the nonhandicapped: to assist them in becoming productive citizens within the limits of their abilities.

The broad educational objectives for children in general have been well defined. They are centered around children's becoming independent, contributing citizens in the society. Their educational experiences are designed to help them become as effective individuals as possible who will help improve and promote the society in which they are growing and will be living. (Johnson, 1975, p. 203)

The education of handicapped children has historically been rather tenuous with each state addressing the education of the handicapped in different ways, but rarely providing public education for all handicapped youngsters (Cruickshank & DeYoung, 1975). It was through several key court decisions that the foundation was laid for mandatory special education legislation. These cases publicized the rights of special education students under the laws of the United States. In the Pennsylvania case, the Pennsylvania Association for

Retarded Children brought suit against the Commonwealth of Pennsylvania (1971) contesting that under the Equal Protection Clause of the Fourteenth Amendment, retarded children could not be denied the right to a public education. The Commonwealth of Pennsylvania, by Consent Agreement, corrected the situation (Cruickshank & DeYoung, 1975). In a second landmark decision, *Mills versus the Board of Education of the District of Columbia* (1972), the right to a public education for all children was secured (Cruickshank & DeYoung, 1975). Subsequent to these decisions, most states adopted mandatory legislation ensuring the education of handicapped individuals. A survey in 1975 indicated that 48 of the 50 states had adopted some form of mandatory legislation (Abeson & Ballard, 1976).

Education of handicapped students has a lengthy history, but in the United States a concerted emphasis in special education did not appear until after World War II (Cruickshank, 1975). Consistent with this emphasis in the special education of handicapped students, teacher preparation institutions developed programs to produce teachers who had the knowledge, ability, and attitude necessary to educate the handicapped. While such programs have undergone continual development and refinement, the recently enacted federal law (Public Law 94-142) mandating education for all handicapped students has focused renewed attention on the necessity of producing

qualified special educators in larger numbers than ever before.

The broadening of the age range to be served and inclusion of more severely handicapped students in education programs have also necessitated modifications in teacher preparation programs.

The preparation which special educators are to receive is important to teacher training institutions. The major responsibility of teacher training should rightfully be left to the colleges and universities, but the minimum standards for teachers should be established by the states (Cruickshank, 1975). Presently, all states have statutes which regulate teacher certification (Reutter & Hamilton, 1976). Individual states have requirements which a person must meet in order to qualify for and receive teacher certification. The teacher, in order to provide students with a good education, must not only meet the requirements for certification but must be trained for the specific teaching role to be assumed. Although the qualities of a good teacher have not yet been clearly defined (Withall & Lewis, 1963), many university programs attempt to develop the following: Knowledge of the content areas and teaching strategies, understanding of the students, and positive attitudes and expectations toward the students (Connor, 1976). The development and/or promotion of such qualities rests with the universities.

Once a university has identified the content desirable for teacher trainees to acquire, the best methods of instruction to be

employed must then be identified. Traditionally, university programs have used lectures, multi-media, field experience, group discussions, readings and modeling as means of preparing students to assume roles as teachers. Since it is realized that cognitive, as well as affective, abilities are important in the process of teacher preparation (Connor, 1976), universities and colleges evaluate the effectiveness of their teacher training programs in order to assure development of these areas of growth. Such evaluations involve scrutiny of the techniques employed in teacher training as well as the content. One instructional method currently under scrutiny is the use of simulations or gaming strategies (Cousins, 1977).

Simulations have become popular in American education in the last decade, but the technique has been in use for several thousand years (Gilliom, 1974). Cloud (1974) defined simulations as an attempt to "recreate, as realistically as possible, a particular situation. There is an attempt to build in specific roles, crises, issues, restrictions, and factors that one would expect to find if he were thrust into the middle of the circumstances" (p. 273). The terms gaming and role playing are frequently used interchangeably with simulations, or as a description of one or more aspects of simulations. McGuire (1976) stated that "simulation consists merely in placing an individual in a realistic setting where he is confronted by a problematic situation that requires his active participation in

initiating and carrying through a sequence of inquiries, decisions, and actions" (pp. 89-90).

The teacher training processes at most universities acknowledge the importance of life experiences by including practica and other field based experiences as an integral part of training sequences. This is evidenced by the acceptance of practicum experience as a major component of the teacher training process. Cruickshank (1975) feels this is an essential component of the special education teacher training program. However, because of the large number of students in teacher training programs, geographic location, and the limited numbers of supervisory teachers available, many universities are seeking ways in which field based practicum experiences can be re-created within the confines of a campus classroom setting. Simulations promise to be one means for achieving this objective. For example, Cruickshank and Broadbent (1969) found that student teachers receiving simulations 2 weeks prior to student teaching performed as well as those who received the full student teaching experience. Engin and Klein (1975) felt that simulations provided the instructor with a greater control over stimulus and response events, thus ensuring that specified behaviors would be introduced. Cruickshank (1968) concluded that "there can be no serious opposition to the concept of simulation: the real issue is whether or not such experiences may be used effectively to shift

the behavior of the user and thereby improve teaching" (p. 193).

Gilliom (1974) surveyed the research which has been conducted on the use of simulation methods as a means of instruction. He stated: "During the past ten years researchers periodically have attempted through controlled experiments to measure the effects of simulations on participants. Findings have been largely inconclusive and vague" (p. 267). Further, it is evident that although simulations have been accepted by many educators, there is still a lack of definitive research (Gilliom, 1974).

Although there has been a limited amount of research investigating the effects of simulations as a means of instruction, there are fewer studies about the effects of simulations on attitudes and acquisition of knowledge. There is evidence that simulation as a means of instruction is at least as effective as traditional instructional techniques in both cognitive achievement (Anderson, 1970; Cherryholmes, 1966; Heinkel, 1970; and Lucas, Postma, & Thompson, 1975) and attitudinal changes (Cherryholmes, 1966). Harrington (1974) cited four weaknesses in the current research conducted on simulations.

First, any research must concern itself with a clearly defined group of students. . . . Second, the research must make a clear distinction between the areas it is trying to measure: concept mastery, game rules,

group interaction, mastery of facts or motivation. . . .

Third, there must be a more precise reporting and examination of what it is within each category for measurement that is being examined. . . . Fourth, the research needs to be a far larger scope than has appeared so far. (Harrington, 1974, pp. 287-288)

Teacher preparation institutions appear to be increasingly employing simulations as an alternate means of developing desired learnings. Currently many of the major means of instruction in higher education have been adequately researched (Wallen & Travers, 1963), but little research has been conducted on the effectiveness of simulations (Gilliom, 1974). Due to the apparent lack of definitive research in this area, especially in the field of special education, it was the intent of this investigation to study simulation activities as a means of instruction for students who intend to work with handicapped individuals upon completion of a special education teacher preparation program.

Statement of the Problem

The purpose of this study was twofold. First, it was designed to systematically investigate the effects of simulation activities on students' attitudes toward handicapped children, and second, to investigate the use of simulation activities as a means of increasing

the students' knowledge of the techniques and adaptations necessary for the education of handicapped children.

The specific questions addressed in this study were:

1. Will students who receive both the information and simulation (information/simulation) treatment demonstrate significantly more positive attitudes toward handicapped individuals and a greater knowledge of adaptations and techniques than those who receive simulation only, information only, or no specific treatment?
2. Will students who receive the simulation and information treatment demonstrate significantly more positive attitudes toward handicapped individuals and a greater knowledge of adaptations and techniques than students who receive no specific treatment?
3. Will there be any significant difference between students who receive the simulations and those who receive the information treatment in their attitudes toward handicapped individuals and knowledge of adaptations and techniques?

Hypotheses

The general hypotheses addressed by this study and the rationale for each follows:

1. The information/simulation treatment group will demonstrate significantly more positive attitudes toward handicapped individuals than the simulation treatment group, information treatment

group, or the control group.

Rationale: Greater changes in attitudes will be demonstrated by a combination of simulation and information, since this group will receive both treatments. If the rationale for both information and simulation is established, then the benefits in receiving both information and simulation should result in a treatment group score significantly higher than either of the components individually.

2. There will be no significant difference between the simulation treatment group and the information treatment group in their attitudes toward handicapped individuals.

Rationale: There is evidence that simulation as a means of instruction is as effective as traditional instruction techniques in attitudinal changes (Cherryholmes, 1966).

3. The simulation treatment group and the information treatment group will demonstrate significantly more positive attitudes toward handicapped individuals than the control group.

Rationale: Yuker, Block, and Young (1970) stated that attitudes toward the disabled are the result of direct interactive experiences with the disabled or more formal learning experiences designed to provide students with information about handicapped individuals. Therefore, it is reasonable to assume that the control group will perform less well on the assessment instruments than those participating in the simulation treatment group or the

information treatment group.

4. The information/simulation treatment group will demonstrate significantly greater knowledge of adaptations and techniques than the simulation treatment group, information treatment group, or the control group.

Rationale: This group will receive both treatments, thus being subjected to a greater intensity of simulation and information treatments. If the rationale for the viability of both information and simulation is established, then the advantage of receiving both information and simulation should increase the likelihood of this treatment group scoring significantly higher than either of the components individually or no treatment.

5. There will be no significant difference between the simulation treatment group and the information treatment group in their knowledge of adaptations and techniques.

Rationale: There is evidence that simulation as a means of instruction is at least as effective as traditional instructional techniques in cognitive achievement (Anderson, 1970; Cherryholmes, 1966; Heinkel, 1970; Lucas, Postma, & Thompson, 1975).

6. The simulation treatment group and the information treatment group will demonstrate greater knowledge of adaptations and techniques than the control group.

Rationale: It is expected that the control group will perform

less well on the assessment instruments than those currently participating in the information treatment group or the simulation treatment group. This will reflect the knowledge of adaptations and techniques not specifically addressed in the Western Michigan University goals for the special education courses which the participants in this study are currently enrolled.

Definitions

Attitudes are the expressed opinions toward handicapped individuals as measured by the Attitude Toward Disabled Persons Scale (ATDP).

First Term Special Education Students are those undergraduate students who are enrolled in the initial special education course (Practicum in Special Education) at Western Michigan University.

Handicapped Individuals are those students who would have characteristics which would enable them to be certified Educable Mentally Impaired, Learning Disabled, Physically and Otherwise Health Impaired as defined in the Michigan Special Education Code (1971).

Simulation Activities are experiential exercises in which students assume the role of a handicapped individual, or teacher of a handicapped individual, and experience environmental stimuli similar to those occurring in an actual situation.

Adaptations and Techniques are teaching strategies and alterations in the classroom environment and/or pupil-teacher interaction which may be made to accommodate students with various handicapping conditions as measured by the Adaptations and Techniques Test (ATT).

Significance of the Study

It is the contention of some researchers that simulations are a viable means of instruction in special education teacher training programs. Furthermore, it is believed that simulation activities are a desirable method for introducing students to various handicapping conditions in children. Such activities may increase knowledge of adaptations and techniques as well as change attitudes toward handicapped individuals. If such a contention is accurate, simulation activities based on empirical evidence could be developed and incorporated into special education teacher preparation programs. This research may indicate the feasibility of the use of simulations in such programs.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This chapter is divided into four general sections. The first section is a review of simulation theory and general research in the areas of cognitive acquisition and attitude change. The second section includes a review of traditional methods of instruction (lecture-discussion) theory and general research reviewed in the areas of cognitive acquisition and attitude change. The third section consists of the research and literature related to differential cognitive acquisition and attitude change resulting from simulation and traditional methods of instruction. The last section includes a discussion of the relationship between cited literature and the current study.

Simulation Theory

A theoretical basis may be considered as an integral part of research. Goodman (1973) indicated that a sound theoretical base is necessary for a research project. However, in the case of simulations it appears that little has been done in the development of theoretical bases. An investigation of the literature indicated that

theory appeared to be in an embryonic state. This assessment was supported by Fink (1977), who has been involved in the development of simulations for teacher trainees in special education. A discussion of the general components that comprise a theory would assist in appraising and evaluating the current stage of development of simulation theory.

Reynolds (1971) suggested that there were two methods in developing a theory: One is to develop the theory based on research, and the other is to develop the theory and conduct research to test the theory. If research is conducted first, the researcher looks for significant patterns in the data. Once patterns have been identified, theoretical statements can be formulated. In the theory-then-research method, the researcher attempts to study different aspects of the theory through research.

Theorists address themselves to distinct goals: (1) prediction and (2) understanding (Dubin, 1969). There are three types of statements which can be organized to constitute a theory: (1) statement of a set-of-laws, (2) axiomatic statement, and (3) causal process statements. In the set-of-laws format, a theory is considered a set of established scientific laws. Axiomatic theory consists of an interrelated set of definitions and statements which contain certain features (Reynolds, 1971). These features include the following:

1. A set of definitions, including theoretical concepts,

both primitive and derived (nominal), and operational definitions (to allow the identification of some abstract theoretical concepts in concrete settings).

2. A set of existence statements that describe the situations in which the theory can be applied, sometimes referred to as the scope conditions since they describe the scope of conditions to which the theory is considered applicable.

(These statements are not required in a completely imaginary theory, such as in mathematics, that is not intended to be applied to concrete or "real" phenomena.)

3. A set of relational statements, divided into two groups:

- a. Axioms--A set of statements from which all other statements in the theory may be derived.
- b. Propositions--All other statements in the theory, all derived from combinations of axioms, axioms and propositions, or other propositions.

4. A logical system used to:

- a. Relate all concepts within statements, and
- b. Derive propositions from axioms, combinations of axioms and propositions, or other propositions.

(Reynolds, 1971, pp. 92-93)

The causal process also includes an interrelated set of definitions and statements with certain important features. These features include the following:

1. A set of definitions, including those of theoretical concepts, using both primitive and derived (nominal) terms, and operational definitions (that describe how to identify some of the theoretical concepts in concrete settings).
2. A set of existence statements that describe those situations in which one or more of the causal processes are expected to occur, or as it is sometimes described, when these processes will be "activated."
3. A set of causal statements, with either deterministic or probabilistic relations, that describe one or more causal processes or causal mechanisms that identify the effect of one or more independent variables on one or more dependent variables. Although different causal mechanisms may differ in impact on the dependent variables, all statements are considered of equal importance in terms of the presentation of the theory.

(Reynolds, 1971, p. 97)

Based upon these criteria, it appears that simulations are in the model stage of development, and although some attempts have

been made to develop causal statements, the major components of theory have not been satisfied. Thus, the research-then-theory process proposed by Reynolds (1971) would appear to apply to simulation inquiry. There have, however, been some attempts to develop a theory of gaming. The terms simulation and gaming are often used interchangeably with simulations considered a subcomponent of the gaming process. Avedon (1971) has described gaming through the identification of seven elements: "(1) purpose of the game, (2) procedures for actions, (3) rules governing action, (4) number of players required, (5) roles of participants, (6) participant interaction patterns, and (7) results or payoff" (p. 422). Much of the research and literature on gaming has been concentrated on the individual elements rather than gaming as a whole. For example, Von Neumann and Morgenstern (cited in Goodman, 1976) studied the rules governing action, while Goffman (cited in Avedon, 1971) studied the interaction effects in gaming. In 1972, Schran and Kumpf visited the United States to investigate environmental gaming as it was currently being utilized. They concluded that there was general confusion and aimlessness in this field due to a lack of theoretical bases for gaming.

This same problem exists in the field of simulations. Perhaps one of the major problems is the confusion of the processes and models of simulations with theory. For example, process

simulation is often mistakenly misinterpreted as theory (Reynolds, 1971). In process simulation "the goal of the researcher is to produce the same empirical results found in a concrete situation" (Reynolds, 1971, p. 114). The process simulation describes "the actual processes that cause a phenomenon in concrete settings" (Reynolds, 1971, p. 114). Smith (1974) succinctly states, simulation is "a representational model of a particular theory. As a representational model, simulations approximate theory by operationalizing variables in the same way and under the same conditions (as well as can be) identified by the theory" (p. 18). Consequently, it is not too surprising that simulation theory itself has not been developed.

Simulation Structure

Elder (1973), through his discussion of problems confronting researchers and designers of simulations, is ultimately providing a structure for simulations. He suggests the following critical areas that should be considered in the construction of simulations: credibility, symmetry, synchronization, manageability, ease of administration and continual decision and feedback.

Credibility is the most important requisite for simulations utilized in research and is "dependent upon the participants and their perception and reactions to the game" (Elder, 1973, p. 339).

Thus the primary evaluative criteria are dependent upon the effects of the simulation on the overt behaviors of the simulation participants which are affected by the participants' perception and reactions to the simulation.

The second critical area is symmetry, which provides the participants with similar experiences consistent with the objectives of the simulations. The participants should cope with the same variables, relationships, parameters, and starting conditions (Elder, 1973). Students experiencing different stimuli appear to demonstrate mixed results in student learning.

A third critical area is synchronization, which involves the element of time. If the times for the various activities in the simulation are not synchronized, the participants may be in different stages of thinking and acting at the same time, which will hinder maximal learning and create confusion. Elder (1973) suggests that restricting "the scope of activities being simulated to those that are amenable to uniform time-reckoning" (p. 341) may help to decrease the possibility of asynchronization.

Another potential problem area is that of manageability, which means that the tasks the student is asked to perform should be directly related to the learning objectives. Complex games often have so many tasks that the student loses sight of the objectives or is involved in many tasks unrelated to the objectives.

The critical area, entitled ease of administration, involves the minimization of demands on the administrator. If administration cannot coordinate the flow of events, the exercise will be fruitless.

The last critical area involves a continuous decisional and feedback process. It is imperative that decisions affecting the simulation be logical and continuous. Evaluation during the simulation process provides a logical and structured means of identifying areas of weakness as well as strength so that the administrator can make continuous changes to upgrade the simulation activities.

Elder (1973) also says that, in addition to the structure, the following problem areas should be considered: innovation without oversell, accurate estimation of the costs involved, appropriate substantive qualifications and precautions, and definition and implementation of specific learning objectives.

Duke (1974) also provides a superficial structure for simulation processes as provided in his chart of interpretive criteria. As can be seen in Figure 1, Duke (1974) has provided a list of elements to be included, or at least considered, in the construction and evaluation of a game. This investigator incorporated the following elements from Duke's (1974) list of interpretive data: basic information, participants, player involvement, time, content and dynamics of play. However, the less rigid structure through the use of Elder's (1973) critical areas was utilized as the main source of

Figure 1

Interpretive Criteria

Basic Information	Title	
	Designer	
	Date	
	Description-Subject	
	Purpose	
	Intended Use	
	Space Requirements	
	Computer Requirements	
	Other Media Requirements	
Kit Availability	Cost	
	Source	
	Portability	
	Kit Paraphernalia	Standard or Custom Made
		Documentation
Participants	Materials and Quantities	
	Age Range	
	Homogeneity	
	Prior Knowledge	
	Sophistication	
Player Involvement	Number	
	Player Organization	
	Emotional/Intellectual	
	Active/Passive	
Time	Duration of Play	Introduction
		Inertia
		Flying
	Preparation Time	Critique
		Player
Content	Operator	
	Steps of Play & Plot Outline	
Dynamics of Play	Playability	Level of Abstraction
		Gaminess
		Complexity, Number of Variables, Interactions, Decisions, Supersymbols, Models, Decision Makers
		Alternative Scenarios
	Flexibility	Issue Generation
		Changing Subject Matter
		Observability
	Does the Conceptual Map Correspond to Reality *	
Evaluation	Was the Translation into a Game Successful	
	Is the Product Acceptable	

* Specific Questions Deleted (p. 144)

guidelines for this study.

As can be seen by the above information, simulation theory is still in an embryonic stage of development, and there are serious questions as to whether a theory is even feasible. The impact of choices, interaction effects of role playing, and the type and amount of information supplied to the game player can only be delineated through further research and thereby lead to a sound theoretical construct which may be used as a basis for simulation development.

The structure for simulations appears to be the most precise guide for developing and researching simulation effects. Smith (1974) also suggests that since simulations are a representational model of the theory, the simulation exercise must reflect the hypotheses being tested. Keeping this information in mind, a review of the research on the effects of simulations on the attitude and cognitive areas will be presented.

Simulations: Higher Education

The research literature in higher education regarding the use of simulations has shown varied results in terms of attitude changes and cognitive acquisition. Most studies appear to indicate, however, that simulations are equally as effective as other methods of instruction (Cherryholmes, 1966; Gilliom, 1974; Heitzman, 1973) but more motivating than traditional methods of instruction (Cherryholmes,

1966; Gilliom, 1974; Heitzman, 1973; Wentworth & Lewis, 1973).

Under certain conditions, however, greater changes have been demonstrated.

This section has been divided into two parts. The first section deals with simulations in higher education in general, whereas the second part deals with the effects of simulations in teacher preparation programs.

Simulations: General. Several studies conducted in higher education have demonstrated the importance of active participation in simulation situations. In 1954, Janis and King designed a study to determine the effects of overt verbalization through role playing and opinion change. An opinion survey was distributed to male college students in a large classroom. One group, with the aid of a prepared outline, played the role of a sincere advocate of a given point of view while the passive control group silently read and listened to the same communication. In two of the three communications, the active participants showed more opinion change than the passive control group, which demonstrated the importance of active participation in the form of role playing to effect opinion change.

Greenwald (1970) evaluated the effect of counterattitudinal information prior to role playing in one group and after role playing in another group. The two groups consisted of undergraduates in an introductory social psychology course and a group of volunteer

students in an introductory psychology course. In this study counterattitudinal role playing (writing an essay opposing one's attitudes) was not found to be an effective method of producing attitude change when subjects "were provided an opportunity to consider and reject role-supporting arguments prior to their role assignment, whereas it was effective for those receiving role-supporting arguments after their role playing assignment" (Greenwald, 1970, p. 214). These results seem to indicate that when students are given the opportunity to consider counterattitudinal information prior to role playing, the effects of the role playing in terms of attitude change are negligible.

In a study designed to assess the attitudes of business students toward business in simulation and control groups (Rosen, Jerdee, & Hegerty, 1973), 129 junior and senior undergraduates were selected to participate. The subjects were placed by class into either the simulation or control group. The simulation group received Simulated Society (SIMSOC) while the control group received the traditional method of instruction. The SIMSOC students were found to be more critical of business than the control students because of the gap between their ideals and current business practices. They also demonstrated attitudes of greater social awareness and concern. It appears that active participation in a simulated environment proved effective in changing student attitudes.

Cafferty and Streufert (1974) dealt with attitude changes in

teams directly engaged in actions with aversive consequences and teams prevented from directly engaging in these actions. Undergraduate volunteers were utilized for the study which employed the Tactical and Negotiations game. They were divided into two groups with two teams per group: (1) the information handlers (separated from the decision makers) and decision makers and (2) the information handlers (worked with the decision makers) and the decision makers. The researchers found that the direct interaction between two teams supported the attitude hypothesis presented by Collins and Holt and restated by Cafferty and Streufert (1974):

Information handlers who are placed with the decision makers into a four-man group and consequently are able to participate in the decision-making activity should show more negative attitudes toward their opponents than information handlers who cannot share in the decision-making activity (i. e. , those who are placed in a pure two-man information-handling group). (p. 50)

A study in counseling by Van Noord and Kagan (1976) was designed to examine the influence of affective simulations and Interpersonal Process Recall techniques on client growth. The researchers randomly assigned 13 college students who had come voluntarily for counseling into an experimental and control group. The researchers found no significant differences on client growth

between the traditional and simulation methods of instruction. However, videotapes of simulated situations were utilized rather than the actual student participation in simulations, and this may have been the reason the researchers found no differences between the two groups.

In 1975, Stone conducted a study which was designed to develop a program for teaching specific counselor verbal skills and to examine the effects of simulation methods within the program. Sixty-four M. A. degree candidates in the counselor program were selected for the study. Subjects were randomly assigned to one of 16 treatment groups. Stone found that the least effective method was the low fidelity simulation procedures (individual practice manual followed by written responses), whereas the other groups using a trained role player followed by practice or orally responding to client statements scored equally. Here again, the importance of active participation in simulation activities appears to be effective.

Engin and Klein (1975) designed their study to investigate the effects of a school psychology training package (PSYCHISM) on enacted and written responses of preservice school psychology students. Fifty-two students were assigned to the control ($N = 32$) and experimental ($N = 20$) groups. The experimental group consisted of psychology students in their last quarter of training at their home university, while the control group was selected from students in

their last quarter of training from other training programs in the same state. Half of the students selected were randomly assigned as pretest participants with the other half as the controls. Following the pretest the experimental group was exposed to the simulation package PSYCHISM. "PSYCHISM trains by providing real-life, commonly encountered problem situations which the novice practitioner will meet as he assumes the responsibilities of his new job" (Engin & Klein, 1975, p. 171).

The experimental students participated in PSYCHISM during 11 sessions and developed and presented their own simulations in the following two sessions. A modified Solomon design was utilized for this study. Four weeks after pretesting, the posttesting was completed. Judges were employed as evaluators of the results of the "incident instrument" which was developed and used in this study.

Engin and Klein (1975) found that (1) the use of this simulation in the school psychology training program was an effective method of instruction; (2) conferencing and basic counseling skills developed appeared to be more responsive to brief simulation exposure; (3) students performed better in representative problem situations; (4) posttest scores of those receiving the pretest were even higher than the posttest only scores; (5) students were able to evaluate their performances in the simulation situation more effectively than the

control group; (6) but the simulation experience did not increase the number of effective alternative solutions formulated for the problem presented. The researchers felt that the study indicated simulation training was effective, but further study was needed.

Wilson and Alcorn (1969) attempted to discover if there was a relationship between simulation of a disabling condition and changes in attitude toward the disabled. The researchers randomly assigned 80 students from two classes in Psychology of Exceptional Children to experimental and control groups. Form A of the Attitude Toward Disabled Persons Scale (ATDP) was administered at the beginning of the course to all students. Following this, the experimental group was identified and an assignment was given to them. They were assigned to choose any of these conditions--blindness, deafness, loss of dominant hand, or loss of lower limbs--and role play that condition for the next 24 hours. The subjects were also asked to keep a written account of their experiences.

After one week Form B of the ATDP was administered to all students, and the results indicated no significant difference between the two groups in terms of attitudes toward the handicapped. Although the two groups showed no significant attitude change, there was little control over the structure utilized for this study. There was no way of determining the extent of compliance with the assignment as described.

Simulations: Teacher Preparation. In a study designed by Cruickshank and Broadbent (1969), the effectiveness of simulation in presenting teaching problems and the effects of presenting simulated teaching problems and subsequent decision making on student teaching behavior was explored. A self-report instrument was utilized with first year teachers (recent graduates of the home college) to identify critical teaching problems. A simulated school district was developed with the fifth grade as the selected grade level setting. A randomized control group pretest-posttest design was utilized for the 40 student participants who were beginning their student teaching in an elementary school. The two control groups reported for student teaching while the two experimental groups received 2 weeks of simulation training prior to beginning the student teaching assignment. The problem presentations consisted of (1) problem presentation via role play, written incident, film, or a combination; (2) independent problem solving; (3) small group discussions of alternative solutions; (4) large group discussion and closure (Cruickshank & Broadbent, 1969).

Two observations were made: One after the first scheduled 9 weeks of student teaching and the second after 18 weeks of scheduled student teaching. Students receiving the simulation activities seemed to perceive themselves as having fewer problems, and the supervisors of these students perceived them as having fewer

problems. There was no significant difference between the two groups on general teaching performance. The simulation group generally had more favorable feelings toward persons and concepts related to teaching problems but not significantly so. The simulation group did not show more confidence than the control group and were not ready to assume full-time responsibilities for student teaching sooner.

A learning disability simulation package and subsequent follow-up study were designed by Broadbent and Meehan (1971). The simulation package was designed to assist regular classroom teachers to accommodate mildly handicapped youngsters within the framework of the regular classroom situation. The purpose of the simulation was to increase the teacher's "(1) awareness, (2) observational skills, (3) willingness to seek ancillary help, and (4) motivation to initiate remedial programs in her classroom" (Broadbent & Meehan, 1971, p. 492).

The simulation package was presented in the form of a workshop to the total faculty at a small elementary school. The control group was made up of teachers in an education graduate course. The simulation consisted of a mock third grade class in which the teacher was provided with a class picture, class list, student records, audio-visual tape of student interaction, role playing, informal testing experience and various forms to assist the teachers

through an identification, diagnosis and support personnel process.

The results indicated that the simulation package was an effective method of inservice training for these teachers. The authors pointed out the importance of role playing in producing these changes.

The results of these studies seem to indicate that simulations appear to be at least as effective as other methods of instruction in effecting attitude changes and cognitive acquisition. There is some indication that attitude changes occur more frequently when the participants are actively involved, and when the students are introduced to stimuli that are extreme in nature, such as counterattitudinal information.

Since simulations appear to be as effective as other methods of instruction in higher education, it would appear that an examination of traditional methods of instruction should be beneficial since college instruction may be typically reliant on imparting or transmitting information relative to content dimensions (McKeachie, 1963).

Traditional Teaching: Theory

Theory of teaching is an important aspect to consider prior to conducting research on various teaching techniques. Since this investigation included the use of traditional methods of instruction,

as well as simulations, it is important to investigate theories of traditional instruction. A great deal of emphasis is placed on Gage's (1963) review of paradigms and theories as well as his observations. Ten years after Gage's (1963) work, Snow (1973) refers the reader to this important contribution thereby reflecting its continued currency and significance. Therefore, this section is based heavily on much of Gage's work.

Gage (1963) suggests the potential value inherent in the consideration of two types of teaching theories.

First, such a theory can undertake to explain why teachers behave the way they do in their roles as teachers . . . and second, explain how it is that the behavior of one person, a teacher, can influence the behavior or learning of another person, a student. (p. 134)

This latter theory is aligned more closely with the interests of the present research.

Although a great deal of literature exists on theories of learning, little work has been conducted on theories of teaching. Thus Gage (1963) suggests that one should consider the use of paradigms as well as theories for the development of research. He states that: "Paradigms are not theories; they are rather ways of thinking or patterns for research that, when carried out, can lead to the development of theory" (p. 95). Paradigms also provide structure and a

systematic way of looking at the teaching phenomena.

Stone and Leavitt (cited in Gage, 1963) propose a social interaction paradigm which gives some indication how interaction between the student and the teacher may be occurring in the teaching setting. This broad framework upon which one can begin to understand the teacher-pupil interaction may provide insight into the interaction in a lecture-question-and-answer style of teaching between the teacher and the student. There are 13 steps which describe the interaction between the teacher and the student. Steps 1 through 7 are considered the sensation-perception-thought-action sequence of the teacher; while steps 8 through 13 describe the same sequential process on the part of the student. The steps are:

1. Pupil provides stimuli.
2. Teacher selects stimuli.
3. Teacher perceives pupil.
4. Teacher adopts ideal action pattern.
5. Teacher adopts proposed action pattern.
6. Teacher carries out actual action pattern.
7. Teacher provides stimuli.
8. Pupil selects stimuli.
9. Pupil perceives teacher.
10. Pupil adopts ideal action pattern.
11. Pupil adopts proposed action pattern.

12. Pupil carries out actual action pattern.
13. Pupil's actual pattern of action serves as a source of stimuli for the teacher. (Gage, 1963, p. 125)

This paradigm may be applied to a single interaction or for a variety of pupil-teacher interactions. Accordingly the steps are completed in this manner. The student enters the classroom which provides the initial stimuli. Stimuli are selected by the teacher based upon the personality of the teacher, perceived pupil behavior, and perceived pupil personality. This is brought together into the teacher's perception of the student through a formulation of the pupil's perceived characteristics and behavior. The teacher adopts the ideal action pattern, but modifies that ideal action pattern through an estimation of the situation. Thus formulated, the teacher then carries out the action which provides the stimuli for the pupil, who in turn selects the stimuli based upon a sample of the teacher's behavior. The pupil perceives the teacher based upon pupil personality, perceived teacher behavior, and perceived teacher personality. The pupil then adopts the ideal action pattern and modifies that action based upon an estimation of the situation. The pupil carries out the action pattern which serves as stimuli for the teacher and this same pattern begins again. This paradigm describes well the detailed and complex interaction between the teacher and the student.

Traditional Teaching: Structure

The structure for the lecture-question-and-answer format is quite simple. The instructor decides what must be taught and designs a presentation which will convey verbally and/or visually what the instructor feels the students should know. Questions are either generated by the instructor, through which the instructor may evaluate what students have absorbed from the lesson; or the instructor may ask if the students have any questions relevant to the information presented in order to clarify any information which was presented.

Bellack and Davitz (cited in Nuthall & Snook, 1973) describe the verbal interaction in a classroom as a set of game rules in which the instructor's rules stipulate that the instructor must do most of the talking and structure the form and content of the verbal game. The student's rules include answering questions and making a verbal reply when called upon. The student is expected to pay attention to the lesson and when called upon, "his response will be repeated, praised, or commented on by the teacher" (Nuthall & Snook, 1973, p. 52).

Research conducted by Hovland, Janis, and Kelley (1953) indicated that variables other than the format of a lecture influence student learning. They found that "credibility of the lecturer, order of

presentation, presentation of one side of an issue versus presentation of both sides, and emotionality of argument are factors in determining the effect of a lecture" (McKeachie, 1963, p. 1129) in terms of attitude change. In addition, it has been found that large classes respond as well as small classes on traditional achievement tests but less well on other measures of achievement. Such variables and the structure are factors to be considered in interpreting research associated with traditional methods of instruction.

Traditional Teaching: Research

There have been a number of investigations conducted on traditional teaching methods with most having been comparative studies. The research studies cited in this section are considered major works closely aligned with this study. Most of the studies reviewed were designed to assess cognitive achievement. There have been few studies designed to assess attitude changes as a result of reliance on the traditional methods of instruction.

A study conducted by Hover, Gruber and Terrell (1963) investigated the effects of self-directed study versus lecture methods of instruction on course achievement, retention and curiosity. The subjects were 115 students enrolled in an Educational Psychology course at the University of Colorado. One section was designated (by flip of a coin) as the lecture group while the other group was

designated as the experimental group. The experimental group engaged in self-directed study in small groups while the control group listened to lectures.

At the end of the semester, and 10 months after the course, the authors found no significant differences between the groups in mastery of course material or retention. However, on eight of nine items concerning interest and curiosity about psychology, the experimental group scored significantly better than the control group. These results tend to indicate that lecture method of instruction works equally as well as other methods of instruction in cognitive acquisition.

In an 8-year study reported by Wallen and Travers (1963), 1,475 students in progressive universities were matched with 1,475 students from traditional universities. The progressive schools experimented with different means of instruction and allowed greater student freedom and variety of experiences in the curriculum. The students were evaluated by grades earned, extent of involvement in extracurricular (e.g., service clubs) activities, attainment of personal goals, concern about the contemporary scene, and attitudes toward and relationships with contemporaries. It was found that progressive schools were more effective than the traditional schools on the variables cited above. However, serious methodological and design defects in the study were found that involved the use of

matched pairs rather than randomization, inability to control grading criteria, and poor control over the various methods of instruction.

Hoover, Bauman and Shafer (1970) conducted a study to investigate the effects of large group lecture (control) versus large group lecture combined with small group discussions (experimental) on cognitive and affective learning. The groups consisted of 280 students who registered for an Exploration of Education course. Two intact groups were selected on the basis of the two most popularly selected course sections. The researchers found no significant differences between the two groups on cognitive and affective learning as measured by a 15-concept semantic differential scale and a teacher-made test.

Hovland, Janis and Kelley (1953) conducted and reviewed several studies on traditional methods of instruction in which the researchers dealt with attitude change in relation to order of presentation, credibility of the instructor, presentation of one side versus both sides of an issue, and the amount of emotion displayed in the presentation of arguments. Results obtained from the group of college students participating in the study were summed up by McKeachie (1963):

When contradictory information is presented in a single communication, by a single communicator, there is a

pronounced tendency for those items presented first to dominate the impression received.

The primacy effect found in presenting contradictory information in the same communication was reduced by interpolating other activities between the two blocks of information and by warning the subjects against the fallibility of first impressions.

Placing communications highly desirable to the recipient first, followed by those less desirable, produces more opinion change than the reverse order.

When an authoritative communicator plans to mention pro arguments and also nonsalient con arguments the pro-first order is superior to the con-first order.
(p. 1130)

McKeachie (1963), in his review of research, found that the size of the groups had little influence on the affective and cognitive learning of the students. In most studies, the lecture method was found equally as effective as other methods of instruction. The method of presentation and the behavior of the instructor were factors which influence student attitudes.

Simulation Versus Traditional

Methods of Instruction

A few studies were found that compared simulations with traditional methods of instruction. These studies were related closely to the present study and provided some insight into the problems and outcomes of the research conducted in this area.

Lucas, Postma and Thompson (1975) "compared the effect of simulation-gaming techniques with lecture-discussion techniques on students' cognitive achievement and retention of facts, concepts and principles" (p. 261). In their review of simulation literature, mixed results concerning the effectiveness of cognitive retention through simulation versus traditional methods of instruction were indicated. Lucas, Postma and Thompson (1975) noted five major weaknesses of these types of studies:

1. Employment of relatively untried games of the researcher's designs.
2. Small samples of subjects.
3. Use of dependent measures of undetermined reliability.
4. Slight attempt to control for teacher variable.
5. Relatively short periods of experimental treatment.
6. Experimental restriction to one type of geographical and social environment. (p. 262)

They attempted to resolve these deficits through their study.

A total of 294 high school U. S. History students from five public schools in three different geographical locations were selected and randomly assigned six classes each to the control and experimental groups. Each of the six volunteer teachers participating in the study were assigned one experimental and one control class. Both classes were assigned textbook readings, and lectures for the control group came from those readings. The experimental group participated in three commercially developed simulation games. At the conclusion of the 5-week experimental period, all classes returned to normal classroom instruction for 10 weeks. The students were administered a test developed for this study.

Their results indicated no significant differences between the control and experimental groups were found at the conclusion of the experiment, but significantly higher scores for the experimental group over the 10-week delayed interval were found. The authors conjectured that the increase in retention over a period of time was due to the fact that the experimental students became so involved in the active process of learning that "they continued to reinforce what they had learned; and indeed, to continue learning, either individually or collectively, during the delayed interval period" (Lucas, Postma & Thompson, 1975, p. 266). The results indicate that cognitive acquisition was greater for the simulation group over an

extended period of time, but there were no significant differences between the two groups immediately after the treatments were completed.

Heinkel (1970) conducted a study to evaluate the effects of simulation on cognitive learning and determine attitudinal changes. Two classes of 67 junior college political science students were randomly selected as the experimental and control groups. The simulation game National Politics (NAPOLI) was utilized for the experimental group while the control group received the traditional lecture-question-and-answer instruction. The same instructor taught both courses and was aware of which group was selected for the simulation after the pretests had been administered. The instrument for the pretest and posttest contained 100 items (test employed was not specified) and a 200-item delayed test was utilized for evaluation. The simulation was utilized for four days--approximately one hour each day.

The authors found no significant differences between the control group and experimental group in cognitive learning. On a self-report attitude scale, the simulation group showed consistently more favorable attitudes toward government than the control group.

The results indicate that role playing is a powerful tool for effecting attitude change and that simulations are at least equal to the traditional methods of instruction in the area of cognitive

learning.

Summary of Literature Review

The literature reviewed appeared to indicate that theory of instruction, whether for simulations or the traditional methods, is in an embryonic state of development. The components of a theory do not appear to be present. The structural aspects, models and paradigms appear to be developing more rapidly than theory. In spite of this lag in theory development, a number of studies have been completed utilizing traditional methods of instruction and simulations. These studies appeared to indicate the following: (1) simulation activities appear to be as effective as other methods of instruction in the acquisition of knowledge and attitudinal change; (2) simulations appear to be more effective in long term information retention (long term memory); (3) simulations which employ techniques such as counterattitudinal measures and active participation of the students appear to achieve greater changes in attitudes; (4) simulations appear to be more motivating to students than traditional methods of instruction; (5) traditional methods of instruction appear to be as effective as other methods of instruction; (6) there appeared to be significant deficits in studies conducted on the effectiveness of simulations; (7) there appeared to be a dearth of literature comparing traditional methods of instruction with simulation methods and

the combination of the two with a control group.

Current Study

Since most studies reviewed used only two groups for comparisons, the control group and the treatment group, the present study involved four groups to study the effects of a lecture-discussion (information) method, a simulation instruction method and a combination of the two with a control group and with each other. Both cognitive acquisition (adaptations and techniques) and attitudes would be measured.

This study was designed to incorporate active participation in the simulations, implementation of all treatments by one person, and the scoring of all tests by the researcher. In addition, all simulations would be tested prior to use in the treatment and the same information outline would be utilized for the information only and information/simulation treatment groups.

CHAPTER III

METHOD AND PROCEDURE

Method

Subjects

The subjects employed consisted of all of the junior and senior level special education majors who were enrolled in Practicum in Special Education at Western Michigan University. This course is required for all undergraduate majors in special education regardless of curricular emphasis. Students registered in Practicum in Special Education for the Fall, 1976, semester were assigned to one of four sections by a secretary, who stated that the assignments were made on an arbitrary basis without reliance on any specific criteria. These four sections comprised the four groups included in the study: control group, information only group, simulation only group, and information/simulation group. Three of the sections were randomly assigned, using the table of random numbers (Tuckman, 1972), to receive one of the three treatments, with the fourth being the control group. Table 1 presents a description of the sample by academic standing, sex, and curriculum.

Table 2 presents a breakdown by groups. As can be seen by

the table, the control group contained 20 students; the information only group contained 17 students; the simulation only group contained 29 students; and the simulation/information group contained 16 students.

Table 1
Description of Total Sample
Academic Level, Sex, and Curriculum^a

	M. I.		P. O. H. I.		E. I.		V. I.		Total
	M	F	M	F	M	F	M	F	
Juniors	3	28	1	19	1	17	0	11	80
Seniors	0	2	0	0	0	0	0	0	2
Total	3	30	1	19	1	17	0	11	82

^aSpecialization Area:

M. I. = Mentally Impaired

P. O. H. I. = Physically and Otherwise Health Impaired

E. I. = Emotionally Impaired

V. I. = Visually Impaired

Design

The Pretest-Posttest Control Group design (Campbell & Stanley, 1963) was employed in this study. Selection of a research

Table 2
Description of Groups
Academic Level, Sex, and Curriculum

	M. I.				P. O. H. I.				E. I.				V. I.				Totals
	Junior		Senior		Junior		Senior		Junior		Senior		Junior		Senior		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Information ^a	1	5	0	0	0	4	0	0	0	3	0	0	0	4	0	0	17
Simulation	1	10	0	0	0	5	0	0	1	10	0	0	0	2	0	0	29
Infor. /Sim.	1	5	0	0	0	4	0	0	0	2	0	0	0	4	0	0	16
Control	0	8	0	2	1	6	0	0	0	2	0	0	0	1	0	0	20
Totals	3	28	0	2	1	19	0	0	1	17	0	0	0	11	0	0	82

^aTreatment Group Designation:

Information = Information Treatment Only

Simulation = Simulation Treatment Only

Infor. /Sim. = Information and Simulation Treatment

Control = No Treatment

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

Factors which may result in lack of internal validity have been identified by Campbell and Stanley (1963). These consist of: history, maturation, testing, instrumentation, regression, selection, mortality, and the interaction of these factors. History refers to events which occur between pretesting and posttesting which may, in addition to the treatment, affect the results. Maturation includes processes within the individuals, which are a function of time, that may influence the results. Testing refers to the effect that the pretest experience may have on the results of the posttest. Regression, or statistical regression toward the mean, is the phenomenon which operates to move both higher and lower scores toward the mean score regardless of treatment and occurs most dramatically where groups have been selected on the basis of extremely high or low scores. Selection refers to factors which may be present in selecting the subjects that result in biased or nonrepresentative selection. Differential loss of subjects from the

samples constitutes mortality or experimental mortality. There may also be an interaction between these various factors which can reduce internal validity.

Campbell and Stanley (1963) also indicate sources of external invalidity. These consist of: the reactive or interactive effect of testing, the interaction effects of selection bias and the experimental variable, reactive effects of experimental arrangements and multiple-treatment interference.

Randomization must be present for a design to be considered a true Pretest-Posttest Control Group Design. Although the subjects in this study were not assigned in a random manner by the researcher, the unsystematic assignment procedure used and the randomization of the treatment groups appear sufficient to warrant the assumption of randomization.

The Pretest-Posttest Control Group Design adequately controls for the factors which affect internal validity, but does not necessarily insure generalizability. Table 3 indicates the design used.

Instrumentation

Two dependent variables were employed in this study: attitudes and knowledge of adaptations and techniques. In order to assess these variables two instruments were employed.

The Attitudes Toward Disabled Persons Scale (ATDP) was

Table 3
Research Design

Pretest ^a	Treatment ^b	Posttest ^a
R0 ₁ 0 ₂	X1	0 ₃ 0 ₄
R0 ₁ 0 ₂	X2	0 ₃ 0 ₄
R0 ₁ 0 ₂	X3	0 ₃ 0 ₄
R0 ₁ 0 ₂		0 ₃ 0 ₄

^aPretest/Posttest Designation:

0₁ = Adaptations and Techniques Test (ATT)

0₂ = Attitudes Toward Disabled Persons Scale (ATDP)

0₃ = ATT Test Scores

0₄ = ATDP Test Scores

^bTreatment Designation:

X1 = Simulation Only Treatment

X2 = Information Only Treatment

X3 = Information/Simulation Treatment

Blank = No Treatment

utilized to assess student attitudes (Appendix A). The scale was developed by Yuker, Block, and Young (1970) to measure attitudes toward disability groups in general rather than attitudes toward specific disability groups. The scale was constructed to measure attitudes of disabled persons as well as nondisabled persons.

In the initial development of the scale, items were selected from a review of the literature and screened by several psychologists. Some items remained the same but some wording was changed from positive to negative statements. The 30 items were used to form a Likert-type scale which ranged from a +3 "I agree very much" to a -3 "I disagree very much." The raw scores were derived by adding the positive and negative scores for all of the 30 items. Prior to adding the scores, the negative statement scores were converted to positive scores (i. e., -3 becomes +3) or negative scores (i. e., +3 becomes -3). Three forms of the scale were devised. Although all three forms (tested on junior high, high school students, and college and noncollege adults) showed a .01 level of significance on reliability tests (Yuker, et al., 1970), Form B (Appendix A) had a slightly higher level of significance in discriminative ability. The discriminative ability of each item on Form B in terms of high and low scores indicated that 19 of the 30 ATDP items discriminated at the .01 level of significance or beyond and 8 items discriminated at the .05 level of significance (Yuker,

et al., 1970).

The internal item analysis for Form B of the ATDP showed that 26 of the 30 items discriminated between the high and low groups at the .01 level of significance or better (Yuker, et al., 1970).

Although Felty (cited in Yuker, et al., 1970) believed the terminology was too difficult for some respondents, this was not considered a significant factor for this study since the scale was to be utilized with special education college students.

It was found that females scored consistently higher on the ATDP than males (Yuker, et al., 1970). In this study, however, the small number of males in each group likely had minimal influence on the final results. In addition, it was not the purpose of this study to compare scores with the norms of the ATDP but to compare scores between groups.

Extensive reliability data have been obtained on the ATDP. The test-retest method of reliability was utilized. The values for Form B ranged from .71 to .83 with time intervals from 5 weeks to 4 months. The split-half equivalence reliability for Form B showed coefficients ranging from .73 to .87.

The authors of the scale investigated fakeability, the extent to which the respondents' attitudes influence the test results, and found no significant difference between the scores of faked and

nonfaked administration (Yuker, et al., 1970). They also found that neither social desirability or acquiescence accounted for significant portions of variance in ATDP scores (Yuker, et al., 1970).

The authors utilized construct validity as a means of validating the ATDP. Tuckman (1972) states that construct validity "is established by relating a presumed measure of a construct or hypothetical quantity with some behavior or manifestation that it is hypothesized to underlie (or conversely, relating a behavior to a test of some construct that is an attempt to explain it)" (p. 141). Yuker, Block, and Young (1970) investigated four major correlates of Attitudes Toward Disabled Persons: demographic, personality, attitudinal and experimental, and behavioral. The results are voluminous and are more specifically reported in The Measurement of Attitudes Toward Disabled Persons (Yuker, et al., 1970). However, it is sufficient to note that a definite relationship existed between these factors identified as potential influences on attitudes toward the disabled.

This scale was then selected as an instrument demonstrated to be a sufficiently valid and reliable measure of general attitudes toward the disabled.

Adaptations and Techniques Test. The second assessment instrument utilized in this study was the Adaptations and Techniques Test (ATT). No existing instrumentation which could be utilized for

the specific area to be examined could be located. Therefore, the instrument was developed for the specific purposes of this study in order to measure the students' awareness of adaptations and techniques which can be utilized in a class for special education students. Since this test was devised for a particular group, no normative data were collected. The ATT was developed as a criterion referenced test to assess the quality of students' responses. Criterion referenced tests may be utilized as a means of assessing achievement to provide information about instructional treatments (Popham, 1971). Popham (1971) states that:

Criterion-referenced measures indicate the content of the behavioral repertory, and the correspondence between what an individual does and the underlying continuum of achievement. Measures which assess student achievement in terms of a criterion standard thus provide information as to the degree of competence attained by a particular student which is independent of reference to the performance of others. (p. 8)

An initial instrument (Appendix B) was field tested by the investigator during the first week of the Fall semester (September, 1976) to help determine the adequacy of the instructions and the scoring of responses. Graduate students enrolled in the Research and Evaluation Techniques in Special Education course at Western

Michigan University were asked to provide written responses to the instrument. The instrument included a noncategorical description of a student in special education. The students were told that it was a pilot test developed to aid in determining a scoring technique for use in this research. The students were given the definition of adaptations and techniques and were instructed to list as many adaptations and techniques appropriate to the test situation as possible. The scoring guide was then developed (Appendix C).

The scoring consisted of rating each test response as a zero (irrelevant), one (general) or two (specific) response. The average for each of the questions was found by adding all the responses and dividing by the total number of responses. Once the average for each question had been calculated, the average for each of the six questions were added together and this comprised the total score for the instrument.

Since the ability of students to list adaptations and techniques which could be utilized in the special education classroom under certain conditions was one variable investigated in this study, it was necessary to list situations in which the students' competencies could be measured. To establish content validity, the test was developed from a sampling of the objectives of the study. Two major areas evolved from the list of situations in which the student was expected to have competency. One area was the ability to

identify specific disabilities and the other was a list of specific adaptations and techniques. The final form of the ATT (Appendix D) consisted of a sampling of these major areas.

To establish reliability, a group of 23 undergraduate seniors enrolled in a clinical teaching laboratory course sequence (Special Education 533--Diagnostic and Prescriptive Techniques in Special Education--and Special Education 534--Curricular and Instructional Provisions for Exceptional Children and Youth) were utilized to determine pretest-posttest reliability. The courses are the last in a sequence which students must take prior to an off-campus directed teaching experience in Special Education. They are combined and team taught within a competency based orientation. The students were given the same test which would later be utilized in this study. The time period between pretest and posttest was 2 days. The results indicated a test-retest reliability of $r = .76$. According to Popham and Sirotnik (1973) this would be considered statistically significant and for the purposes of this study .76 is considered adequate.

Results of the ATT pretest-posttest were then utilized to determine intra-rater as well as inter-rater reliability. Both intra-rater and inter-rater reliability were determined since the investigator would score all tests in this study, and it was desirable to avoid investigator bias in scoring. To establish intra-rater

reliability, the investigator scored the pretest and posttest, waited 1 week and scored the pretest and posttest again. The intra-rater reliability was $r = .93$. Five faculty members of the Department of Special Education scored the posttests only utilizing the same instructions (Appendix C). The faculty raters were given the same tests and a response sheet. The responses from the five faculty raters were compared with the investigator's responses. Table 4 indicates the correlations between the faculty and the investigator ratings.

Table 4
Inter-rater Correlation with Investigator

Scorer 1	Scorer 2	Scorer 3	Scorer 4	Scorer 5
.72	.75	.70	.67	.65

In addition, six members of the special education faculty at Western Michigan University judged the instrument as to the appropriateness of its content for measuring knowledge of adaptations and techniques. Their responses indicated the instrument had content validity. Based on the data collected, it was concluded that the ATT was adequately reliable and valid to permit utilization as an instrument in the study.

Procedure

The intact Special Education 531 sections were randomly assigned to four groups: information/simulation treatment group, simulation treatment group, information treatment group, and the control group. Each group was administered the ATDP and ATT pretests 1 week prior to the implementation of the treatment. The investigator met with each of the treatment groups once per week for 6 consecutive weeks. This partially controlled for the investigator variable. Though the classes met on different days of the week, the meeting time was the same for each of the four groups. The information and simulation treatment groups met with the investigator 20 minutes for each of the six sessions, the information/simulation group met for 30 minutes, and the control group did not meet with the researcher (see schedule--Appendix E). One week following the treatment sequence, the posttests were administered to all groups.

Treatment

Simulation treatment group subjects received exercises in which they assumed the role of a handicapped individual or teacher and experienced similar environmental stimuli. The simulation activities were designed to allow two students to work together in a

role playing situation. One student assumed the role of the teacher and was given a set of instructions, while the other student assumed the role of a handicapped individual and followed specific instructions (Appendix F). Slight variations were made in some of the simulations, such as for the hearing impaired where the entire group assumed the role of the hearing impaired student and watch a film without sound. All students were given the task that was to be performed under the prescribed handicapping conditions and time was allotted for group discussion after the activity was provided.

The simulations were developed and structured to achieve the objectives of the treatment, attitude change and knowledge of adaptations and techniques, and to allow the students to become aware of the difficulty handicapped students with varying disabilities encounter while undertaking simple tasks. Most of the simulation activities were tested on special education graduate students who were in the special education study room for a designated period.

Simulation Format. All simulation activities followed the same format. The introduction included an overview of the simulation activity. Students were given materials which aided in the simulation of the disability. For example, the visually impaired simulation was implemented through the use of blindfolds. The students were then given a task(s) which a handicapped individual may encounter in an educational setting. For example, the visually

impaired simulation necessitated the students' leaving the classroom with the aid of a fellow student and walking around the halls of the building (mobility and orientation). Upon completion of the task(s), the students were divided into small groups and discussed their experiences focusing on attitudes and classroom adaptations and techniques. During this last stage of the simulation, the investigator had minimal verbal contact with the students. The simulation outlines for each presentation can be found in Appendix F. These simulations were designed to facilitate the students' knowledge of adaptations and techniques as well as attitudes toward handicapped individuals.

Information Format

The information treatment group received information about attitudes, adaptations, and techniques. This group was first given an introduction to the topic for the day, such as Educable Mentally Impaired or Learning Disabled. Current literature on attitudes was then presented, such as information related to the relationship between mental retardation and the rate of delinquency. Equipment and materials, environmental changes, teacher interaction, student interaction, and parental involvement were also presented for each disability. An open ended question and answer period followed the presentation. The information outlines for each presentation

are found in Appendix G.

The information/simulation treatment group received both information and simulation presentations. Due to the reduced size of this group, the investigator found that the same information and simulations could be presented in the 30 minutes allotted for each session.

The control group received no treatment. It was considered unnecessary for the investigator to attend class or in any way become involved with the control group except for the administration of the pretests and posttests.

CHAPTER IV

RESULTS

This study addressed the effects of different instructional methodologies on the attitudes of teacher trainees and on their knowledge of adaptations and techniques for the education of handicapped individuals. Three treatment groups and one control group were employed. The treatments consisted of an information/simulation treatment, an information only treatment, and a simulation only treatment. Three types of comparisons were made: (1) a comparison of the information/simulation treatment with the simulation only treatment, information only treatment, and with the control group; (2) a comparison of the simulation only treatment and the information only treatment; and (3) a comparison of the simulation only treatment, information only treatment, and control group.

Methods of Analysis

The nature of the study and the nature of the data necessitated utilization of several statistical analyses. The two primary statistics employed in the study consisted of the One Way Analysis of Variance and the t test.

For such statistics to be employed, certain conditions and

assumptions must be met. For both the One Way Analysis of Variance and the t test for independent samples to be employed: (1) the scores on the dependent variable must be interval or ratio in nature; (2) the treatment groups must have been randomly selected from the population; (3) the variance for each of the treatment groups must be the same; and (4) the distribution of scores on the criterion measures must be normal in the parent population.

Both the ATDP and the ATT, which comprised the criterion measures, yielded scores that were interval in nature. In addition, homogeneity of variance in both of the criterion measures was assessed by the use of the F test (Winer, 1971). The results of these analyses showed that on both pretest measures, the assumption of homogeneity of variance was met. Although the assumptions of randomization could not be met with certainty, it appears that the method of sampling employed was sufficient to enable the use of the parametric statistics. It is not known if the criterion scores for either variable were normally distributed within the population, but as indicated in Lindquist (1953), these statistics are "amazingly insensitive to the form of the distribution of criterion measures in the parent population" (p. 81).

The One Way Analysis of Variance was utilized to analyze the ATT pretest and the ATDP pretest mean scores (see Tables 5 and 6) to determine the equivalency of the four groups on knowledge of

adaptations and techniques and attitudes toward handicapped individuals. The One Way Analysis of Variance was then employed in the same manner on ATT posttest scores and ATDP posttest scores.

In addition to the two statistics above, the Pearson Product-Moment Correlation Coefficient (Ferguson, 1966) was employed in further analysis of the data. The Pearson Product-Moment Correlation Coefficient is a measure of the relationship between variables and is used when the variables are interval in nature. This was utilized to determine the correlation between the ATT and the ATDP.

Results of Analyses

There were six main hypotheses and ten subhypotheses presented for study. The six main hypotheses were presented in Chapter I. The ten subhypotheses were developed so that more specific information could be obtained for greater clarification of the results of this study. The hypotheses have been stated in the null form for statistical testing. The .05 level of significance was utilized for all analyses. As Tuckman (1972) states: "When statistics are employed by behavioral scientists, the 5% level (i. e., $p < .05$) often is considered an acceptable level of confidence to reject the null hypothesis of equal means between the control and experimental groups" (p. 224). All results reported in this section were analyzed through the use of the Western Michigan University Computer

program, STATPACK.

The One Way Analysis of Variance (ANOVA) was used to analyze the pretest ATT and ATDP scores. Tables 5 and 6 present the results of these analyses.

Table 5
Analysis of Pretest Attitudes for All Groups

Group	N	\bar{X}	S. D.
Infor. /Sim. ^a	14	120.70	17.96
Control	18	119.20	22.33
Simulation	25	113.80	19.41
Information	17	114.80	21.10

ANOVA Summary					
Source	S. S.	D. F.	M. S.	F	Prob.
Between	610.12	3	203.40	.49	.6878
Within	28836.44	70	411.90		
Total	29446.55	73			

^aInfor. /Sim. is the abbreviation for Information/Simulation.

Table 6
Analysis of Pretest Adaptations and
Techniques for All Groups

Group	N	\bar{X}	S. D.
Infor. /Sim.	14	5.45	1.96
Control	18	5.25	2.69
Simulation	25	6.24	2.27
Information	17	5.50	1.97

ANOVA Summary					
Source	S. S.	D. F.	M. S.	F	Prob.
Between	12.38	3	4.13	.80	.4956
Within	358.97	70	5.13		
Total	371.35	73			

The data suggest there were no significant differences on the ATDP or ATT pretests between the four groups.

Hypothesis 1

There will be no significant differences between the information/simulation treatment group and the simulation treatment group,

information treatment group and the control group in knowledge of adaptations and techniques for handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 7.

Table 7
Analysis of Posttest Adaptations and
Techniques for All Groups

Group	N	\bar{X}	S. D.
Infor. /Sim.	14	5.61	1.58
Control	18	6.48	1.71
Simulation	25	7.19	1.92
Information	17	6.82	1.53

ANOVA Summary

Source	S. S.	D. F.	M. S.	F	Prob.
Between	23.47	3	7.82	2.63	.0570
Within	208.45	70	2.98		
Total	231.93	73			

The above data indicated that there were no significant differences on the ATT posttest between the four treatment groups, thus Hypothesis 1 is retained.

Hypothesis 1-A. There will be no significant difference between the information/simulation treatment group and the simulation only treatment group in knowledge of adaptations and techniques for handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 8.

Table 8
Analysis of Posttest Adaptations and Techniques for
Information/Simulation and Simulation Groups

Group	N	\bar{X}	S. D.	t	Prob.
Infor. /Sim.	14	5.61	1.58	2.62	.0130
Simulation	25	7.19	1.92		

The simulation only treatment group scored significantly higher ($p < .05$) on the ATT than the information/simulation treatment group, thus null Hypothesis 1-A is rejected. This was contrary to the predicted results; wherein, it was hypothesized that the information/simulation treatment group would score significantly higher ($p < .05$) in knowledge of adaptations and techniques than the simulation only treatment group.

Hypothesis 1-B. There will be no significant differences between the information/simulation treatment group and the

information only treatment group in knowledge of adaptations and techniques for handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 9.

Table 9
Analysis of Posttest Adaptations and Techniques for
Information/Simulation and Information Groups

Group	N	\bar{X}	S. D.	t	Prob.
Infor. /Sim.	14	5.61	1.58	2.15	.0400
Information	17	6.82	1.53		

As indicated by the above data, the information only treatment group scored significantly higher ($p < .05$) than the information/simulation treatment group on the ATT, thus null Hypothesis 1-B is rejected. This was contrary to the predicted results; wherein, it was hypothesized that the information/simulation treatment group would score significantly higher on knowledge of adaptations and techniques than the information only treatment group.

Hypothesis 1-C. There will be no significant difference between the information/simulation treatment and the control group in knowledge of adaptations and techniques for handicapped individuals. The results of the analysis used to test this hypothesis are

presented in Table 10.

Table 10
Analysis of Posttest Adaptations and Techniques for
Information/Simulation and Control Groups

Group	N	\bar{X}	S. D.	t	Prob.
Infor. /Sim.	14	5.61	1.58	1.47	.1520
Control	18	6.48	1.71		

There was no significant difference on the ATT posttest between the information/simulation treatment and the control groups as indicated by the above data. Thus, null Hypothesis 1-C is retained.

Hypothesis 2

There will be no significant differences between the simulation treatment group and the information treatment group in knowledge of adaptations and techniques for handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 11.

As indicated by the data in Table 11, there was no significant difference on the ATT posttest between the simulation only and the information only treatment groups, thus null Hypothesis 2 is retained.

Table 11
Analysis of Posttest Adaptations and Techniques for
Simulation and Information Groups

Group	N	\bar{X}	S. D.	t	Prob.
Simulation	25	7.19	1.92	.68	.5030
Information	17	6.82	1.53		

Hypothesis 3

There will be no significant differences between the simulation treatment group, the information treatment group, and the control group in knowledge of adaptations and techniques (see Table 7). As indicated in Table 7, there were no significant differences between the simulation treatment group, the information treatment group, and the control group in knowledge of adaptations and techniques for handicapped individuals (ATT), thus null Hypothesis 3 is retained.

Hypothesis 3-A. There will be no significant differences between the simulation only treatment group and the control group in knowledge of adaptations and techniques for handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 12.

Table 12
Analysis of Posttest Adaptations and Techniques for
Simulation and Control Groups

Group	N	\bar{X}	S. D.	t	Prob.
Simulation	25	7.19	1.92	1.26	.2160
Control	18	6.48	1.71		

Null Hypothesis 3-A is retained, since there was no significant difference on the ATT posttest between the simulation only treatment group and the control group as indicated in the above data.

Hypothesis 3-B. There will be no significant differences between the information only treatment group and the control group in knowledge of adaptations and techniques for handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 13.

There was no significant difference on the ATT posttest between the information only treatment group and the control group as indicated by the data presented in Table 13, thus null Hypothesis 3-B is retained.

Table 13
 Analysis of Posttest Adaptations and Techniques for
 Information and Control Groups

Group	N	\bar{X}	S. D.	t	Prob.
Information	17	6.82	1.53	.61	.5440
Control	18	6.48	1.71		

Hypothesis 4

There will be no significant differences between the information/simulation treatment group and the simulation only treatment group, information only treatment group, or the control group in attitudes toward handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 14.

Table 14

Analysis of Posttest Attitudes for All Groups

Group	N	\bar{X}	S. D.
Infor. /Sim.	14	118.60	17.65
Control	18	123.60	23.30
Simulation	25	115.40	17.65
Information	17	115.10	19.92

ANOVA Summary

Source	S. S.	D. F.	M. S.	F	Prob.
Between	888.23	3	296.10	.76	.5177
Within	27108.43	70	387.30		
Total	27996.66	73			

As indicated by the data presented in Table 14, there was no significant difference on the ATDP posttest between the four groups, thus null Hypothesis 4 is retained.

Hypothesis 4-A. There will be no significant differences between the information/simulation treatment group and the simulation only treatment group in attitudes toward handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 15.

Table 15
Analysis of Posttest Attitudes for Information/Simulation
and Simulation Groups

Group	N	\bar{X}	S. D.	t	Prob.
Infor. /Sim.	14	118.60	17.65	.55	.5850
Simulation	25	115.40	17.65		

The above data indicated that there was no significant difference on the ATDP posttest between the information/simulation and the simulation only treatment groups, thus null Hypothesis 4-A is retained.

Hypothesis 4-B. There will be no significant differences between the information/simulation treatment group and the

information only treatment group in attitudes toward handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 16.

Table 16
Analysis of Posttest Attitudes for Information/Simulation
and Information Groups

Group	N	\bar{X}	S. D.	t	Prob.
Infor. /Sim.	14	118.60	17.65	.52	.6040
Information	17	115.10	19.92		

There was no significant difference on the ATDP posttest between information/simulation treatment and the information only treatment groups as indicated by the above. Thus, null Hypothesis 4-B is retained.

Hypothesis 4-C. There will be no significant differences between the information/simulation treatment group and the control group in attitudes toward handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 17.

As indicated by the data presented in Table 17, there was no significant difference on the ATDP posttest between the information/simulation and the control groups, thus null Hypothesis 4-C is

retained.

Table 17
Analysis of Posttest Attitudes for Information/Simulation
and Control Groups

Group	N	\bar{X}	S. D.	t	Prob.
Infor. /Sim.	14	118.60	17.65	.66	.5130
Control	18	123.60	23.30		

Hypothesis 5

There will be no significant differences between the simulation treatment group and the information treatment group in attitudes toward handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 18.

Table 18
Analysis of Posttest Attitudes for Simulation
and Information Groups

Group	N	\bar{X}	S. D.	t	Prob.
Simulation	25	115.40	17.65	.06	.9540
Information	17	115.10	19.92		

There was no significant difference on the ATDP posttest between the simulation and information groups as indicated by the data presented in Table 18, thus null Hypothesis 5 is retained.

Hypothesis 6

There will be no significant differences between the information only treatment group, the simulation only treatment group, and the control group in attitudes toward handicapped individuals (see Table 14). As indicated by Table 14, there were no significant differences on the ATDP posttest between the three groups, thus null Hypothesis 6 is retained.

Hypothesis 6-A. There will be no significant differences between the simulation only treatment group and the control group in attitudes toward handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 19.

Table 19
Analysis of Posttest Attitudes for Simulation
and Control Groups

Group	N	\bar{X}	S. D.	t	Prob.
Simulation	25	115.40	17.65	1.33	.1960
Control	18	123.60	23.30		

Null Hypothesis 6-A is retained, since there was no significant difference on the ATDP posttest between the simulation and the control groups as indicated in the data presented in Table 19.

Hypothesis 6-B. There will be no significant differences between the information only treatment group and the control group in attitudes toward handicapped individuals. The results of the analysis used to test this hypothesis are presented in Table 20.

Table 20
Analysis of Posttest Attitudes for Information
and Control Groups

Group	N	\bar{X}	S. D.	t	Prob.
Information	17	115.10	19.92	1.16	.2530
Control	18	123.60	23.30		

As indicated above, there was no significant difference on the ATDP posttest between the information and the control groups, thus null Hypothesis 6-B is retained.

Additional Analyses

Pearson Product-Moment Correlation Coefficient. The Pearson Product-Moment Correlation Coefficient was employed to

determine if there was a significant correlation between the ATT and the ATDP. The Pearson Product-Moment Correlation Coefficients are presented in Table 21.

Table 21
Pearson Product-Moment Correlation Coefficient

Variable	N	r
ATT and ATDP Pretest Correlation	74	.00
ATT and ATDP Posttest Correlation	74	.01

There were no significant correlations between the ATT and the ATDP pretest results or the ATT and the ATDP posttest results.

Summary

The results indicated that of the 82 subjects selected for this study, only 74 completed the study. Since the attrition rate of eight subjects was spread over the four groups, this loss of subjects was considered to have negligible effects on the results of the study.

Of the six main hypotheses stated in Chapter 1, only two hypotheses were supported by the results. These two hypotheses stated that there would be no differences between the simulation only and the information only treatment groups in attitudes toward

handicapped individuals and in knowledge of adaptations and techniques. The results also indicated that all of the hypotheses and subhypotheses stated in the null form could not be rejected with the exception of subhypotheses 1-A and 1-B; wherein the simulation only treatment and the information only treatment groups scored significantly higher ($p < .05$) than the information/simulation treatment group in knowledge of adaptations and techniques for handicapped individuals. This was contrary to the predicted results which hypothesized that the information/simulation treatment group would score significantly higher than the simulation only and the information only treatment groups in knowledge of adaptations and techniques.

The Pearson Product-Moment Correlation Coefficient indicated no significant correlation between the ATT and the ATDP measurements.

CHAPTER V

SUMMARY AND DISCUSSION

Prior research has addressed the effectiveness of both simulations and traditional methods of instruction. There have been few studies comparing the relative effectiveness of the two methods and none have appeared comparing the effectiveness of the combination of methods. Research has been hampered by the fact that theory of instruction currently is in an evolutionary phase. However, structural models or paradigms which may be employed in formulating instructional strategies have been developed.

Research was needed which would expand the information related to the effects of simulation activities in general and combinations of simulation and traditional instructional methods.

This study investigated the effectiveness of traditional methods of instruction, simulations, and a combination of both methods in transmitting knowledge of adaptations and techniques for the education of handicapped individuals and in changing attitudes toward handicapped individuals among special education teacher trainees. Six main hypotheses and ten subhypotheses were developed to address the purpose of this study.

Pretests of attitudes and knowledge of adaptations and

techniques were administered to all groups prior to the initiation of the treatments. The treatments consisted of presentations on attitudes toward the handicapped and knowledge of adaptations and techniques for Educable Mentally Impaired, Learning Disabled, Emotionally Impaired, Physically and Otherwise Health Impaired, Visually Impaired, and Hearing Impaired through traditional, simulation, and a combination of both methods of instruction. The control group received no treatment. One week following the last treatment, posttests were administered.

The One Way Analysis of Variance and the t test were utilized to test the hypotheses. The results indicated that there were no significant differences between the four groups in attitudes toward handicapped individuals. There were also no significant differences between the four groups in knowledge of adaptations and techniques for handicapped individuals with the exception of the information only and simulation only treatment groups which scored significantly higher than the information/simulation treatment group. This was in the opposite direction than was predicted. In addition, the Pearson Product-Moment Correlation Coefficient indicated that there was no significant correlation between the two dependent variables (ATT and ATDP).

Assumptions and Limitations

Due to the use of a nonsystematic method of assigning students to course sections and the random assignment of intact course sections to the treatment and control groups, sufficient randomization was assumed. Analysis of pretest data indicated that the groups were not significantly different at the beginning of the study on the two dependent variables (attitudes toward handicapped individuals and knowledge of adaptations and techniques). However, even though intact groups were randomized and there was no significant difference on the pretests, it is possible that groups which were not equal on other factors (e.g., intelligence, achievement, and educational experiences) were employed in the treatment and control groups, thus having an effect on the results.

Since the same person presented all of the treatments, it was assumed that the teacher variable was not a significant factor in this study. It should be noted, however, that it is impossible for one person to display the same behaviors for each presentation. Although the same simulation and information formats and outlines were utilized, it is inevitable that some variation in the presentation and enthusiasm of the researcher would affect student behavior.

It was assumed that the students entered the treatment and testing situations with equal motivation and enthusiasm. However,

the investigator noted that the information/simulation group appeared to have noticeably less enthusiasm, less verbal interaction, and fewer facial expressions during the treatments than either of the other two experimental groups. According to the course instructor, this appeared to be the typical pattern of behavior demonstrated during the regular course instruction.

The test instruments were assumed to be reliable and valid. The ATDP appeared adequate for assessing the attitudes in this study. However, the ATT, which was developed for this study, had several weaknesses. The scoring should have incorporated the number of responses as well as the weighted score. The directions and examples for scoring appeared to be confusing when the investigator obtained the inter-rater reliability which, though it was found to be adequate, could possibly have been increased if better directions had been employed. In addition, the administration of the test took too long. Several subjects remarked that there was too much writing involved in the test. Several subjects also remarked that they would have done a better job on the (ATT) test if they had known that it was for this research project.

The pretest experience, though necessary in the design employed, did present limitations on the interpretation of posttest results. Tuckman (1972) states: "A pretest can cause differences between experimental and control groups to disappear by providing

the control group with an experience more relevant to the posttest than the experimental treatment" (p. 76).

It was assumed that the attrition rate had negligible effects on the results of the study. However, there is no way of knowing what the effects may have been if the eight subjects had remained.

In this study it was not possible to control special education content addressed in other courses in which the subjects were enrolled. However, this was assumed to have little effect on the results of this study since the variables being investigated were not specifically addressed in the goals of the other special education courses.

It was assumed that maturation (processes within the individuals which are a function of time) had little effect on the study since a control group was utilized. However, the subjects were gaining additional information and practicum experience during the course of this study. Yunker, Block, and Young (1970) noted that attitudes toward disabled persons appeared to become more positive as students progressed in their education. Since there were 8 weeks between pretest and posttest, it appeared that the effects might be negligible. However, maturity cannot be discounted as a factor in the final analysis.

The regression factor (the phenomenon which operates to move both higher and lower scores toward the mean) was not

considered significant in the final analysis of the data since the students were not selected on the basis of high and low scores.

It was assumed that the scheduled times for implementation of the treatments would have little effect on the results since all four groups met at the same time, but on different days. Although the students in the experimental groups were given the treatments at the same time every day, the number of students varied and there was no control for absenteeism.

Due to the time and complications of defining handicapped individuals and self-reporting, those teacher trainees in special education who were handicapped were not removed from the study. If handicapped individuals were present in any of the four groups, it may have affected the attitudes of peers toward handicapped individuals and may have affected the test results of the handicapped individuals due to their personal experiences in society.

Interpretation of Results

An analysis of the literature related to simulations and traditional methods of instruction established the evolutionary nature of theory and its more accurate classification as a model or paradigm at this period in time. Thus no unified theoretical framework was available on which to base an interpretation of the results. However, the main hypotheses formulated for the study were examined

and interpreted from the perspective of the predicted and actual results.

The first hypothesis stated that the information/simulation treatment group would demonstrate significantly more positive attitudes toward handicapped individuals than the simulation only, information only, and control groups. The rationale for this hypothesis was that since the information/simulation treatment group would receive both treatments, it was reasonable to assume that there would be a greater change in attitudes toward handicapped individuals. The results indicated that special education teacher trainees receiving no specific instruction in attitudes toward handicapped individuals appeared to perform as well as those receiving the simulations, information, and the combination of both treatments. The following limitations discussed in the previous section may have affected the results: pretest experience, teacher variable, motivation and enthusiasm, history, and absenteeism. The results appear to be logical, since it is suspected that students entering special education already have positive attitudes toward handicapped individuals. This seems to be supported by the pretest scores and by Yuker, Block and Young (1970) who cited research suggesting that attitudes toward the disabled became more favorable as the level of education increased.

The second hypothesis stated that there would be no significant

difference between the simulation only and information only treatment groups in attitudes toward handicapped individuals. The rationale appeared to be supported by the literature in that there is evidence that simulations as a means of instruction is as effective as traditional instruction techniques in attitudinal changes (Cherryholmes, 1966). The results supported this hypothesis.

The third hypothesis stated that the simulation only and the information only treatment groups would demonstrate significantly more positive attitudes toward handicapped individuals than the control group. Yunker, Block and Young (1970) stated that attitudes toward the disabled are the result of direct interactive experiences with the disabled or more formal learning experiences designed to provide students with information about handicapped individuals. Therefore, it was reasonable to assume that the control group would perform less well on the assessment instruments than those participating in the simulation treatment group or the information treatment group. The results did not support this hypothesis. In this regard, limitations discussed in the previous section may have influenced the results; namely, random assignment, pretest experience, teacher variable, history, maturation, motivation and enthusiasm, and absenteeism. Most literature cited in this study employed a control group which received some instruction or experience in the areas identified for testing. However, Wilson and

Alcorn (1969) found no differences between the experimental group (simulation) and the control group on the ATDP; but since the control group was taking additional coursework, it is not clear whether or not content covered in these courses influenced the results.

The fourth hypothesis stated that the information/simulation treatment group would demonstrate significantly greater knowledge of adaptations and techniques than the simulation only, information only, or the control groups. The rationale for this hypothesis was that since this group would receive both treatments, thus being subjected to a greater intensity of simulation and information treatments, the information/simulation group should do better. The results indicated that this hypothesis could not be supported. The following previously discussed limitations may have affected the results: randomization, pretest experience, teacher variable, motivation and enthusiasm, test instrument (ATT), history, and absenteeism. This result may also have been influenced by the uncontrolled content in the other special education courses. Other course work and practicum experiences, through which the subjects may have been introduced to adaptations and techniques for handicapped individuals, could account for the performance of the control group. A survey of the course instructors would have helped to substantiate or rule out this explanation. Also, the length of the instrument may have had some effects on the results obtained.

There did not appear to be any prior studies which utilized similar treatment groups or which employed a combination of the two methods of instruction.

The fifth hypothesis stated that there would be no significant difference between the simulation only and information only treatment groups in their knowledge of adaptations and techniques. There was evidence from the literature to justify this hypothesis (Anderson, 1970; Cherryholmes, 1966; Heinkel, 1970; Lucas, Postma & Thompson, 1975). The results indicated that this hypothesis could be supported.

The sixth hypothesis stated that the simulation only and information only treatment groups would demonstrate greater knowledge of adaptations and techniques than the control group. It was expected that the control group would perform less well on the assessment instruments than those participating in the information treatment group or the simulation treatment group because knowledge of adaptations and techniques are not specifically addressed in the goals for the other special education courses. The results of this study did not support this hypothesis. The limitations discussed in the previous section may have affected the results of this study. Though prior studies compared simulation only and information only treatment groups, no study was found that specifically compared these two groups with a control group.

Conclusions

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

1. Due to the possible effects of the positive attitudes apparently already held by special education teacher trainees at the beginning of the study, the uncontrolled course content, and the short period of time between pretesting and posttesting, teacher trainees receiving no specific treatment in attitudes toward handicapped individuals appeared to perform as well as those receiving the simulation, information, and combination of both treatments.

2. The simulation and information groups scored significantly higher than the information/simulation treatment group in knowledge of adaptations and techniques. This was perhaps a result of the observed lack of motivation and enthusiasm of the information/simulation treatment group and the ATT limitations.

3. Due to the possible effects of the ATT, limitations of the simulations, apparent lack of motivation and enthusiasm, and teacher variable, the control group performed as well as the treatment groups in knowledge of adaptations and techniques.

4. As predicted, the simulation only and information only treatment groups were not significantly different in attitudes and knowledge of adaptations and techniques.

5. It appears that since the ATDP test measured the affective area and the ATT test measured the cognitive area, the two tests should not necessarily be correlated.

Implications and Recommendations

The results, therefore, indicated that the treatments had little effect on the subjects' attitudes toward handicapped individuals and knowledge of adaptations and techniques for handicapped individuals. The results indicated that attitudes toward handicapped individuals held by students in teacher training programs may already be positive and that demonstrable changes in attitudes therefore may not result from treatment. Since simulations and traditional methods of instruction appeared to be equally as effective, utilization of either of these methods would be appropriate in teacher training programs. This research did not support the use of the combination of methods in teacher training programs; but due to the limitations cited in previous sections, a need for further research is indicated.

It is recommended that future research in the area of teacher training consider the following proposed modifications: (1) development of a test for adaptations and techniques that affords greater economy in test administration time and ease of scoring; (2) construction and testing of the simulation activities with several classes

prior to actual use, or reliance on the use of commercially developed simulation packages; (3) utilization of video tapes to record information presentations and questions for the subjects to provide greater consistency; and (4) investigation of the affects of the presence of handicapped participants versus no handicapped participants on cognitive and affective learning. Further study is needed to determine the best methods for influencing special education teacher trainee attitudes and for developing knowledge of adaptations and techniques for the education of handicapped individuals.

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APPENDICES

APPENDIX A

ATTITUDES TOWARD DISABLED PERSONS SCALE

Code # _____

ATDP SCALE

Answer Sheet
Form B

Use this answer sheet to indicate how much you agree or disagree with each of the statements about disabled people on the attached list. Put an "X" through the appropriate number from +3 to -3 depending on how you feel in each case.

+3: I AGREE VERY MUCH

+2: I AGREE PRETTY MUCH

+1: I AGREE A LITTLE

-1: I DISAGREE A LITTLE

-2: I DISAGREE PRETTY MUCH

-3: I DISAGREE VERY MUCH

PLEASE ANSWER EVERY ITEM

(1) -3 -2 -1 +1 +2 +3	(16) -3 -2 -1 +1 +2 +3
(2) -3 -2 -1 +1 +2 +3	(17) -3 -2 -1 +1 +2 +3
(3) -3 -2 -1 +1 +2 +3	(18) -3 -2 -1 +1 +2 +3
(4) -3 -2 -1 +1 +2 +3	(19) -3 -2 -1 +1 +2 +3
(5) -3 -2 -1 +1 +2 +3	(20) -3 -2 -1 +1 +2 +3
(6) -3 -2 -1 +1 +2 +3	(21) -3 -2 -1 +1 +2 +3
(7) -3 -2 -1 +1 +2 +3	(22) -3 -2 -1 +1 +2 +3
(8) -3 -2 -1 +1 +2 +3	(23) -3 -2 -1 +1 +2 +3
(9) -3 -2 -1 +1 +2 +3	(24) -3 -2 -1 +1 +2 +3
(10) -3 -2 -1 +1 +2 +3	(25) -3 -2 -1 +1 +2 +3
(11) -3 -2 -1 +1 +2 +3	(26) -3 -2 -1 +1 +2 +3
(12) -3 -2 -1 +1 +2 +3	(27) -3 -2 -1 +1 +2 +3
(13) -3 -2 -1 +1 +2 +3	(28) -3 -2 -1 +1 +2 +3
(14) -3 -2 -1 +1 +2 +3	(29) -3 -2 -1 +1 +2 +3
(15) -3 -2 -1 +1 +2 +3	(30) -3 -2 -1 +1 +2 +3

ATDP SCALE

Form B

Read each statement and put an "X" in the appropriate column on the answer sheet. Do not make any marks on the question sheets.

PLEASE ANSWER EVERY QUESTION

-
1. Disabled persons are usually friendly.
 2. People who are disabled should not have to pay income taxes.
 3. Disabled people are no more emotional than other people.
 4. Disabled persons can have a normal social life.
 5. Most physically disabled persons have a chip on their shoulder.
 6. Disabled workers can be as successful as other workers.
 7. Very few disabled persons are ashamed of their disabilities.
 8. Most people feel uncomfortable when they associate with disabled people.
 9. Disabled people show less enthusiasm than non-disabled people.
 10. Disabled people do not become upset any more easily than non-disabled people.
 11. Disabled people are often less aggressive than normal people.
 12. Most disabled persons get married and have children.
 13. Most disabled persons do not worry any more than anyone else.
 14. Employers should not be allowed to fire disabled employees.
 15. Disabled people are not as happy as non-disabled ones.
 16. Severely disabled people are harder to get along with than are those with minor disabilities.

ATDP Scale
Form B
Page 2

17. Most disabled people expect special treatment.
18. Disabled persons should not expect to lead normal lives.
19. Most disabled people tend to get discouraged easily.
20. The worst thing that could happen to a person would be for him to be very severely injured.
21. Disabled children should not have to compete with non-disabled children.
22. Most disabled people do not feel sorry for themselves.
23. Most disabled people prefer to work with other disabled people.
24. Most severely disabled persons are not as ambitious as other people.
25. Disabled persons are not as self-confident as physically normal persons.
26. Most disabled persons don't want more affection and praise than other people.
27. It would be best if a disabled person would marry another disabled person.
28. Most disabled people do not need special attention.
29. Disabled persons want sympathy more than other people.
30. Most physically disabled persons have different personalities than normal persons.

APPENDIX B

INITIAL INSTRUMENT FOR FIELD TEST

Initial Instrument

Field Test Instructions

"You have just received a description of a student. Each sheet has a different number on it. Please do not write your names on these papers. These papers will be collected 15 minutes after you begin. The information on these papers will be utilized for a study conducted in special education. There will be no attempt to identify you with your paper. These papers will not be graded or returned. Please be honest and do the best you can. Thank you."

The researcher will then instruct the students to begin. After 15 minutes, the researcher will ask the group to stop and will collect the papers.

Instrument

Number _____

John is an 8 year old boy in special education. He entered special education a year ago and is having difficulty with reading, writing, and spelling. His mother says that at age 3, he had a high fever for several days. She claims that afterward he had some difficulty walking and forgot many of the words he had previously known. His special education teacher states that he appears to have a normal home life but has poor coordination and forgets the things he learns in school. He is just beginning to read but has difficulty

paying attention and remembering the words from day to day.

Because of his poor coordination, he also has difficulty writing.

If you were John's teacher, what adaptations and techniques would you consider if you were going to give John a reading lesson? Adaptations and techniques are the teaching strategies and alterations in the classroom environment and/or pupil-teacher interaction which may be made to accommodate students with various handicapping conditions.

List as many adaptations and techniques as possible which you would utilize in teaching John.

APPENDIX C

ADAPTATIONS AND TECHNIQUES TEST:

SCORING GUIDE

Adaptations and Techniques Test

Scoring Guide

Adaptations and techniques are the teaching strategies and alterations in the classroom environment and/or pupil-teacher interaction which may be made to accommodate students with various handicapping conditions.

1. Irrelevant responses are those responses which do not conform to the definition stated above or are so overinclusive as to suggest a vague understanding of appropriate adaptations and techniques. These responses are scored as zero (0) responses.

2. General responses are those nonspecific responses which conform to the definition of adaptations and techniques as stated above but are responses which can be applied to any classroom situation. These responses are scored as one (1) responses.

3. Specific responses are those responses which conform to the definition of adaptations and techniques as stated above and which are directly applicable to the situation presented. This may include the specification of certain materials, environmental changes, or specific behavioral changes. These responses are scored as two (2) responses.

4. If the scorer cannot decide if a response is e.g. a two response or a one response, always use the lower score (1).

5. If there is a repetition of responses, use the highest scored response and score the other repetitious responses as zeroes.

6. No response is scored as a zero.

7. If a response cannot be read, do not score the response.

8. Sentences of explanation should be disregarded unless it pertains to a specific adaptation or technique.

Scoring Examples

0 Irrelevant or Over- inclusive Responses	1 General	2 Specific
Make physical changes	Remove obstacles	Provide tables with tilt tops
Send to new class	Reduce stimulation	Get carrel for child to use
Test		
Develop vocabulary list	Develop vocabulary list about the farm, etc.	Develop a vocabulary list about the farm using braille, felt pictures, etc.
Select interesting material	Select material child is inter- ested in such as boats, cars, etc.	Use Frostig, Fernald, etc. for visual perceptual develop- ment, etc.
Individualize	Gross and fine motor activities	Individualize drills such as: Hegge, Kirk & Kirk, etc.
Keep information relevant	Plan a remedial, sequen. pro- gram	Specific budgeting problem such as maintain checking account for a week
Use story problems	Story problem-budgeting	
Use math, etc., games	Playmoney	Use playmoney for . . .

0 Irrelevant or Over- inclusive Responses	1 General	2 Specific
Gluing, pasting	Language experience stories	Language experience stories about . . .
Give problems	Fingerpainting	Use right hand P. H.
Take a field trip	Go to farm	Go to farm to smell, touch, hear the farm animals, etc.
Go downtown/shopping	Work geared to child's pace	Institute token economy
Use visual aids	Apply contingencies for doing (X)	Chart specific behaviors for the purpose of . . .
Use props	Have him chart progress	Description of how to use senses
Reinforce	Use other senses for compensatory purposes	(Lists specific activities, materials or approaches)
Appropriate for level	(List types of activities)	
Repetitions		
Use resource people (P. T., O. T., etc.)		
Use bright, appealing colors		

APPENDIX D
ADAPTATIONS AND TECHNIQUES TEST

Adaptations and Techniques

Instructions: Read each of the descriptions contained in this booklet. List as many adaptations and techniques you can think of for each situation. Adaptations and techniques are the teaching strategies and alterations in the classroom environment and/or pupil-teacher interaction which may be made to accommodate students with various handicapping conditions. You have 35 minutes to complete the entire booklet.

1. John, a 6 year old blind student, is currently placed in a self-contained special education class for the blind. He is able to distinguish light and dark, but has little functional sight beyond that. John's teacher is preparing a reading lesson about the farm for him at the first grade level. List as many adaptations and techniques you can think of to help John.

6. Debbie is currently enrolled in a classroom for the Physically Handicapped. She is a 6 year old cerebral palsied youngster who has normal intelligence. Although she is confined to a wheel chair, she has limited control of her right arm and hand. Debbie is a happy youngster who has limited communication skills. Her teacher is preparing an art lesson. List as many adaptations and techniques you can think of to help Debbie.

APPENDIX E
RESEARCH SCHEDULE

Research Schedule

Information Only Treatment Group:

Pretests: September 21

Treatments: Weekly Sessions, September 28 through
November 2

Posttests: November 9

Simulation Only Treatment Group:

Pretests: September 22

Treatments: Weekly Sessions, September 29 through
November 3

Posttests: November 10

Information/Simulation Treatment Group:

Pretests: September 23

Treatments: Weekly Sessions, September 30 through
November 4

Posttests: November 11

Control Group:

Pretests: September 23

Treatments: None

Posttests: November 11

APPENDIX F
SIMULATION FORMAT

Simulation: Visually Impaired

Introduction

"Good afternoon. For the next 20 minutes, we will engage in simulated activities designed to give you an opportunity to step briefly into the world of the visually impaired. Think about your experiences both during the activities and upon completion of the activities."

Materials

The following equipment and materials are necessary for the completion of this simulation: 30 blindfolds, 20 sheets of paper and 20 pencils, and 20 word cards. The 20 words utilized for the word cards were divided into abstract and concrete words such as bicycle (concrete) and lonely (abstract).

Word List

<u>Concrete</u>		<u>Abstract</u>	
1. dog	6. book	1. criminal	6. lonely
2. horse	7. pencil	2. comedian	7. learning
3. bicycle	8. shoe	3. confiscate	8. colonize
4. car	9. house	4. inhibition	9. conference
5. cat	10. truck	5. retreat	10. dehydrate

Tasks

This simulation was divided into two tasks and involved mobility and academic related tasks.

Task One (Mobility)

Instructor: "Choose a partner to work with you." Pass out the blindfolds to each member of the class. "I would like one of you to put on the blindfold, and the other to act as your guide. Guides, your job is to conduct your blindfolded partner around this building. Place your blindfolded partner's arm in your left arm (demonstrate). At the end of 5 minutes change places, and continue the tour of the building for another 5 minutes, completing the tour in this classroom. Please be sure and watch the clock so that all of you will be back in class 10 minutes from now. Do you have any questions? All right, begin."

Task Two (Academic Related Activity)

Instructor: "I would like you to choose a partner again. One of you will act as the teacher while the other will put on the blindfold. Teachers, you have just received a sheet of paper and a pencil. Have your blindfolded partner put her/his name in the top, right hand corner of the page. Teachers, I would like you to look at the word card you have received and write the word on the sheet of paper. Now without telling or spelling the word to your partner,

teach your blindfolded partner the word. You may use any other means of teaching your partner that word. Then reverse roles using the next word card."

Discussion

"You may use the last few minutes to discuss your experiences among yourselves." Wait 5 minutes. "Think about your experiences between now and the next class meeting."

Simulation: Physically and Otherwise Health Impaired

Introduction

"Good afternoon. For the next 20 minutes, we will engage in simulated activities designed to give you an opportunity to step briefly into the world of the physically handicapped. Think about your experiences both during the activities and upon completion of the activities."

Materials

The following equipment and materials will be necessary for the completion of this simulation: candy bars, large paper and writing paper.

Tasks

This simulation is divided into two tasks. The first task involves a self-help skill (eating), while the second task involves an academic task (writing).

Task One (eating)

Instructor: "Please select a partner for this task. One of you will play the role of the teacher and the other the role of the physically handicapped student. Teachers, you have just received a large sheet of paper which I would like you to place on the desk in

front of your physically handicapped partner. The candy bar you have received should be placed in the middle of the white paper. Those who are playing the role of the physically handicapped student are to open the candy bar and eat it. If you do not wish to eat the candy bar, stop after you have opened it. However, because you were born without arms, you will have to figure out some means of opening the candy bar without the use of your arms and hands. Teachers, your job is to give suggestions and other help to your partner but you may not touch the candy bar unless it is about to fall off the paper." (After 5 minutes, have the class stop).

Task Two (writing)

"Now I would like you to change roles. If you were the teacher in the last activity, you will be the physically handicapped student in this activity. Teachers, you have just received a paper and pencil. Your task is to have your physically handicapped partner write his/her name on that sheet of paper. However, your student lost the use of his/her dominant hand and therefore must use the other hand to complete this task. You must not write the student's name for him." (After 5 minutes, have the class stop.)

Discussion

"You may use the last few minutes to discuss your experiences among yourselves. Think about your experiences between now and the next class meeting."

Simulation: Hearing Impaired

Introduction

"Good afternoon. For the next 20 minutes we will engage in simulated activities designed to give you an opportunity to step briefly into the world of the hearing impaired. Think about your experiences both during and upon completion of the activities."

Materials

The following equipment and materials will be necessary for the completion of this simulation: film (Square Education), 20 word cards (see V.I. word list), paper, and pencils.

Tasks

There are two tasks involved with this simulation. The first activity involves communication and an academic task, while the second activity involves communication.

Task One (Communication and Academic Task)

Instructor: "Watch this film and be prepared to answer questions about this film." Show the film entitled Square Education. At the conclusion of the film ask the students to write the answers to the following questions:

1. What was the film about?

2. How will this affect you as an educator?
3. How could you utilize this film in a classroom?
4. Critique this film in terms of strengths and weaknesses.

Have some of the students read their responses to the questions.

Task Two (Communication)

Instructor: "Choose a partner for this next task. One of you will play the role of this teacher and one of you will play the role of the hearing impaired student. Each of you have received a card with a word on it, such as love. Teachers, it is your job to get your hearing impaired student to identify the word on the card. However, you cannot talk to your student since he/she cannot hear and you cannot write the specific word on paper." (After 5 minutes, have the students stop.)

Discussion

"You may use the last few minutes to discuss your experiences among yourselves. Think about your experiences between now and the next class."

Simulation: Emotionally Impaired

Introduction

"Good afternoon. For the next 20 minutes, we will engage in simulated activities designed to give you an opportunity to step briefly into the world of the emotionally impaired. Think about your experiences both during the activities and upon completion of the activities."

Materials

The following equipment will be necessary for the completion of this simulation: copies of instructions for the tasks as outlined.

Tasks

There are two tasks involved with this simulation. The first activity involves a social task in which the student has some interaction with other members of the class, while the second task will involve the completion of an academic task.

Task One (Social)

Divide the class into three groups. Instructor: "Each of you has received a set of instructions. I will give you a few minutes to read them. When you have finished reading the instructions, begin the task you have been given." At the end of 10 minutes, ask

the class to stop. Then have each group read the instructions given to them and have each group communicate their reactions to the whole class.

Instructions: Group One. Recently, the United States landed a space craft on Mars. Your task is to describe the information about Mars which you will transmit to earth. Be complete in your description of all information which the United States has gained through this space venture.

For example: The atmosphere of Mars is made up of _____. List the elements and the percentages of each element in the Martian atmosphere.

Instructions: Group Two. Your task is to pretend that you are making a list of information about the planet Mars. You are not to make an actual list. You are to pretend that you have all the information and that this is an easy task. In addition, you are to look over at Groups One and Three and laugh, giggle, tell jokes, point, and whisper. Have fun. Do not over-do the acting, but participate enough so you are sure they have seen you.

Instructions: Group Three. Your task is to observe Groups One and Two and record your observations. Try to do this without the others knowing what you are doing. Recording your observations as if you are answering a list of questions.

Task Two (Academic)

Instructor: "Select a partner. Each of you have received a set of directions for this task. For the next 5 minutes, I would like you to begin working on the task you have received." After 5 minutes, have the class stop and read their directions aloud.

Instructions: General. The following directions were printed on separate sheets of paper. One student received one set of directions while the other student received the other set of directions.

Instructions: Student One. Your task is to work with your partner in developing a set of rules for your classroom. You should write the rules that both of you agree are important for classroom structure. It is your job to come up with at least 10 rules in the time allotted which you will present to the class.

Instructions: Student Two. Your partner has been requested to work with you in developing a set of rules for your classroom. His/her job is to come up with at least 10 rules for the classroom which he/she will present to this class. Both of you must agree on the rule before the rule can be written down.

Ask your partner what her directions are and tell her yours are the same except that you are not supposed to write the rules down.

Your job is to disagree with the rules your partner comes up with and keep your partner from coming up with the 10 rules in the

time allotted. Please be serious in your disagreement.

Instructions: Instructor. At the end of 5 minutes, ask the students who have the rules written down to read them to the class. Then have their partners read their directions and have the class give their reactions to the exercise.

Discussion

"You may use the last few minutes to discuss your experiences among yourselves. Think about your experiences between now and the next class."

Simulation: Learning Disabilities

Introduction

"Good afternoon. For the next 20 minutes, we will engage in simulated activities designed to give you an opportunity to step briefly into the world of the learning disabled. Think about your experiences both during the activities and upon completion of the activities."

Materials

The following materials will be necessary for the completion of this simulation: Visual Perception Worksheet (Loss, 1975).

Task

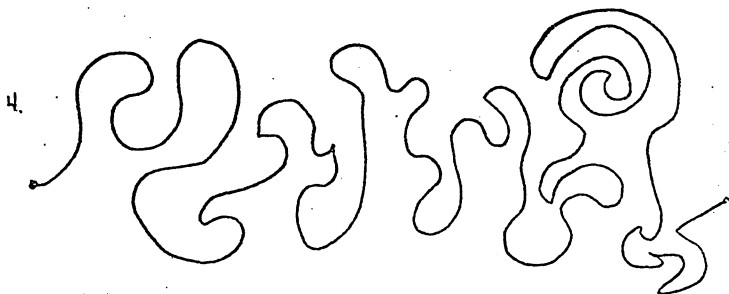
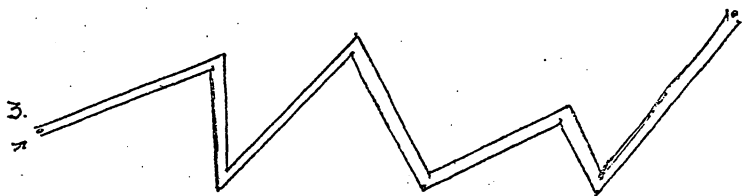
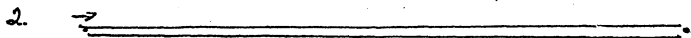
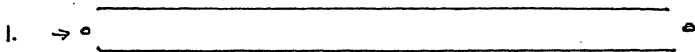
"Read the directions for the paper you have just received and complete the tasks." Allow 15 minutes for this activity. "Now I would like you to compare your paper with the person next to you."

Discussion

"You may use the last few minutes to discuss your experiences among yourselves. Think about your experiences between now and the next class."

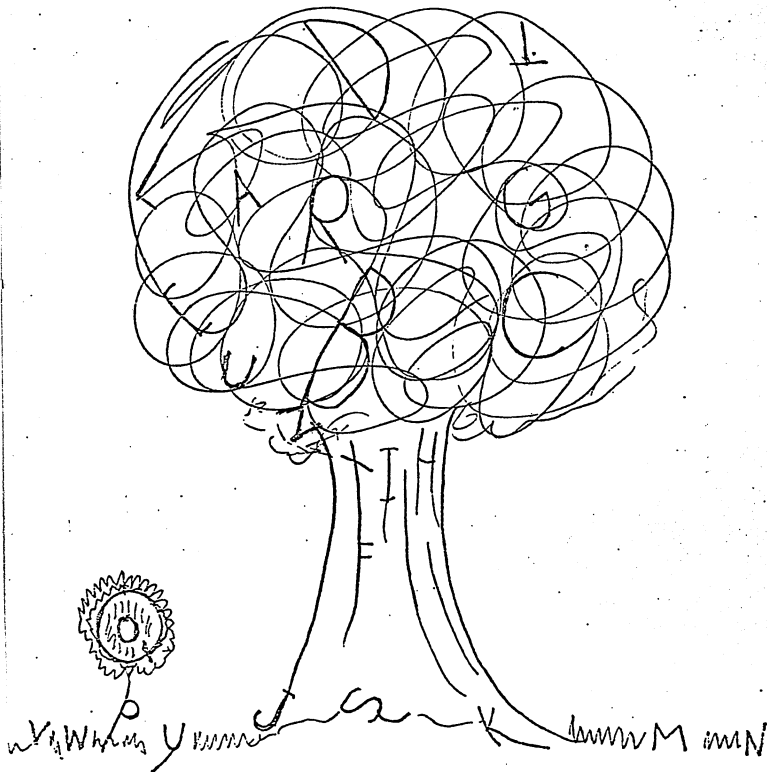
Procedure

Using your left hand (your right hand if you're left-handed) draw a straight unbroken line from left to right without picking your writing instrument off the paper. Note that the dots indicate starting and stopping points. In 1-3, do not go outside the guidelines!



Procedure

Outline the letters of the alphabet hidden in this picture.



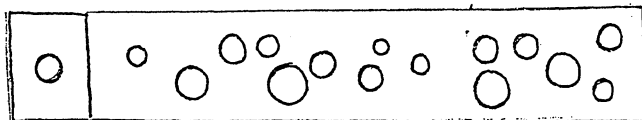
Mark the two figures that are the same.



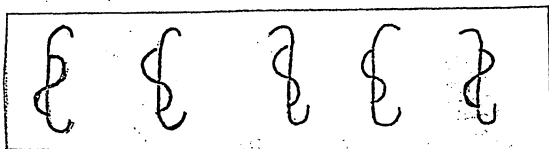
Mark the figure that is different.




Mark the circles that are the same as the one in the box.

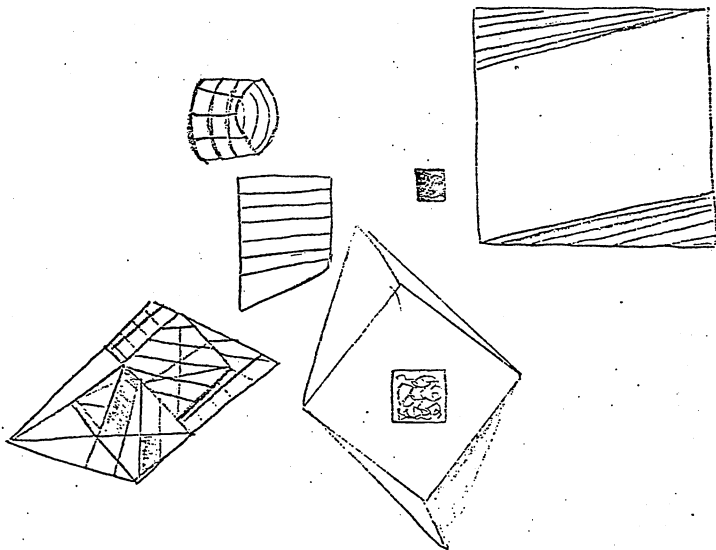


Mark the two that are the same.



Procedure

This is a square  . Outline all the squares in the figures below.



Procedure

Write your name using the hand you do not usually write with. Begin on the right side of the paper. Use cursive-not manuscript. (Your name should be sequenced properly, for example "Ann" should not be written "nna")

← begin

Errors noted:
rotations

reversals

distortions

etc.

Procedure

Identify the following

①



②



③

Procedure

Study this figure sequence. When you feel you are ready, turn the page and find the sequence that matches it. (Don't refer back to this original sequence, however.)

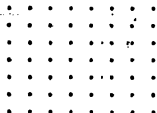
S 2 E 2 S

Mark the sequence that is the same as the one viewed on the preceding page.

141

1. S 2 3 S 2
 2. 2 S E S 2
 3. S 2 E 2 S
-

Reproduce this pattern.



Procedure

Using only your eye, count the number of F's in the sentence below:

Fascinating fairytales of
faraway lands are the
fertilizer for the fructification
of the creative minds
of the future.

Simulation: Educable Mentally Impaired

Introduction

"Good afternoon. For the next 20 minutes we will engage in simulated activities designed to give you an opportunity to step briefly into the world of the educable mentally impaired. Think about your experiences both during the activities and upon completion of the activities."

Materials

The following materials will be necessary for the completion of this simulation: Bus trip story and folk tale excerpt.

Tasks

The two tasks designed for this test involve (1) memory and attention, and (2) language and part-whole relationships.

Task One

"The following is a story which I would like you to listen to and be prepared to answer questions about when the story is completed."

Bus Trip

A Western Michigan University bus driver is about to embark on the afternoon bus route. The bus is empty as the driver makes

the first pickup at Sangren Hall. Ten students board the bus at Sangren Hall. The bus driver drops off six students in the valley and picks up nine students. He then proceeds to Fraternity Village where the bus driver drops off eight students and picks up three. At KL Avenue the bus driver drops off six students and picks up one. The bus driver then proceeds to West Main where he drops off one student and picks up eight students. He then returns to Sangren Hall.

Questions

1. How many stops did the bus driver make?
2. What were the names of the places he stopped the bus to allow the students to board and depart from the bus?

Task Two

"The following is an excerpt from a famous fairy tale. While the story is being read, write down what the story is about and the name of the fairy tale."

Fairy Tale

"O bore!" Setter prance tomb shelf, "water gourd-lurking prances!" Any nudist, spatially, oiler putty yowler coils sprat art honer piller. Tap towing tutor bet, hey stupid darn and caster honor chick.

"Gore ware," setter prances. "Conjurs seer arm slipping?"

"Itch tam toe wagon ope, sweat hart," whiskered door prance.

"Yore banner slip furry hunter cheers!"

Herring dore hobble warts, door prances stuttered sopping
historically; dingy lipped otter bet and lurked adder shelf inner
lurking gloss furry lung, lung term.

Shay worse justice putty sahy oyster bay!

Wail, chaldron, juster maker lung starry shirt, dish harpy
cobble felon luff rat aware an, fur lung, day war becalming horse
barn an waif. Door prance tucker prances hum tutor gorges
palates too lift watters fodder an murder an oily udders inner kink's
lodge family.

(Author Unknown)

Questions

1. What is the name of the fairy tale?
2. What was the story about?

Discussion

"You may use the last few minutes to discuss your experiences among yourselves. Think about your experiences between now and the next class."

APPENDIX G
INFORMATION FORMAT

Information: Visually Impaired

Introduction

- A. Attitudes of visually impaired.
- B. Adaptations and techniques for visually impaired.

Attitudes

- A. Blind perception of how nonhandicapped perceive them
(Lowenfeld, 1971).
 - 1. Helpless
 - 2. Dependent
 - 3. Underprivileged social situations
 - 4. Naive
 - 5. Lacking understanding
 - 6. Overpitying
- B. Nonhandicapped perception of blind (Lowenfeld, 1971).
 - 1. Personally frustrating
 - 2. Concept of blindness distinct from attitude toward
blindness
 - 3. Readiness to interact with blind people
 - 4. Differences in degrees in thinking about or interacting
with blind
- C. Among high school students, blindness is the most difficult

disability to accept (Lowenfeld, 1971).

- D. Attitudes toward blind are not static but changing
(Lowenfeld, 1971).

E. Intelligence.

1. Difficult to assess due to preponderance of nonhandicapped instruments.
2. Range of IQ's from borderline and dull to above average depending on test and group.

F. Senses

1. Popular belief--superior senses not true
2. Development of senses important in education

Adaptations and Techniques

A. Definition of adaptations and techniques

B. Equipment and materials

1. Glasses, cane, sighted guide, leader dog, magnifying devices
2. Braille, talking books, sighted reader

C. Environment

1. Touching
2. Listening
3. Room arrangements
4. Obstacles

D. Teacher

1. Adapt materials and equipment
2. Broaden environmental experiences

E. Child

1. Coping with environment
2. Asking questions--obtaining help
3. Dealing with people

F. Parent

Involve in educational program

Questions

Information: Physically and Otherwise Health Impaired

Introduction

- A. Attitudes of physically handicapped
- B. Adaptations and techniques for physically handicapped

Attitudes

- A. Degree of acceptance is related to IQ and extent of disability (Connor, 1975).
- B. Social status (Force, 1954).
 - 1. Physically handicapped not as well accepted as normals.
 - 2. Psychological integration cannot be achieved as mere presence.
 - 3. Elementary school children identify subgroups of normal and physically handicapped.
 - 4. Physically disability magnifies the difference in achieving social acceptance.
 - 5. Physical disabilities have varying social values-- Cerebral Palsy ranks lowest.
 - 6. Few physically handicapped have enough positive assets to offset the negative effect of being labeled.
 - 7. Accepted physically handicapped have relatively few

negative behavior patterns.

8. Must consider number of integrated physically handicapped that can be absorbed into regular class.
9. Problems of status and acceptance exist as young as 6 years.
10. Problems of integration are closely allied to whole field of dealing with prejudice.

C. College student attitudes

1. Prejudice exists toward the disabled (Tringo, 1970).
2. Cerebral Palsy and mental retardation are viewed least favorably. More contact, the more favorable reaction toward disabled (Sammel & Dickson, 1966).
3. Six dimensions influence stereotyping--visibility, communication, social stigma, reversability, degree of incapacity, and difficulty in daily living (Shears & Jensema, 1963).

D. Teacher attitudes

Teachers not highly accepting or rejecting of physically handicapped.

E. Various age attitudes

Attitudes are multidimensional, measurable, a function of type and severity of the disability, specific experiences with handicapped persons and possible

certain individual personality determinants (Siller & Chipman, 1964).

F. Intelligence

Varies from individual to individual.

G. Personality factors

Many spend time in hospitals--thus (Connor, 1975)

1. Little interaction with other children
2. Freedom and independence
3. Feelings of inadequacy and uncertainty develop.
4. Anxiety and fear in long, drawn out disabilities.

H. Children's reactions

1. Range from submission to aggression
2. Anxiety over recurrent attacks, e.g., seizures
3. Reaction to deformity (Connor, 1975)
 - a. Immediate withdrawal
 - b. Absorption with self
 - c. Gradual return to reality

Adaptations and Techniques

A. Equipment and materials

1. Wheelchairs, prostheses, braces, crutches
2. Adjustable tables, tilt top desks
3. Special typewriters, blissboards

4. Films, regular equipment modifications
 5. Standing tables, parallel bars, hand rails, walkers
- B. Environment
1. Self-contained, normal classes
 2. Barrier free design
 3. Large room, special bathrooms and rest areas
 4. Areas for physical therapy, wash area
- C. Teacher
1. Adaptation of materials and equipment
 2. Broaden environmental experiences
- D. Student
1. Coping with environment
 2. Coping with disability
 3. Coping with self
 4. Coping with society
- E. Parent
- Involvement with school program

Questions

Information: Hearing Impaired

Introduction

- A. Attitudes toward hearing impaired
- B. Adaptations and techniques for hearing impaired

Attitudes

- A. Personality tests showed hearing impaired less well adjusted (Wiley, 1971).
- B. Deaf presented higher incidence of behavior problems (Wiley, 1971).
- C. Deaf formed less adequate social relationships (Wiley, 1971).
- D. Deaf showed inferior conceptual thinking and limited interest (Wiley, 1971).
- E. Deaf showed signs of rigidity (Wiley, 1971).
- F. Language related to Rorschach performance (Wiley, 1971).
- G. Deaf need more emotional support due to impairment which modifies his adjustment (Wiley, 1971).
- H. Weaknesses of personality and IQ tests.
- I. Successful adjustment requires planning by community and deaf.

- J. Data indicate that persons who are deaf can establish adequate social patterns (Wiley, 1971).
- K. Parent reaction to deafness influences child's adjustment.
- L. Intelligence
 - Mental abilities same as normals except in the area of language.

Adaptations and Techniques

- A. Equipment and materials
 - 1. Visual aids and visual examples
 - 2. Captioned films, ear phones, hearing aids
 - 3. Mirrors and captioned pictures
- B. Environment
 - 1. Accoustically appropriate classroom
 - 2. Appropriate school placement
- C. Teacher
 - 1. Language development--lip reading and auditory training
 - 2. Experiences
 - 3. Speech development
 - 4. Manipulative materials
 - 5. Adaptation of materials and equipment
 - 6. Teacher as center of environment

D. Student

1. Learn use of residual hearing
2. Learn use of other senses
3. Coping with environment
4. Coping with disability
5. Coping with self
6. Coping with society

E. Parent

Involve in educational program

Questions

Information: Emotionally Impaired

Introduction

- A. Attitudes toward emotionally impaired
- B. Adaptations and techniques for emotionally impaired

Attitudes

- A. Behavior is a function of a person interacting with his environment (somatopsychology).
- B. Environment in which behavior occurs defines certain limits as to the behavior of group members (Knoblock, 1971).
- C. Acceptance of handicapped was related to both interpersonal situations and the type of exceptionality. E.I. varied according to the specific situation under consideration (Knoblock, 1971).
- D. Groups of children are capable of making determinations as to which responses are acceptable and to be differentially rewarded or punished by peers (Knoblock, 1971).
- E. Discrimination difficult--peer rejection then emotionally disturbed or emotionally disturbed then peer rejection.
- F. Public attitudes: Seems to be a lack of information rather than misinformation, attitudes negative toward mentally ill,

- and acting out behavior of children is willful (Knoblock, 1971).
- G. Those considered mentally ill are thought of as exhibiting unpredictable behavior.
 - H. Professional workers in the field of E.I. repeatedly receive the message that they are unique in working with E.I. children.
 - I. We can effectively convince a child that he is deviant--teacher expectation.
 - J. E.I. childrens' concept of themselves and about become more negative with more time in school.
 - K. Progressive deterioration in reading and in math as E. I. progress through school.
 - L. Intelligence varies

Adaptations and Techniques

A. Materials

1. Regular school materials
2. Many require concrete materials
3. Nondestructive--noninjurious materials
4. Soft, manipulative materials
5. Materials emphasizing social and emotional development

B. Environment

1. Time-out area
2. Uncluttered
3. Carpeting
4. Relatively structured

C. Teacher

1. Individualization
2. Group interaction
3. Token economy
4. Well defined goals
5. Role playing--creative dramatics
6. Counseling
7. Theoretical approaches

D. Student

1. Charts behavior
2. Develop independence and attention
3. Acceptance of responsibilities
4. Coping with self
5. Coping with society
6. Coping with peers

E. Parent

1. Seek professional assistance
2. Involve in educational program

Questions

Information: Educable Mentally Impaired

Introduction

- A. Attitudes toward educable mentally impaired
- B. Adaptations and techniques for educable mentally impaired

Attitudes

- A. Three ways to look at the influence of culture on retardation (Johnson, 1971).
 - 1. Impact of cultural factors
 - 2. Effect of retarded on society
 - 3. Cultural factors and influence on etiology
- B. No direct cause and effect relationship between mental retardation and delinquency.
- C. Projective tests and psychological interviews primary value in determining the existence and nature of problems.
- D. Mentally retarded have much the same psychological needs and face much the same kinds of personality stresses as normal persons (Johnson, 1971).
- E. Often unrecognized personality disorders may be misinterpreted as mental retardation.
- F. Mentally retarded not immune to personality problems and may be more prone to emotional problems due to intellectual

limitations.

1. Understand problems less clearly
 2. Perceive societal demands less accurately
 3. Restricted in possible solutions to problems
- G. All M.R. 's above the very lowest levels have some degree of societal adaptation (varies widely) (Johnson, 1971).
- H. M.R. 's are less accepted than normal children usually due to unacceptable behavior rather than low academic ability (Johnson, 1971).
- I. Rate of social growth is related to rate of academic growth (Johnson, 1971).
- J. Some job adjustment problems--adjustment improves over a period of time (Johnson, 1971).

Adaptations and Techniques

A. Materials

1. Concrete, manipulative materials
2. Programmed learning
3. High interest-low vocabulary reading materials
4. Language based programs
5. Multisensory approaches
6. Remedial reading drills

B. Environment

1. Similar to regular class
2. Interest areas
3. Structured
4. Carpeting

C. Teacher

1. Many examples for one concept
2. Actual experiences
3. Small, progressive steps to objective
4. Individualization and group interaction
5. Counseling

D. Student

1. Role playing and creative dramatics
2. Coping skills
3. Social experiences
4. Independence and responsibility

E. Parent

Involve in educational program

Questions

Information: Learning Disabilities

Introduction

- A. Attitudes toward learning disabled
- B. Adaptations and techniques for learning disabled

Attitudes

- A. Effects of society on handicapping conditions (somatopsychology) (Bartel & Guskin, 1971).
- B. Poor parental relationships due to slow physical and academic development (Rappaport cited in Cruickshank & Paul, 1971).
- C. Poor self-concept due to successes of peers (Rappaport cited in Cruickshank & Paul, 1971).
- D. Peers perceive learning disabled as different due to behavior problems (Cruickshank, 1975).
- E. Brain-injured often suffer from anxiety, and have an immature outlook on life and a lack of awareness of personal development and change (Cruickshank, 1975).
- F. Poor personality ratings due to: (1) student doesn't perceive correctly social situations and thus acts inappropriately; (2) lack of inhibitions present behavior not acceptable to peers (Gallagher cited in Cruickshank, 1975).

- G. Intellect--within normal range with deviances noted in subtest scores.
- H. Significant adults affect the child's feelings about himself (Hawk cited in Cruickshank & Paul, 1971).
- I. Child needs recognition of skills and a sense of trust in self and environment.

Adaptations and Techniques

A. Materials

- 1. Visual and auditory perceptual materials
- 2. Gross and fine motor development materials
- 3. Study carrels
- 4. Structured program materials
- 5. High interest-low vocabulary reading materials
- 6. Language development programs

B. Environment

- 1. Structured
- 2. Low visual and auditory stimuli
- 3. Interest areas

C. Teacher

- 1. Combine motor activities with visual and/or auditory stimuli.
- 2. Keep lessons short, change activities often

3. Follow same routine daily
4. Contingency management
5. Counseling
6. Individualize academic activities--provide for peer group interaction
7. Mainstreaming

D. Student

1. Coping skills
2. Responsibility development
3. Self-concept
4. Independence
5. Self-control

E. Parent involvement

Parent involvement in educational program

Questions

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