A COMPARATIVE STUDY OF THE EFFECTIVENESS OF SIMULATION IN CHANGING REGULAR CLASSROOM TEACHERS' ATTITUDES TOWARD THE INTEGRATION OF EXCEPTIONAL CHILDREN INTO THE REGULAR CLASSROOM

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VINCENT PALACINO Jr.

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This is to certify that the

thesis entitled

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ABSTRACT

A COMPARATIVE STUDY OF THE EFFECTIVENESS
OF SIMULATION IN CHANGING REGULAR CLASSROOM
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By

Vincent Palacino, Jr.

In recent years, much attention has been given to the problems of exceptional children in regular class situations. Most of the attention has been aimed at the specific problems the child has socially, psychologically, and academically but, little attention has been given to the role of the teacher in the successful integration of exceptional into the regular classroom.

It was the purpose of this study to consider the teacher as a variable in the integration process. The study attempted to change the attitudes of regular classroom teachers toward the integration of exceptional children into the regular classroom. This was done by developing a simulation of one exceptionality, hearing loss, and using the simulation as the vehicle for modifying the attitudes. The simulation was developed as a part of a course in the "Education of Exceptional Children."

The groups consisted of regular classroom teachers enrolled in "Education of Exceptional Children" during the Summer 1971 term of 1971 at Michigan State University. The subjects were pretested utilizing the Classroom Integration Inventory (as a measure of attitude) and the General Information Inventory (as a measure of cognitive information). The data

from the General Information Inventory was used to match the subjects in the two groups on the basis of cognitive information. Two subgroups were formed within each of the larger groups ... a high cognitive information group and a low cognitive information group. Both groups were post tested with the Classroom Integration Inventory only and scored to obtain a realism score and an acceptance score as indicators of attitude shift.

The Treatment group experienced a simulation of hearing impairment as a part of a three day presentation on the acoustically impaired child. The Control group received the same information as the Treatment group but did not experience the simulation.

The simulation consisted of a classroom presentation given by a "teacher" on a topic unfamiliar to the population. The presentation was videotaped and the audio track was filtered through a General Radio Multi-Filter to simulate three different types and degrees of hearing loss. The tape then permitted this investigation to impose upon the subjects a situation similar to that experienced by the hearing impaired child in the regular classroom.

The gain scores from the Classroom Integration Inventory were used in the analysis. The Classroom Integration Inventory yields two sets of scores, one on ability to realistically place an exceptional child in the proper educational setting (as compared to the judgements of "experts") and the other was acceptance of the exceptional child. An analysis of covariance was used to determine significance for the four hypotheses. Two of the hypotheses dealt with the realism score and the other two with the acceptance score. The comparisons were made between the Control and

Treatment group

group.

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Treatment groups and the high and low cognitive groups within the Treatment group.

The analysis show significant shifts for both hypotheses dealing with acceptance of exceptional children but no significant difference for the hypotheses dealing with realistic placement.

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to those many, many people whose assistance, understanding, and encouragement helped me reach my goal.

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CHAPTER ONE

INTRODUCTION

Purpose of the Study

The purpose of this study is to determine whether there is a greater shift, in a positive direction, in the attitudes of regular classroom teachers toward the integration of acoustically impaired children into the regular classroom as a result of simulation training about hearing loss rather than the traditional lecture-discussion format. A treatment group who experienced the simulation of three different levels of hearing loss, interms of frequency and intensity, was compared with a second group that received the information in the traditional lecture-discussion manner.

The study specifically tested the following hypotheses:

1. A simulation experience will result in greater acceptance of acoustically impaired children by regular classroom teachers than will a corresponding lecture-discussion presentation.

2. A simulation experience will result in a greater attitudinal shift relative to realistic placement of acoustically impaired children by regular classroom teachers than will a corresponding lecture-discussion presentation.

The above hypotheses were tested on two separate groups of regular classroom teachers who had enrolled in Education 424, "Education of Exceptional Children," during the Summer quarter of 1971 at Michigan

State University.

Nature of the Problem

"The most commonly stated goal of special education programs is to meet the needs of exceptional children whose needs cannot be adequately met in the regular classroom" (Christoplos and Renz, 1969, p. 371).

Over the years, special educators have taken a certain amount of pride and satisfaction in the rapid expansion of special education programs (Mackie, et.al., 1963; NEA, 1967). Their pride has recently been shaken by a ground swell of criticism of such programs emanating from several educators within special education. It seems that the split was brought into the open by Dunn (1968) who, in the opening comments of an article, said that special educators should "stop being pressured into continuing and expanding a special education program that we know to be undesirable for many of the children we are dedicated to serve." (Dunn, 1968).

Dunn's comments were specifically aimed at the special education classes that serve the educable and mildly mentally retarded child but, they can also be directed at all special classes for mildly and moderately handicapped children.

Despite some very basic philosophical questions that have, as yet

gone unanswered, special education programs have continued to proliferate to the point where it is estimated that one in every four school age children in the United States is being served to some degree by a special education program (Kirk, 1972).

Research has shown us that there exists little or no difference in academic performance between those exceptional children placed in special classes and those placed, on a full-time or part-time basis, in regular classes (Pertsch, 1936; Blatt, 1956; Mackie, 1965). The question that would logically follow after having reviewed the findings of these and other studies would be, why have we allowed this dual system of education to continue?

Too often this second system or "track" ends up as an inescapable dead end for the student (Warren, 1954). In a recent decision, the United States District Court for the District of Columbia struck down the District of Columbia's "track system" of education for the very reason that it was inescapable (NCSEA, 1968). Students were placed in one of the many "tracks" of this system and remained in that track throughout their entire school career, with no chance of moving laterally from one track to another.

This same approach tends to characterize the special education "track" in most of our public schools. Children with mild, moderate, and severe handicaps, and all areas in between, have been placed in special education classes and, as a result, tend to be stigmatized in the eyes of their peers and teachers. In addition, groups who are segregated into such a "track" seem to show increased feelings of frus-

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Compounding this "tracking" in special education is the feeling among some special educators that:

> Special education programs were not initiated in response to the needs of exceptional children, but rather as an expedient measure to resist a perceived threat to existing goals for "normal" children who were being more or less adequately served by regular school programs. (Christoplos and Renz, 1969, p. 373).

The inability of special education pupils to move from their own "special track" into the normal flow in the average school is seen as an inherent weakness in existing special education programs. "It is this fatalistic approach of many educators, an attitude that rubs off on the students, and their parents, that is objectionable...." (Cormany, 1970. p. 642).

Educators have, for years, used nebulous terms and phrases as an armor protecting themselves from the outside world and, whether intentionally or accidentally, have created a dissonance within the field that has made communication between areas, both within education and outside of education, difficult.

These terms and phrases carry with them a multiplicity of meanings and certain degrees of social and educational stigma. Such catch-all terms as "special education," "slow learner," "mental retardation" have evolved to where they are allowed to "serve as a convenient

rationale for assigning students to the proverbial scrap heap of obscurity" (Wasser, 1971).

> We, as teachers, frequently use our language concepts to blend us into a world of nonsense or no-sense....Our concepts, such as "bright," "average," "needs," and a myriad of others, blind us not only to our problems but to any real hope of coming up with truly important and potentially lasting solutions to our concerns. Under these conditions, students cease becoming individuals and easily become dehumanized entities, bodies to affix to our widely employed empty labels and concepts. (Wasser, 1971, p.2)

Typical of this categorization is the placement of children in special classes for a wide range of reasons relating to some sort of teacher-perceived behavioral or learning problem (Lilly, 1970).

A number of new developments in the areas of individualizing instruction, curriculum design and development, and research on learning in addition to the recent debate over the need for and the effectiveness of special classes for the mildly and moderately handicapped, have resulted in an increase in classroom integration of exceptional children, either on a full-time or a part-time basis. Educators have received the impetus needed to increase the numbers of exceptional children that are being placed in regular classrooms. A number of interdependent developments have contributed to make integration more viable:

1. the refinement of diagnostic instruments and procedures,
2. the advancements in prosthetic devices for handicapped children,
3. the increased training of specialists and itinerant personnel,
4. the increased number of pre-school training programs for handicapped children,
5. the increased awareness on the part of educators of the educational, social, and emotional needs of exceptional children. (Haring, 1956).

It is with the fifth development noted by Haring (1956) that this study is to be concerned. "There are more people with physical disabilities in the world than ever before" (Meyerson, 1963). Hicks (1970) has pointed out that the total deaf population is increasing at an alarming rate. In its Rubella Surveillance Report (1969), the National Communicable Diseases Center reported that the rubella epidemic of 1964-1965 produced 20,000 children with congenital rubella syndrome, more than 8,000 of whom are deaf. These children have now reached school age and special placement is required for those who are so severely handicapped that they cannot perform in or profit from placement in the regular classroom. Supportive services also are required for those who can be integrated into the regular classroom and can perform in and profit from this placement.

As a result of this increasing population of what would be classified as exceptional children, there have been increasing numbers of children entering the regular classroom, on a full-time or part-time basis, and an increasing diversity in the organization of special ed-

ucation programs.

> The array of patterns now includes full-time attendance in a special class, part-time attendance in a special class, instruction part-time by an itinerant or resource room teacher, instruction in the pupil's home, and instruction in a hospital sanitorium, or convalescent home.... To the extent that these are available within any one school system (or geographically convenient area) this represents opportunity for flexible placement of children according to their special educational needs. The large number of exceptional children spending part of their school day with a special teacher and part with a regular teacher implies, among other things, the need for careful coordination of the child's educational program and orientation of the regular classroom teacher in education of exceptional children. (Mackie, et.al., 1963).

The wide diversity of programs cited by Mackie, et. al. (1963) indicates that there has been some movement toward the placement of exceptional children in the regular classroom and that these children are receiving supportive services from numerous forms of special education programs and facilities.

One of the most pressing problems relating to the integration of exceptional children into the regular classroom has been the attitude of the classroom teacher toward the exceptional child. Siegel (1969) points out that "the truly neglected group of children....remains the marginally exceptional--those who are neither significantly 'exceptional'

to warrant special placement nor sufficiently 'normal' to benefit from regular classroom placement without proper orientation on the part of the teacher and other school personnel." He continues "...mildly handicapped children in the regular classroom--particularly those with learning and/or behavior impairments--all need supportive and accepting teacher attitudes"(Siegel, 1969).

Kough and DeHaan (1957) believe that "if the teachers' attitude toward the youngsters is positive, if [teachers] accept the handicap as a limitation that can be overcome, [they] will communicate... [their] feelings to the youngster and help generate a spirit of confidence...."

It is this acceptance that must be dealt with in both in-service and pre-service teacher training programs. Teacher training programs tend, at least superficially, to present the idea that "acceptance" and "understanding" are essential characteristics of a successful teacher, but there seems to be an almost total lack of consideration of the problems of the exceptional child outside of existing special education programs.

Theory suggests that attitudes are affected by at least two major variables - knowledge and/or experience (Remmers, 1950). While there is a great deal of content and experience in the average teacher training program dealing with the "normal" child, little, if anything, is said about the exceptional child.

Philosophy of Integration

The need for the inclusion of some form of program to acquaint regular classroom teachers with the needs of the exceptional child and to prevent or correct misconceptions about exceptional children has been expressed by a number of noted educators, both from within special education and from outside the field. Haring (1956) states, "the success of any plan of integration depends largely upon how the teacher feels toward the exceptional child." Cruickshank and Johnson (1967) lend support to Haring's assumption when they recommend "well developed orientation programs" designed to help teachers "approach more positively all types of exceptional children."

Several noted special educators have expressed the thought that, in many cases, the exceptional child can best benefit in the regular classroom. Cruickshank and Johnson (1967) expressed the thought "not all exceptional [children] need special education. Some may simply require modifications in their regular classroom or program." Wooden (1953) feels that "not all exceptional children need special education -- and many who need it for a time do not need it indefinitely....an exceptional child may make, under favorable conditions, a reasonably good adjustment in the regular classroom." Kirk (1950) has said that the needs of the exceptional child may best be met "...through the

medium of a special class or special school; but, in many cases, they may be provided for individual pupils in a regular class...."

The feeling has been expressed by some that the crucial factor separating the special class teacher from the regular class teacher is the training received by the special class teacher. "Special education...is provision for those individual differences among children for which regular teachers are not trained and for which they do not possess competence...." (Wooden, 1953). "An assumption underlying the placement of educable mentally retarded children in special classes and in special preparation of the teachers is that the special teachers require instructional skills not normally required of teachers of the regular grades" (Blackman and Sparks, 1965).

There is a need for special training, or at least the inclusion of coursework in a training program, for regular classroom teachers so that they can adequately deal with exceptional children who have been integrated into their classes.

It is the above concern which lead to the development of the present study for it grew out of the assessment of the need for a course in the education of exceptional children which might be included in the curriculum for regular classroom teachers at Michigan State University.

Definition of Terms

The following are considered by this investigator to be the operational definitions of the critical terms related to this study.

1. Simulation - "Simulations...compose a more or less accurate representation or model of some external reality with which the players [participants] interact in much the same way they would interact with the actual reality" (Zuckerman and Horn, 1970, p. 14).

2. Exceptional Children - "...the exceptional child is defined as the child who deviates from the...normal child (1) in mental characteristics, (2) in sensory abilities, (3) in neuromuscular or physical characteristics, (4) in social or emotional behavior, (5) in communication abilities, or (6) in multiple handicaps to such an extent that he requires a modification of school practices, or special educational services, in order to develop to his maximum capacity" (Kirk, 1972, p. 4).

3. Special Education - "consists of the modifications of, or additions to, school practices...that are unique, uncommon, of unusual quality, and in particular are in addition to the organization and instructional procedures used with the majority of children" (Kirk, 1972, p. 34).

4. Attitude - "Attitudes have generally been regarded as either mental readiness or implicit predisopsitions which exert some general and consistent influence on a fairly large class of evaluative responses. These responses are usually directed toward some object, person, or group. In addition, attitudes are seen as enduring predispositions, but ones which are learned rather than innate" (Zimbardo and Ebbesen, 1970, p. 4).

5. Integration - "...educating the exceptional child with his normal peers to whatever extent is compatible with his fullest potential development" (Frampton and Gall, 1955, p. 127).

6. Regular Class - Refers to the classroom which deals, primarily, with the "normal" school population. (i.e. - that population that would not normally require the supportive services needed by the exceptional child).

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The need for definition and identification of specific affective attributes of regular classroom teachers toward the integration of exceptional children into the regular classroom was discussed in the previous chapter. This chapter will be concerned with (1) related research and previous studies on the formation of and factors related to attitudes, (2) the attitudes of teachers toward exceptional children, (3) attitudes of teachers toward the integration of exceptional children into the regular classroom, (4) simulation, (5) simulation uses in teacher education and (6) the effectiveness of simulations of handicaps.

Formation of Attitudes

The term attitude carries with it numerous meanings, varying as widely as there are specific divisions of the behavioral sciences. Green (1954) noted that while there are differences in meaning, two common factors run through all definitions of the concept of attitude: (1) consistency or predictability of responses and (2) the idea that attitudes are learned (Green, 1954). Sherif and Cantril (1945) noted that attitudes are learned as a result of contact with the environment.

Allport (1935) discussed four (4) common conditions for attitude formation:

> 1. Integration of numerous specific responses of a similar type. An infant is totally specific and fragmentary in his responses. In childhood, his attitudes become gradually pieced together.
> 2. Individuation, differentiation or segregation. An infant has two primordal non-specific attitudes, namely approaching and avoiding. From this matrix he must segregate action patterns and conceptual systems which will supply him with adequate attitudes for direction of his adaptive conduct.
> 3. Dramatic experience and trauma. It is well known that permanent attitudes may be formed as the result of compulsive organization in the mental field following a single tense emotional experience--(fears, desires, prejudices, predilectations).
> 4. Through the imitation of parents, teachers or playmates they are sometimes adopted, ready-made. Even before he has a background of appropriate experience, a child may form many intense and lasting attitudes toward races and professions, toward religion and marriage, toward foreigners and servants, toward morality and sin (Allport, 1935).

The fourth of these conditions is of particular interest to the present study. One might consider the research which points to the problems in social development and adjustment of exceptional children in the regular classroom. A large number of studies point to the fact that exceptional children, both in special classes and in the regular classes, are considered less desirable by "normal" children than their

"normal" peers (Baldwin, 1958; Blatt, 1956; Lapp, 1957; and Johnson, 1962).

Allport (1935) points out that a non-exceptional child may develop such non-accepting attitudes as a result of long term development, through imitation, or a single tense emotional experience. He also states that a child may adopt his attitudes "ready-made," and that the source of negative, "ready-made" attitudes toward exceptionality may be the classroom teacher.

Moffitt (1932), Manske (1936), and Manson (1942) all found that there was a positive relationship between teacher attitudes toward a particular group and student attitudes toward that same group.

Attitudes can exist in two formats: (1) they may be expressed by overt behavior, or (2) they "may exist emotionally without being evidenced through overt behavior" (Boyd, 1943).

> An attitude...is the way an individual is disposed to act toward something as a result of previous experience. It is dynamic in quality and...may vary in intensity (Choate, 1958).

It may, therefore, be said that attitudes are developed as a result of interaction with the total environment. Values, positive or negative, and the resultant attitudes, which an individual attaches to an object, person, or statement would be the result of this interaction. An important ingredient in this interaction and in the resultant development of social attitudes is "the values and norms of the individual's reference

groups" (Sherif, 1960). Pressure from the group and the desire to be accepted by or belong to the group tends to be a most crucial part of attitude formation.

In summary, it can be said that attitudes have been found to have developed as a result of some form of interaction with the environment. The interaction may be a single-tense emotional experience where the attitudes may be "adopted, ready-made" (Allport, 1935) or may be the result of a long term interaction and are the result of an extensive learning experience (Sherif and Cantril, 1945). In addition, it has been found that the responses which result from these attitudes are exhibited in a consistent or predictable manner (Green, 1954).

Attitudes of Teachers Toward the Handicapped

Until recently, there have been few published research studies dealing with attitudes of teachers toward exceptional children and even fewer dealing with attitudes of teachers toward the integration of these children into the regular classroom.

The question of integration was, in part, brought into the open in 1968 by Dunn. After the publication of his article, more and more papers have been published in journals and magazines about the merits and dangers of integration of exceptional children into the regular classroom.

Unfortunately, most of these papers were either opinion or position papers or were of the "show and tell" variety (Jansen, et.al, 1970; Porter, 1971; Nelson and Schmidt, 1971). That is, these, and many others, merely related one man's opinion or described a program or a single instance where a school, or a system, or just a single class had tried integrating an exceptional child or children into regular classroom situations, either full-time or part-time.

So as not to demean this kind of reporting, it must be noted that articles of this type can be used in the identification of existing programs but are of limited value in the design of research to study the effects of integration on both the exceptional child and his "normal" peers.

Public attitudes toward the exceptional (or handicapped) have been shown to be much like those toward other minorities such as Blacks and Jews. Roeher (1961) reported that societal attitudes toward the physically handicapped are similar to those toward other minorities. Societal attitudes such as, social distance, segregation (particularly in schools) and vocational disadvantage were the primary ones noted. Cowen, et. al. (1958) found "significant correlations between negative attitudes toward blindness and anti-minority, anti-Negro, and pro-authoritarian attitudes...."

One of the arguments that has been raised against special classes for exceptional children, particularly mentally retarded children, is that these children are stigmatized because of their segregated placement.

There is some evidence that shows that, despite integration into regular classrooms, exceptional children have little guarantee of receiving greater acceptance from their "normal" peers. Johnson (1950) was concerned with the social position of the mentally handicapped child in the regular classroom. Using a sociometric technique for gathering his data, he found that the mentally handicapped children were rejected by their classmates significantly more frequently than their "normal" peers (Johnson, 1950).

How much influence teachers' attitudes toward the handicapped child had on the attitudes of the other children in the classes is not known. There have not been any studies dealing with the influence a teacher's attitude toward the exceptional child has on the child's normal peers.

There have been some studies that have looked at various aspects of the teacher's attitudes and self-image and how these influence the children in their classes. Notably, Cummins (1960) reported a significant relationship between teacher acceptance of self and others and their students' acceptance of self and others' attitudes. Flanders (1965) reports that the 1956-1957 Minnesota and New Zealand studies indicate that "teacher's behavior exerts more effect on pupils' attitudes than pupil behavior exerts on teacher influence."

While there is little, if any, direct evidence that a teacher's attitudes toward exceptional children, as a class of persons, can significantly influence the attitudes of the students in her class, the above discussion tends to lend some support to the idea that teachers

can, indeed, influence their pupils' attitude toward specific classes of persons.

Attitudes of Teachers Toward The Integration of Exceptional Children Into the Regular Classroom

The literature relating to the adjustment of exceptional children in the regular classroom is somewhat weighted against integration. Johnson and Kirk (1950) found that, while mentally retarded children are physically present in a school, they may be segregated, psychologically, as compared to their "normal" peers. Johnson (1950) and Thurstone (1959) have shown that mentally retarded children have a higher probability of rejection and isolation because of the attitudes exhibited by teachers and their "normal" pupils in regular classes.

While these tend to support the need for special classes and refute the call for integration, some more recent studies seem to show favorable results from integration.

Bennett and Pertsch (1970) found that retarded children in special classes did poorly in physical, personality, and academic areas as compared with retarded children in regular classes. Their findings were substantiated by Flynn and Flynn (1970), Cormany (1970) and Grosenick (1970) who found that exceptional children's performance in regular classes, whether full-time (as in the case of the Cormany (1970) and

Grosenick (1970) studies) or part-time (as in the case of the Flynn and Flynn (1970) study), tended to be equal to or better than the performance of their exceptional peers in the special classes.

All of the studies that have been mentioned thus far and a number of others (Doll, 1967; Tolor, et. al., 1967; Fine, 1967; Mutimer and Rosemier, 1967; McGee, 1970) tend to indicate that a good part of the exceptional child's adjustment and success, or lack of them, in the regular classroom, as well as in the special classroom, may be dependent upon the teacher's attitude toward the child and her ability to instill this same attitude in the other students.

Haring (1956) found teachers to be less accepting of exceptional children than they were of non-exceptional children. He, also, found that knowledge and experience are closely related to the acceptance-rejection attitude of the teacher toward teaching certain groups of exceptional children, as expressed by the teachers themselves. Tolor et. al. (1967) asked teachers to rate certain behaviors as normal or abnormal and found that experience and knowledge were significant factors in the teachers' ability to judge these behaviors successfully.

An interesting point was brought out by Fine (1967) in a study of the attitudes of regular and special class teachers toward the educable mentally retarded child. He found that special class teachers tended to be less demanding in the area of academic performance than did regular classroom teachers. In addition, though special class teachers seemed to be more interested in personal and social adjustment factors, the difference between them and regular class teachers was not significant. This seems to support the findings of Meyerowitz (1962) that a

group of educable mentally retarded children might increase feelings of self-derogation after a one-year placement in special classes.

Dickstein and Dripps (1958) attempted to ascertain whether different childhood worker groups vary in attitude toward exceptional children and to determine whether certain categories of exceptionality tended to be more accepted or rejected than others. Their conclusions showed that all workers tended to prefer to teach those categories about which they felt they knew the most.

The findings of Dickstein and Dripps (1958) seem to bear out the conclusions made in the attitude research discussed earlier. That is, that there is a definite relationship between knowledge of and attitude toward a specific object class.

In their total analysis, Dickstein and Dripps (1958) found that the gifted appeared to be most generally accepted and preferred by regular classroom teachers while the delinquent, visually handicapped and auditorially handicapped tended to be the least accepted and preferred.

While studies in the area of teacher attitudes toward the integration of exceptional children into the regular classroom are few and sketchy, it appears that one basic conclusion that can be drawn from them is that there is a need for more and better teacher education concerning the problems of the exceptional child (Wrightstone, 1957). This conclusion is, perhaps, the most important in relation to the present study which grew out of the assessment of need for a course in the education of the exceptional child for regular classroom teachers.

There have been two major studies which have dealt directly with the

the attitudes of teachers toward exceptional children and their integration into the regular classroom and which are of particular interest and consequence to this study.

Haring (1956) dealt with his population through a series of fifteen workshop meetings concerned with exceptional children. The general purposes of his study were:

> ...to determine the extent to which the attitudes of classroom teachers can be modified toward greater and more realistic acceptance of exceptional children and to utilize a workshop for the purpose of modifying attitudes in the direction of greater amount of knowledge and understanding of exceptional children. The study has two specific purposes: (a) to ascertain the initial status of attitudes toward, and the amount of knowledge about exceptional children, and (b) to re-test after a thirty-week workshop period, to determine the effect of the workshop in modifying attitudes and understanding of exceptional children. (Haring, 1956).

Utilizing lecture-discussion groups, Haring (1956) attempted to change attitudes of the participants through greater knowledge of the subject area (exceptionality) and through actual experience. The lecture-discussion groups covered eight areas of exceptionality:

1. Children with intellectual retardation,
2. Children with orthopedic or neurological impairments,
3. Children with impaired hearing and/or speech,
4. Children with academic retardation,
5. Children with visual impairment,
6. Children with superior talent and/or intelligence,
7. Children with emotional disturbances,

8. Counseling for parents of exceptional children.

To determine knowledge and attitude, Haring (1956) used four measuring devices which were administered as pretests and posttests. The four were the General Information Inventory, the Classroom Integration Inventory, The Activities Index, and The Picture Judgement Test.

The first two instruments were designed by Haring (1956), with the aid of Dr. George G. Stern. The General Information Inventory (GII) was designed to measure the amount of information and understanding teachers had about exceptional children. It was a measure of cognitive information about exceptionality. The Classroom Integration Inventory was designed to measure a teacher's acceptance of and realistic placement of exceptional children.

The workshop proved highly effective in increasing the amount of knowledge (cognitive information) and understanding that the teachers had about children with exceptionalities. The increases were significant at the .01 level for one group and at the .001 level for the remaining three groups.

The analysis of the Classroom Integration Inventory scores revealed a wide disparity in modification of attitudes toward greater acceptance of exceptional children. Two of the groups showed significant increases in several areas of exceptionality, notably: (1) hearing handicaps, (2) visual handicaps, (3) speech handicaps, (4) seizures, and (5) orthopedic and cardiac disorders.

An interesting point made by Haring (1956) is that the two groups that showed the greatest gain in acceptance, had relatively large numbers of handicapped children enrolled; while the other two groups had only a few children enrolled who could be classified as exceptional. It was felt that this helped support the conclusion that "teachers need actual experiences with exceptional children in order to be able to express increased acceptance toward these children" (Haring, 1956).

While there were significant changes in acceptance of exceptional children by the teachers in the four groups, there were no overall changes in the teachers' abilities to realistically place children with exceptionalities into appropriate learning situations (as compared to the judgements made by a panel of "experts" in the field of exceptionality). This task of realistic placement is the second dimension of the Classroom Integration Inventory.

In fact, it was concluded by Haring (1956) that "whether or not teachers had experiences with exceptional children in their classrooms seemed to make little difference in their ability to be more accurate in their judgement concerning the placement of these children." This same conclusion has been substantiated in a study done by Proctor (1967). This study will be discussed later in this chapter.

The implications of the Haring (1956) study indicate that integration can be more effectively achieved when accompanied by supporting experience such as a workshop. He recommends that workshop experience should coincide with a program of integration.

Haring (1956) expressed some doubts as to whether broad orientation courses during college training would be effective in increasing attitudes of acceptance without actual teaching experience with exceptional children. It is, in part, this contention at which the present study is aimed.

Proctor (1967) utilized the same instruments as Haring (1956) in her study to determine what relationship existed between knowledge of, kind and amount of experience with, and attitudes toward the integration of exceptional children into the regular classroom.

She used, as her subjects, a sample similar to that used by Haring (1956). Her sample consisted of 147 teachers, 6 student teachers, and 10 ancillary personnel. The ancillary personnel consisted of six speech therapists, one school diagnostician, and one special education coordinator.

While Haring (1956) subjected his population to a series of fifteen workshops and pretested and posttested them to collect his data, Proctor (1967) mailed the test instruments to her population, along with a Personal Data Questionnaire, and requested that each member of her population complete both test instruments (The Classroom Integration Inventory and The General Information Inventory) and the questionnaire and return them when completed. Her response was more than adequate to allow her to draw statistically sound conclusions from the resultant data (a total of 154 responses out of 163 or 94.5% return).

Her population was drawn from ten cooperating schools in the Jackson,

Michigan area and divided into two groups: five schools with special education programs and five schools with no established special education programs.

The scoring keys for the General Information Inventory and the Classroom Integration Inventory had to be reestablished by Proctor (1967) since the original keys that had been developed by Haring (1956) were no longer available.

The keys were reestablished in a manner similar to that used by Haring (1956) when the original keys were developed. A group of five specialists in the area of exceptional children were given items, which were appropriate to their speciality, from both instruments. In the case of the General Information Inventory, the judges merely determined which foil of each of the four-foil multiple-choice items was the correct one for that item.

For the Classroom Integration Inventory, they judged each item with reference to the most realistic placement of the case described in the item. The judges worked independently in their task and reached 65 percent agreement on the 20 severe items, 59 percent agreement on the 20 moderate items and 65 percent agreement on the 20 slightly severe items. The judges then met as a group and came to agreement on all of the remaining items except one. Item seventeen, in the area of emotional disturbances, was omitted because it "lacked inter-judge reliability" (Proctor, 1967). (The scoring of the two tests will be discussed in greater detail in Chapter III).

The completed Inventories, as returned by Proctor's (1967) population, were scored and each subject was assigned a score for each Inventory.

Prior to scoring, the subjects were categorized in terms of (1) type of teaching experience; (2) amount of teaching experience; (3) amount of academic credit pertaining to exceptionalities; and (4) consultation experience (both in terms of having given consultation and having received consultation). The relation of the two dependent variables (knowledge and acceptance) to the aforementioned independent variables was analyzed by using a one-way analysis of variance supplemented by a multiple range test modified for unequal replications.

For the most part, Proctor's (1967) findings parallel those of Haring (1956). Her findings can be summarized as follows:

> (1) Teachers with full-time responsibility for the educational program of one or more exceptional children were not found to be significantly more realistic in their attitudes toward the educational placement of these children than teachers with part-time responsibilities of a similar nature.
>
> (2) Teachers with one or more years experience in a teaching program for one or more exceptional children (full-time or part-time) were not found to have significantly more realistic attitudes toward educational placement of these children than the no experience group.
>
> (3) Teachers with one or more years of academic credit pertaining to exceptional children were found to have significantly more realistic attitudes toward educational placement than teachers with less than one year of credit but, not significantly more realistic in their attitudes than the group with no academic credit pertaining to exceptional children.

> (4) Teachers who reported experience giving consultation about one or more of the exceptionalities covered by the Classroom Integration Inventory (CII) were not found to have significantly more realistic attitudes toward educational placement than teachers who received consultation or teachers who received no consultation. (Proctor, 1967).

"The finding that 'amount of experience' with exceptional children did not increase the teacher's ability to make more realistic decisions concerning the educational placement for them is in agreement with the reported findings...." (Proctor, 1967) of Haring (1956).

An interesting conclusion could be drawn from Item (3) above. While teachers with one or more years of academic credit pertaining to exceptional children were found to have more realistic attitudes toward educational placement than teachers with less than one year experience, it should be noted that the difference with the "no credit" group was not significant. In fact, "...an unexpected finding was that the Classroom Integration Inventory (CII) mean score ranking of the no credit group was higher than the Classroom Integration Inventory (CII) mean score ranking of the some credit group. Had this been a significant difference, one might assume some degree of truth contained in the old adage 'a little learning is a dangerous thing'" (Proctor, 1967).

Another significant conclusion drawn by Proctor (1967) relates to the relationship of attitude toward classroom integration of exceptional children and knowledge and understanding of exceptional

children. It was found that teachers who earned significantly higher scores on the General Information Inventory (GII) than other teachers also earned significantly higher scores on the Classroom Integration Inventory (CII). This positive correlation, Proctor (1967) reports, "...lends additional support to the findings in Hypothesis 4a in which teachers with extensive academic credit in courses pertaining to exceptionalities were found to have a significantly greater amount of realistic judgement (higher CII scores) toward the educational placement of exceptional children than teachers who reported lesser amounts of academic credit."

The present study is primarily concerned with in-service education of regular classroom teachers. The implications of the Proctor (1967) study on in-service education "suggest that academic courses pertaining to exceptional children are effective in increasing the amount of accurate information teachers have about exceptional children." The development of realistic attitudes toward the exceptional child appears to depend less upon the amount of teaching experience than upon the type of experience.

Proctor (1967) concludes that a preservice teacher who anticipates teaching an exceptional child must have sufficient background, including coursework. This coursework would be most effective if it were supplemented by actual teaching experience with exceptional children.

Likewise, for in-service programs, coursework pertaining to exceptional children in conjunction with actual teaching experience with these children might be the most effective approach to the successful

integration of exceptional children into the regular classroom.

The Proctor (1967) conclusions on teacher preservice and in-service educational programs parallel and support the findings and conclusions of Haring (1956).

Finally, in her discussions for further research, Proctor (1967) suggests that "academic coursework which deals with exceptionalities is the most significant variable affecting attitudes toward classroom placement." It is an existing course dealing with exceptionalities at which the present study is aimed.

Simulations - Introduction

Simulations have been used in numerous fields of interest and in a wide variety of applications for a number of years. They had their generic beginning in the field of engineering where the term, simulation, was used to describe a physical model or mock-up. This model or mock-up was then used to test the application of scientific principles into design (such as a mock-up of an airplane wing to test the aerodynamic qualities of it).

During the second world war, the armed services became interested in the application of simulations in training. The services have, also, used their famous "war games" to analyze and evaluate the abilities of their men and machines to coordinate their activities and to meet an

objective (Dawson, 1962).

Perhaps the most famous simulator is the Air Force's Link Trainer. This device simulates the controls in the cockpit of an aircraft and is still used in flight training programs (Tansey and Unwin, 1969). A far more sophistocated simulator is being used by the major commercial airlines to train their pilots to fly the jet passenger aircraft of today. The United Air Lines system, for example, is tied to a computer which can "create," in the simulator's cockpit, conditions ranging from rough weather handling through loss of a wing (Crawford, 1963).

The introduction of the Link Trainer into a human training situation brought about a shift in the thinking about simulations. The history of what could be termed as simulations dates back to the development of the game of chess, which was designed originally as a simulation of medieval military strategies (Tansey and Unwin, 1969). Up to the development of the Link Trainer, the focus of simulations had been on competition between men (it might be added at this point that, prior to the second world war, there seemed to be no distinction made between simulations and games). The Link Trainer brought a new dimension into the picture. The participant was competing, as it were, against himself and a given situation. The situation was analogous to his "on the job" situation and he made decisions based upon his background and training. When decisions were made, he had no fear of censure from others if he had made a mistake. The participant, therefore, was given a great deal of latitude in his decision-making and could experiment to determine what he could and could not do in a given

situation, without "suffering the consequences" that might result in "real life."

In real life, of course, there is the interaction of not just human to machine but human to human. To deal with these interactions in a simulated situation, the Systems Research Laboratory of the Rand Corporation constructed a duplicate of an air defense direction center. The entire environment of the center was simulated in this duplicate--including physical layout, work assignments and tasks, and mechanical and electrical failures affecting the center's operation.

The effectiveness of this simulation has been reported by Chapman (1965). "The members of each crew became an integral unit... learned to perform more effectively" (Chapman, 1965).

Business and industry have, since World War II, been among the leaders in the utilization of simulation in their product development and training activities (Greenlaw,et.al., 1962).

The American Management Association has been instrumental in the development of management simulations for training personnel on all levels of industrial management. Its first simulation, probably the first business simulation, was the Top Management Decision Simulation, developed in 1956. In it, the participants are allowed to act as executives, to make decisions, and to see the effects of those decisions (Tansey and Unwin, 1969).

In business and industry, there tend to be four basic categories of games: (1) general management games; (2) functional games; (3) industry games; and (4) bureaucracy games (Stewart, 1961). One notable

characteristic of simulations as used in business and industry is that they tend to follow the form of games. That is, while they simulate "real life" situations, there is the addition of competition and scoring, in some form, in addition to the aspect of winning or losing. "Games are the primary type of simulation [used by business and industry] and generally are designed around deterministic models containing a few chance elements" (Gustafson, 1969).

Another characteristic of the simulations of business and industry is the lack of research aimed at empirical evaluation of the effectiveness of the simulation. The only evaluative information that has been reported has been the subjective testimonials of instructors and participants. Here, too, as with much of the "evaluation" that takes place in education, the effectiveness of a particular educational package or lesson or methodology is evaluated in terms of "gut" feelings. That is with such subjective phrases as "I feel that it's working" or "I know it's working, I can feel it in my bones."

Simulation-Uses in Teacher Training

Educators have, until recently, been reluctant to try simulations in "standard courses of instruction." Greenlaw, et. al. (1962), for example, suggest that simulations have been viewed by educators within the

context of "games" and, as such, felt that they were inappropriate for the goals of education.

Little research has been done on the effect of simulation in the educational process. There have been a few projects that have been carried out that are worth noting.

The first published study of the application of simulation in education was the Jefferson School Township District Simulation. The project, directed by Hemphill, Griffiths, and Frederiksen (1966), closely paralelled the typical "in-basket/out-basket" type of business simulation. Aimed at correlating administrative performance with personality traits of the participants, the researchers did a job analysis of elementary school principals, and then developed a hypothetical system (all based on geographical and sociological studies of a real school system), including information on class size, record procedures, rules, and policies.

Once participants were familiar with all of the background information, which was developed in a variety of media--film, slide, tape, and print--they were put into the role of principal of the simulated school and were subsequently called upon to make decisions relevant to that position. The assuming of the role of principal is a key to this simulation for "a simulation cannot be effective if the participant is detached from the activity and is coolly academic in his outlook. It is the high degree of involvement that simulation induces that makes it an effective instructional tool" (Tansey and Unwin, 1969).

By analyzing each participant's responses to each stimulus in the

simulation, the researchers were able to gain normative data on the behavior of elementary school principals thus permitting "subsequent clinical examination of 'on-the-job' behavior in similar simulated situations, and [permitting] the putting forth of a theory that simulation could be used...to replace unsatisfactory techniques of interview in appointment to various positions...." (Hemphill, Griffiths, and Frederiksen, 1966). In this way, it could be determined who possessed the specific characteristics for a specific job.

For many years, driver education has utilized driver training simulators to teach behind-the-wheel techniques. Having grown out of the techniques used with the Link Trainer, behind-the-wheel simulators generally use a motion picture of various driving situations and the student, sitting behind the wheel in the simulator, reacts to these situations as if he were on the road. His reactions, speed, and accuracy, are recorded and used to evaluate his performance (Zaun and Schroeder, 1962).

Three notable contributions on the use of simulation in teacher training all deal with the same simulation model. Kersh (1963) developed a simulation of classroom situations to observe the behavior of teachers, in-service and pre-service, in these situations. Based upon the observed responses, Kersh (1963) developed a series of simulated consequence situations which would give the teacher feedback on the consequences of a response.

Kersh (1965), again, used the same model in a second study and determined that, in this kind of situation, an actual physical response

along with a verbal response was more effective than simply a verbal response. The combined response mode enabled the student teacher to better understand the consequences of his response in specific classroom situations.

Vlcek (1965) and Bond (1965) also utilized the Kersh simulation in two separate experiments. Vlcek (1965) found that the group which had been exposed to the simulation did significantly better in coping with the problem situations with which he was confronted. Bond (1965) used the simulator to determine its effectiveness in changing the attitudes of education majors toward professional objectives. He used a semantic differential pretest-posttest and found no significant difference between the group which had been exposed to the simulation and the group that had not.

Gustafson (1969) used a simulation model developed by Kagan, et. al. (1967) to simulate anxiety situations in a classroom setting. Using student teachers as his subjects, Gustafson (1969) presented a series of 31 short filmed situations portraying "high school students acting out various emotions directed toward the viewer" (Gustafson, 1969), that is, the student teacher.

The subjects were videotaped while viewing these situations and the tape played back at the end of each situation. The subject, then, reacted to the tape (which was played back split-screened to include both the subject's face and the stimulus material).

The subjects were then observed via audio tape samplings, while

they were student teaching to determinine what carryover resulted after exposure to the simulation. The recordings were analyzed using the Flanders Interaction Scale. The results showed no significant difference between the experimental group and control group except for one area, student talk in the classroom. Gustafson (1969) suggests that the results were inconclusive for several reasons, some of which were weaknesses in the design of the study.

One development that is of interest to teacher education, in general, and special education, specifically, is a report by Johnson (1967). Using a computer, variables were programmed into the memory and, upon the setting of the desired parameters, an entire 4th grade class could be generated by the computer. The system was able to generate classes with specific characteristics to simulate special classes, vocational classes, or other more typical classes.

Microteaching techniques are gaining fairly wide acceptance in teacher training programs. In many cases, the format used is similar to the model developed by Allen and Gross (1955) in which a lesson is videotaped with the student teaching the lesson. It is immediately played back and discussed by the student and his supervisor. After the discussion, the lesson was retaught incorporating any points which had come up during the critiquing of the first taping. Other institutions may use commercially prepared films which present specific teaching situations in an "open-ended" format.

There have been a few other attempts at utilizing simulations in

education, but most have provided only subjective evaluation of their effectiveness. Cruickshank (1966) and Cruickshank, et. al. (1967) report that simulations are valuable tools but, provide no supportive evidence other than testimonial and other subjective support.

Sage (1967) developed a simulation for administrators of special education programs. The simulation, known as the Special Education Administration Task Simulation (SEATS) Game, was pilot-tested on two different occasions utilizing three different methods of evaluation:

> 1. A category system for scoring performance in response to the simulated task according to dimensions of interpersonal relationships suggested by a theoretical construct concerning the role.
>
> 2. A test, with alternate forms to be used on a pre- and post-training basis, designed to assess preference in choice of the same dimensions when pursuing the solution to problems.
>
> 3. An opinionnaire for obtaining from participants a subjective appraisal of various factors dealing with the usefulness of the materials (Sage, 1967).

The findings were not significant in several areas, notably in the performance on the simulated activities and behavioral choice tests as a function of demographic variables and no support was found for his theoretical constructs, based upon the mean scores of the pretest and posttest.

Though the results were not what Sage (1967) had expected, several additional pilot tests were run, after revisions, and, as a result, the

SEATS game has gained fairly wide usage (Sage and Sontag, 1970). It has been used numerous times by its author as a part of "Special Study Institutes," sponsored by the New York State Education Department, Division of Handicapped Children. It has also been used in several university and college programs, such as Syracuse University and Michigan State University.

Burke and Sage (1970) used the Sage (1967) model, which was designed for use in training personnel to assume leadership roles in special education, to sensitize "general education administrators to significant issues concerning the education of handicapped children"(Burke and Sage, 1970). That is, to deal with the attitudes of regular education personnel toward the integration of handicapped children into the regular classroom.

Burke and Sage (1970) found significant change in only three of the ten concepts with which they dealt. They found a significant changes in attitudes relating to: (1) placement of all handicapped children in special classes; (2) placement of moderately handicapped children in regular classes; and (3) special educators having sole responsibility for the handicapped (Burke and Sage, 1970).

While the results were not as conclusive as they had hoped, Burke and Sage (1970) felt that the results and participant reactions (subjective evaluation) indicate, that the SEATS game can be an effective tool, given some slight modifications.

To summarize, while the results from those studies that have utilized simulations have been inconclusive, there is still some evidence

that simulation can be an effective tool in modifying teachers' attitudes about, among other things, the integration of exceptional children into regular classrooms.

Simulation of Handicaps

There have been innumerable incidents, in undergraduate and graduate courses on exceptionality and abnormal behavior, where students have been asked to live for one day, or a shorter or longer period of time, with a blindfold over the eyes or where the phonograph record "How We Hear," which was developed by Dr. Earl Harford (1964) at Northwestern University, has been played to give the students some sense of what a hearing loss might sound like to an individual with a loss.

To date, though, there has been very little research reported on the effectiveness of simulating handicaps in changing attitudes toward the handicapped.

In the four studies relating to attitudes toward the handicapped and experience of various types and degrees with the handicaps, there have been conflicting results reported.

All four studies used the Attitudes Toward Disabled Persons (ATDP) Scale to measure attitudes, as developed by Yuker, Block, and Campbell (1960). They found a positive correlation between vicarious experience with a disability and shifts in the ATDP scores. Bell (1962), however,

found no relationship between years of professional experience in rehabilitating the disabled and the ATDP scores.

Similarly, Siller and Chapman (1964) found no relationship between experience with disabilities and ATDP scores. Wilson and Alcorn (1969) also found no relationship between the ATDP scores and experiences with disabilities. The principle difference between the other studies and the Wilson and Alcorn (1969) study is that, in the latter, the subjects experienced the disability through a simulation of the disability.

The effectiveness of simulation of disabilities to change attitudes about the disability is somewhat uncertain, based on the very small amount of research that has been done to date. Wilson and Alcorn (1969) and Siller and Chapman (1964) conclude that, based on their findings, the ATDP may be too insensitive to the quick changes which might have resulted from the experiences and to the multidimensional and complex factors underlying attitudes.

It would therefore seem safe to conclude that there is some disagreement on the effectiveness of disability simulation in changing attitudes toward the disabled.

CHAPTER THREE

DESIGN OF THE STUDY

The primary purpose of this study is to investigate the effect of a simulated handicap, in this case, hearing impairment, on the attitudes of regular classroom teachers toward the placement of exceptional children in the regular classroom.

This chapter will present pertinent data relating to (1) the population and sample used in the study; (2) the nature of the stimulus material (the simulation); (3) the rationale for selection and scoring of the instruments used to determine changes in attitude toward and knowledge of exceptional children (acoustically impaired children); and (4) reliability and validity data on these instruments. This will be followed by a statement of the research hypotheses and a discussion of the experimental design used for this study, the method by which the collected data were analyzed.

Population and Sample

Since the original impetus for this study grew out of an investigation of the need for a course on the education of exceptional children for regular classroom teachers, the population which was selected consisted of those members of two sections of Education 424, "Education of The Exceptional Child," which was taught during the Summer Term of

1971 at Michigan State University.

The two sections were composed of both regular education majors and special education majors, both pre-service and in-service teachers. One student in the experimental group was an Audiology and Speech Sciences major and, because of this, was classified as a special education major. He was the only person in either group who was not an education major.

Each student was asked to complete a personal data questionnaire which gave what was felt to be key information about the student's present status and past teaching experience as well as an indication of what past contact he had had with exceptional or handicapped persons. A copy of the questionnaire may be found in Appendix A.

The class rosters placed the enrollments of the two sections at 48 and 23 students. The first day of the treatment found only one absentee. Over the entire three days of treatment, a total of four students were eliminated. These four students were eliminated for two reasons, other than the initial absence, they either did not return the posttest or were absent on the last day of the treatment and did not receive the posttest to complete. Additional data were collected from the personal data questionnaire about the subjects (age, sex, years of teaching, etc.). While all of these data are not crucial to the analysis of the research data or the hypotheses of this study, it did give some interesting information about the make-up of the groups.

Since the present study is concerned with changing regular classroom teachers' attitudes toward the integration of exceptional children

into the regular classroom, the treatment and comparison samples were drawn from the regular education majors in both of the above mentioned sections. Since the comparison group consisted of only 14 regular education majors, the decision was made to match those 14 regular education majors with 14 regular education majors in the treatment group. The matching also helped overcome the variable of non-random assignment. Since the groups from which the samples were drawn were not randomized (the two class sections were filled through normal registration procedures) it was felt that the matching procedure would help provide two more equal groupings.

The relationship between knowledge and attitude has already been discussed in Chapter II. Further discussion is not needed here but, to summarize briefly, it was shown that there was a positive relationship between attitude and knowledge. That is, the more one knew about an attitude object class, the more accepting one was toward that object class.

The criterion for matching was the pretest score on the General Information Inventory. In addition, the groups were matched in terms of teaching experience; every member of each group had had at least one year of classroom teaching experience. Also, while not intentional on the part of this investigator, the groups each contained 2 males and 12 females.

Once the two groups were determined, each was divided into two subgroups of seven each. The criteria for this division was, again, the GII. The range of scores in the groups was 3-9 for the comparison group

and 4-9 for the treatment group. The subjects were divided into high cognitive knowledge and low cognitive knowledge subgroups with the score of six being the upper limit for the low cognitive group. Therefore, the high cognitive group had a score range of 7-9 and the low cognitive group a score of 3-6 for the comparison group and 4-6 for the treatment group.

Briefly, the sample for the present study consisted of 28 subjects; all were regular education majors with at least one year of teaching experience. The sample was made up of two groups, a treatment group and a comparison group. Each group was sub-divided into two sub-groups, a high cognitive knowledge and a low cognitive sub-group. The groups and sub-groups were matched on the basis of the General Information Inventory pretest scores.

Stimulus Material and Treatment

The simulation was a videotaped presentation of a lesson on the Zwislocki Acoustic Bridge, for measuring the acoustic impedance of the tympanic membrane and the middle ear reflex. This topic was chosen because it was felt, by the present investigator, that the topic for the simulation should be totally unfamiliar to the subjects and it was believed to be highly unlikely that the subjects would be familiar with the Zwislocki Acoustic Bridge.

The reason for selecting an unfamiliar topic grew from discussions with several members of the Special Education faculty of Michigan State University. It was felt that such a choice would be best so as not to permit the teachers in the group to guess what was being said in the presentation. The feeling was that a totally unfamiliar topic would come closest to simulating how an acoustically impaired child feels at that crucial time in a lesson when the teacher is presenting new material with a new vocabulary.

After the lesson was videotaped, the master tape was duplicated and the audio track was filtered to simulate three different configurations of hearing loss. With the assistance of Mr. Donald Riggs of the Mighigan State University Audiology and Speech Clinic, the audio track was filtered utilizing a General Radio Multi-Filter Model 1925. The General Radio Model 1925 is a one-third octave filter with a rejection rate of 50 dB per octave. This provided a fairly reasonable simulation of a hearing loss on the videotape sound track.

Three different audiometric configurations were attempted. The approximate representation of these configurations are shown in Figure 1. The three configurations approximate (1) a flat hearing loss with a three frequency average of about 20 dB hearing level; (The three frequency average is a standard procedure of reporting the loss for the frequencies that are crucial to speech intelligibility - 500 hz, 1000 hz, and 2000 hz.); (2) A gradual high frequency hearing loss with a three frequency average of about 40 dB hearing level; and (3) a precipitous

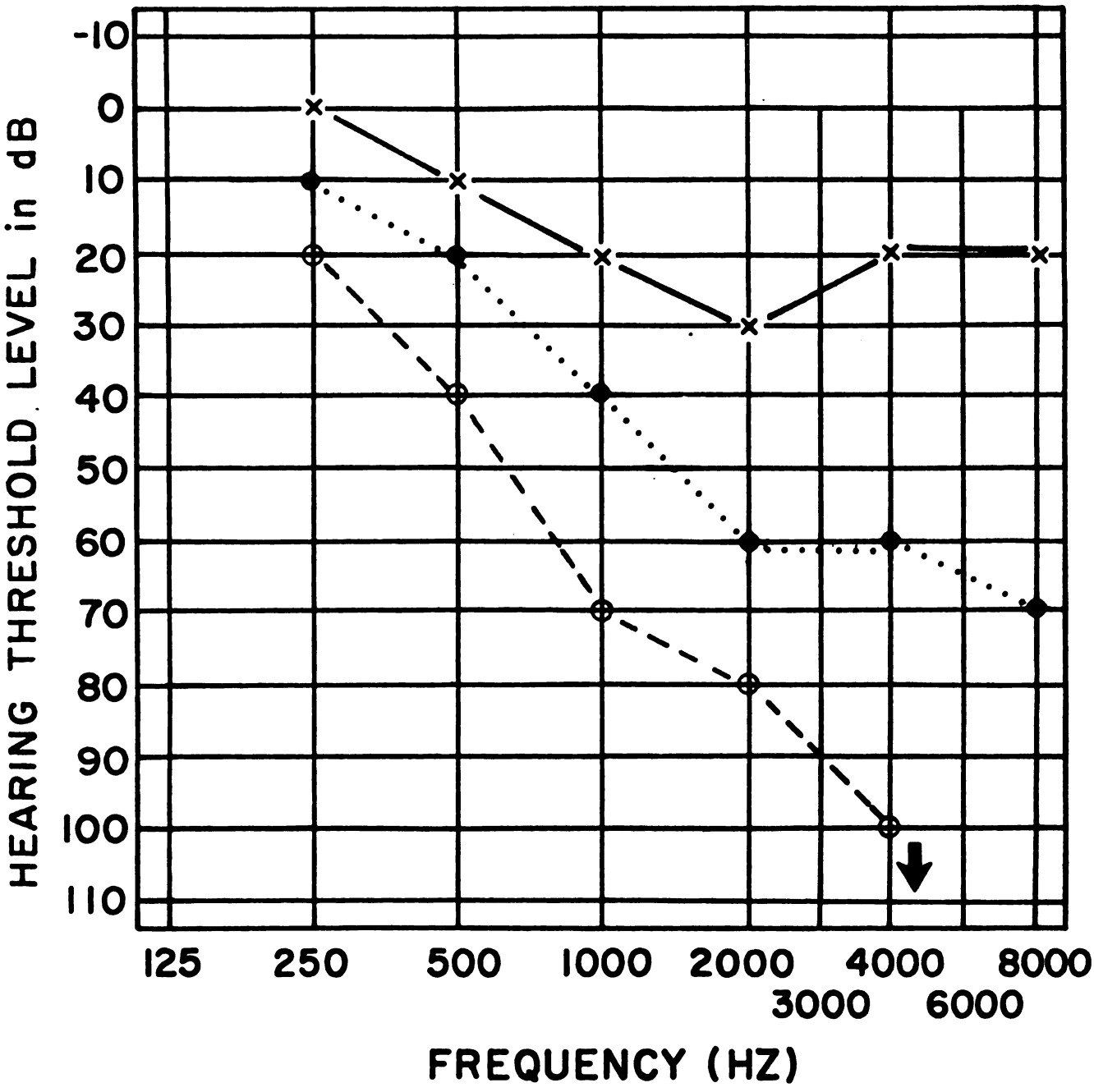

FIGURE 1: APPROXIMATE AUDIOMETRIC CONFIGURATION OF THE THREE SEGMENTS OF THE SIMULATION TAPE.

high frequency loss with a three frequency average of about 63 dB hearing level. Table 1 gives the approximate intensities at which each of the frequencies was passed.

TABLE 1. APPROXIMATE INTENSITY LEVELS AT WHICH FREQUENCIES WERE PASSED DURING FILTERING. (FREQUENCIES GIVEN ARE THE DENTER FREQUENCY OF EACH OF THE FILTER BANDS. INTENSITIES GIVEN ARE RE: AUDIOMETRIC ZERO, ISO).

FREQUENCY	SEGMENT 1	SEGMENT 2	SEGMENT 3
250 hz	0	10	20
500 hz	10	20	40
1000 hz	20	40	70
2000 hz	30	60	80
4000 hz	20	60	100
8000 hz	20	70	--

Frequency analyses of each of the segments are shown in Figures 2, 3, and 4. These analyses show that the first segment, Figure 2, which approximates a flat loss of about 20 dB hearing level, has a frequency spread from about 100 hz to about 10,000 hz. This is a "normal" spread for the human voice, including overtones, and this segment is merely a loss in intensity. The analysis of the second segment, Figure 3, the gradual high frequency loss, shows that all frequencies above 2000 hz are effectively eliminated. This is now a loss of both intensity and frequency. The analysis of the third segment, Figure 4, the

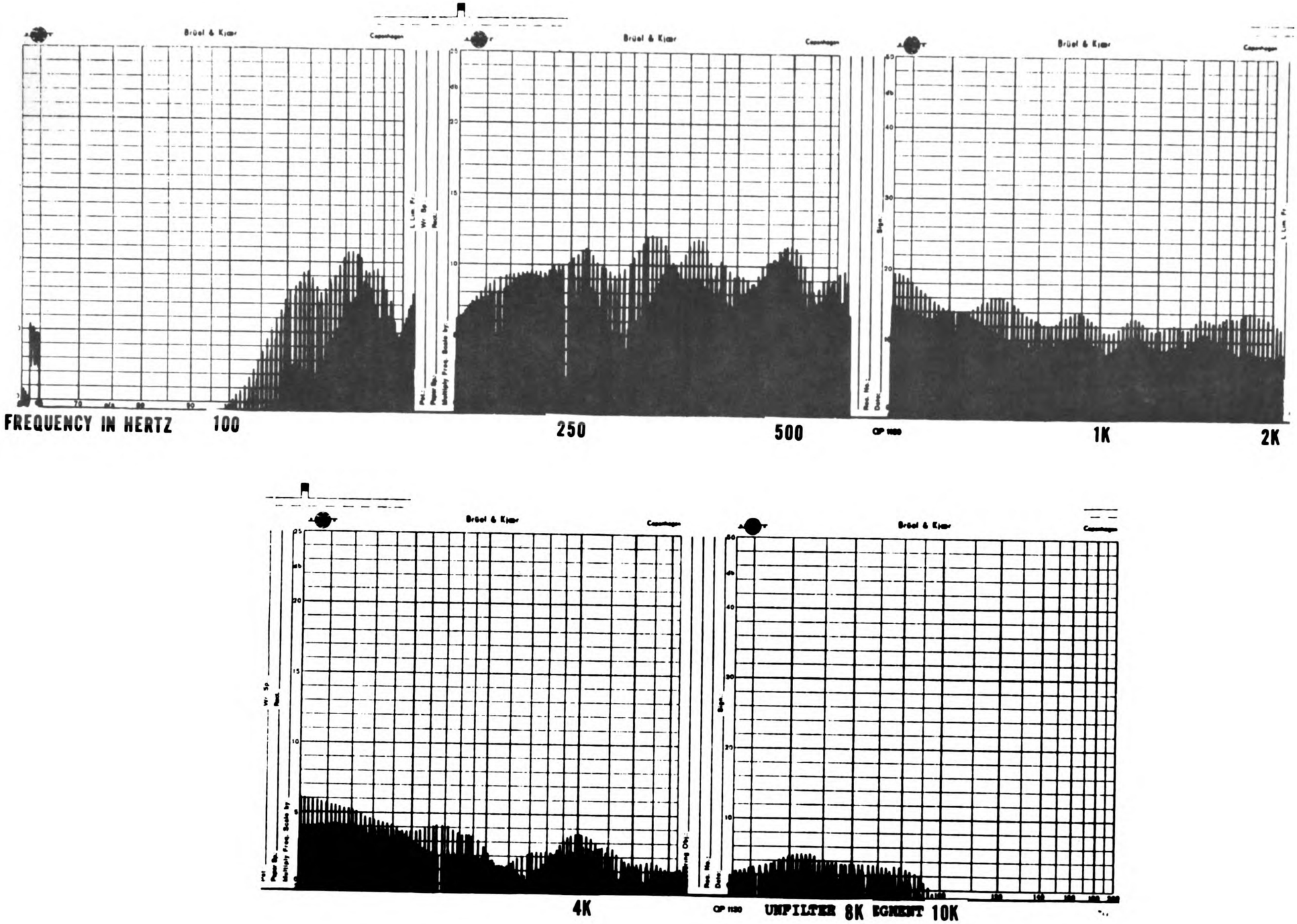

FIGURE 2 — Frequency Analysis Of Segment 1 Of The Simulation (Flat Hearing Loss)

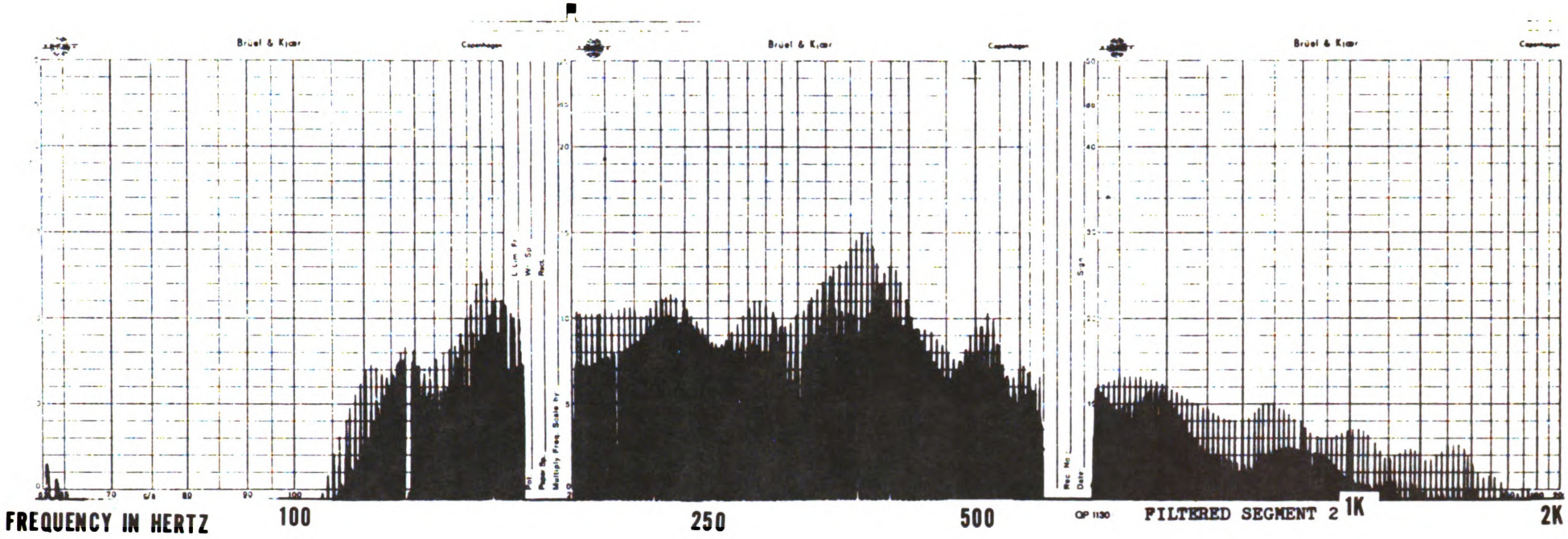

FIGURE 3 — Frequency Analysis Of Segment 2 Of The Simulation (Gradual High Frequency Loss).

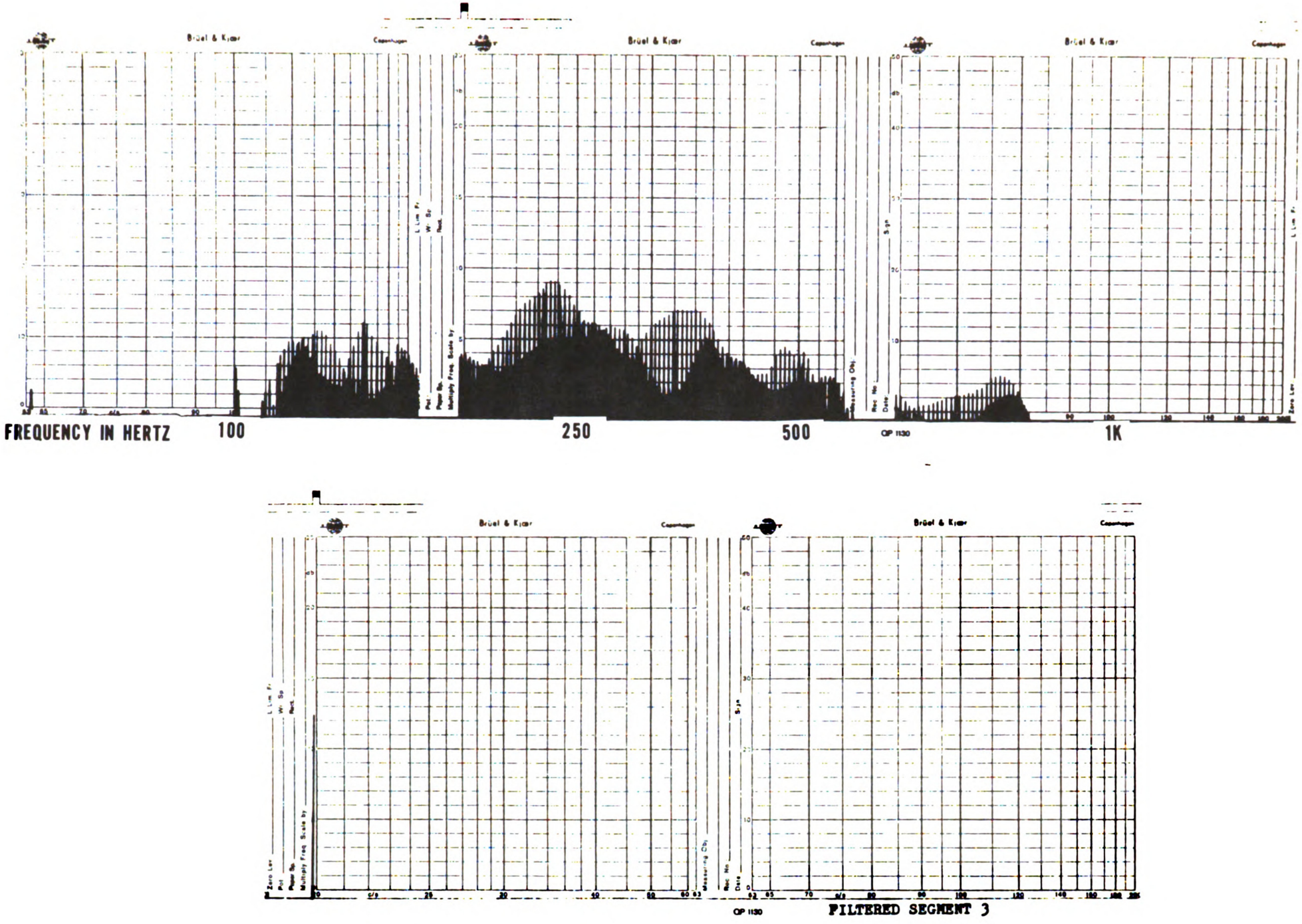

FIGURE 4 — Frequency Analysis Of Segment 3 Of The Simulation (Precipitous High Frequency Loss).

precipitous high frequency loss, shows that all frequencies above 850 hz are effectively eliminated. With this loss, many of the key speech frequencies are also eliminated.

The format for the treatment was a simulation of hearing loss integrated into the existing structure of the curriculum for Education 424 as a part of the unit on the acoustically impaired child.

The simulation was presented to the experimental group on the third day of a three day unit on the acoustically impaired child. The first two days of the unit were presented by Dr. Charles V. Mange, Professor of Special Education at Michigan State University and the regular instructor for Education 424.

During the first two days, both groups were given identical information (in a lecture-discussion format) about the nature of hearing loss and some of the educational implications of hearing loss. On the third day, this investigator took charge of the two groups. Since the simulation was to be presented on television, it was felt that some form of television presentation was necessary for the comparison group in an attempt to equalize both groups as much as possible. The comparison group was shown a videotaped interview with an elementary school student who has a hearing loss, and wears a hearing aid, and attends a regular class program, in Ingham County, Michigan. This was used as a basis for discussion for the class.

The experimental group was presented the simulation in its normal classroom setting. Television monitors were set-up in the room and an initial audio level for the tape was set, using a Brüel and Kjaer Model

2203 Sound Level Meter, fitted with a Random Incidence Corrector. This level had been previously determined as the referent level for the intensity of the audio track throughout the entire tape. To assist in determining the level needed, ambient noise levels were taken in the room and it was found that the average levels in the room were at about 66 dBC. The ambient noise was recorded and analyzed using the Brüel and Kjaer 2107 Frequency Analyzer and the 2305 Power Level Recorder. The resultant analysis is shown in Figure 5.

The subjects were told that there was some very important information on the tape, made by a noted guest lecturer, and that they were to pay attention to what was being said, attending both auditorally and visually to the message. The tape was played in its entirety. After the tape was shown, a short ten item multiple choice quiz om the information contained in the tape was given to the subjects.

This test was given merely to add some more realism to the simulation by asking the members of the group to function on a test as a hearing impaired child might under similar circumstances.

After the presentation of the videotaped simulation, the group was asked to respond to two questions which had been designed to elicit discussion. The questions were: (1) now that you have been through a simulation of this problem (hearing loss), what demands would you, as the child in this situation, make upon the educational setting of this classroom to assist you in operating more efficiently and effectively; and (2) if you were the teacher in this classroom and were told that you were to have an acoustically impaired child in your classroom, what

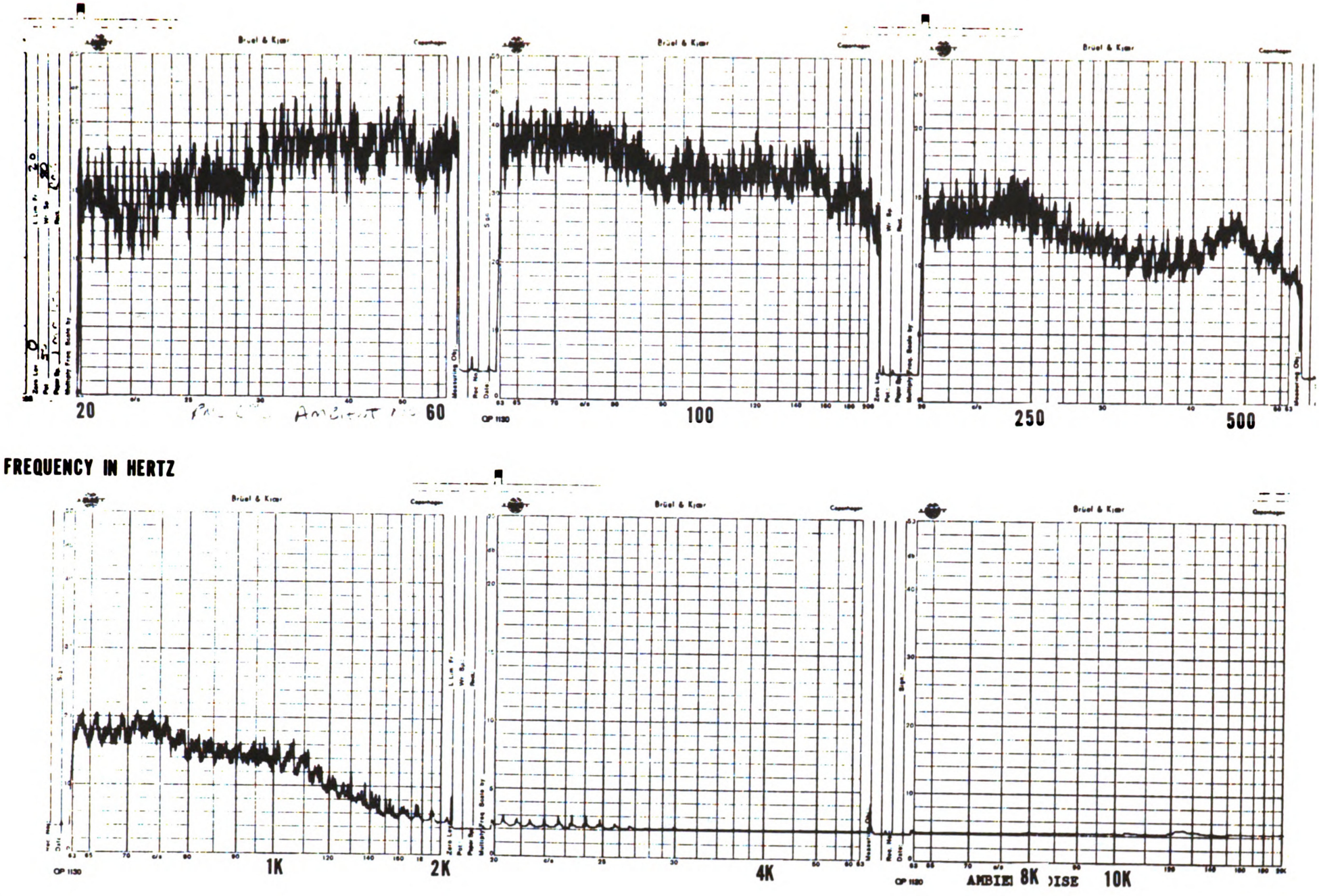

FIGURE 5 — Frequency Analysis Of Ambient Noise In The Room In Which The Simulation Was Presented.

changes would you make in your classroom behavior, classroom setting, and classroom management to accomodate this child? The discussion of these two questions took up the remainder of the one hour session.

Instrumentation

Rationale for Selection of the Measuring Instruments

The research hypotheses mentioned previously (in Chapter 1 and to be restated later in this chapter) served as guidelines for the selection of the instruments which would measure the effect of the simulation on the two dependent variables: attitudes of regular classroom teachers toward the integration of exceptional children into the regular classroom (as measured by the Classroom Integration Inventory) and the amount of accurate information known about the cognitive objects (exceptional children) chosen as the attitude stimulus (as measured by the General Information Inventory).

The Classroom Integration Inventory

The Classroom Integration Inventory, developed by Haring (1956), was selected for the present study as the most appropriate instrument for measuring the attitudes of teachers toward the integration of exceptional children in regular classrooms. The Classroom Integration Inventory, as discussed in Chapter Two, contains six items in each of ten categories of exceptionality. The ten areas are: (1) behavior disorders; (2) emotional disturbances; (3) impaired hearing; (4) impaired speech; (5) retarded or superior intelligence; (6) orthopedic and cardiac disorders; (7) physical attractiveness; (8) seizures; (9) bowel and bladder incontinence; and (10) visual handicaps.

The Classroom Integration Inventory consists of a series of brief descriptions of behavior of school children and the subjects are asked to react to each of these items in terms of the following types of educational placement:

> 1. If you feel you could handle such a student in your regular classroom without any fundamental change in your present procedures.
>
> 2. If you feel you could handle such a student in your regular classroom provided that advice from a specialist or consultant were occasionally made available to you whenever you felt a need for such aid in dealing with some particular problem.

3. If you feel you could handle such a student in your regular classroom provided that a full-time specialist were available at your school who could provide supplementary training for the student and frequent consultation with you.

4. If you feel that such a student would benefit most by being assigned to a special class or school.

5. If you feel that such a child cannot be handled profitably within the context of regular or special public education (Haring, 1956).

For the present study, the six items on impaired hearing were the key items. In a personal correspondence, Dr. Norris Haring indicated that he saw "no reason why...any portion of the test [could not be used independently] to evaluate the effect of [the] teaching unit with regular classroom teachers." Since there was still some doubt about administering only those items dealing with impaired hearing, a decision was made to administer the entire test and evaluate the results for the six items on impaired hearing only.

Scoring the Classroom Integration Inventory

The general scoring procedures for the Classroom Integration Inventory Scale are described by Vinacke (1952) who described the Likert

(1932) system as easy to use and reliable. Haring (1956) described the Classroom Integration Inventory Scale as a "highly cognitive and self-validating" Likert-type acceptance scale adapted to measure attitudes toward integration.

The Classroom Integration Inventory can be scored in two different ways to yield two different types of scores: (1) the Realism Score which indicates the persons attitude based upon the ability of the individual to educationally place an exceptional child and (2) the Acceptance Score which indicates the individual's attitude based upon his acceptance of the child in the regular classroom.

Basis for Determining the Realism Score

Each item of the Classroom Integration Inventory has five possible answers from which to choose (see above). By assigning numerical weights to each of the answers (alternatives), varying from 5 for the most desirable placement to 1 for the least desirable placement, a score can be computed that represents the individual's realism score relative to the placement of exceptional children in educational settings.

The scoring key used for the present study was the same key that was used by Proctor (1967). Proctor (1967) had re-established the key for the Classroom Integration Inventory since the original key, developed by Haring (1956) for the original study, was not available.

Proctor (1967) re-established the scoring key for the realism score in a manner similar to that used by Haring (1956) in the original study. A panel of five specialists in special education "...judged each item with reference to the most desirable placement of the case described in the item. The judges working independently, rated each item on 'most desirable placement'" (Proctor, 1967). A typical item which the judges had to rate would be: "Fred can feel the vibrations of loud music from a radio or phonograph, knows when a door has been slammed, but does not hear speech unless it is shouted." The entire Classroom Integration Inventory can be found in Appendix B.

The realism score for each subject was obtained by assigning a value of five if the subject's choice of placement was the same as the judge's first choice for that item. A value of four, if the subject's choice was the same as the judge's second choice; a value of three if the choice was the same as the judge's third choice; a value of two, if the choice was the same as the judge's fourth choice; and a value of one, if the choice was the same as the judge's last choice, that is, the least desirable placement.

The totals were computed and the range of scores for the entire Classroom Integration Inventory could be from 59 to 295. It should be reiterated at this point that Proctor (1967), based on the result of her re-establishment of the scoring key, eliminated Item 17 "because it lacked inter-judge reliability" (Proctor, 1967). For the six items on impaired hearing, the scores could range from 6 to 30.

Using a Likert-type (Likert, 1932) weighting procedure, the subjects'

responses were scored to get an indication of their attitude toward integration by getting a measure of their ability to place exceptional children into appropriate learning environments.

The subjects' responses on the Classroom Integration Inventory range from regular classroom placement without special assistance to complete exclusion from school. The most appropriate placement is dependent upon two conditions, the type and severity of the handicap.

The validity and reliability of the Classroom Integration Inventory were reestablished by Proctor (1967):

> The judges' choice for placement among the three levels of severity ranged from 53 percent inter-judge agreement in the behavior category to 73 percent agreement among the judges' choices for educational placement for exceptional children in the impaired speech category.

It would seem reasonable to assume that a full-time special class teacher's realism score would show a greater degree of homogeneity than a regular classroom teacher. It also seems reasonable to assume that the attitude realism score of special class teachers would approximate more closely the judges' choices of placement than the attitude realism scores of regular classroom teachers.

The above assumptions were borne out in both the Haring (1956) and Proctor (1967) studies and are accepted as indicators of the validity of the Classroom Integration Inventory.

Basis for Determining the Acceptance Score

The acceptance score is a means of gauging the individual's acceptance of exceptional children. In determining the acceptance score, the selection of number one type of educational placement (if you feel you could handle such a student in your regular classroom without any fundamental change in your present procedures), was considered the most accepting response irrespective of the nature of the handicap, and number five (if you feel that such a child cannot be handled profitable within the context of regular or special public education), was considered the least accepting. The acceptance score was calculated by weighting number one as 4, number two as 3, number three as 2, number four as 1, and number five as 0, which gave a possible range in scores from 24 to 0.

The General Information Inventory

The General Information Inventory was developed by Haring (1956) as a test of knowledge about exceptional children. The original test contained 100 multiple-choice items, ten in each of the categories of exceptionality covered by the test: (1) behavior disorders; (2) emotional disturbances; (3) impaired hearing; (4) impaired speech;

(5) impaired vision; (6) orthopedic disorders; (7) miscellaneous (medical, attitudes, and responsibility); (8) seizures; (9) retarded; (10) superior intelligence. These categories are similar to those in the Classroom Integration Inventory.

In the case of the General Information Inventory, only those ten items relating to impaired hearing were administered as part of the pretest. It was felt that there was far too much extraneous material in the entire test, in relation to the specific material covered in the treatments used in this study. It was felt that there would be no loss in reliability and validity of the test by using only those ten items which dealt with impaired hearing.

Scoring the General Information Inventory:
Determining the Knowledge Score

As with the Classroom Integration Inventory, Proctor (1967) had to re-establish the scoring key for the General Information Inventory since the original key, as developed by Haring (1956), was not available. The scoring key was re-established in a manner similar to that used for the Classroom Integration Inventory. The items were submitted to a panel of experts who made judgements as to which of the four foils for each of the items was the correct choice.

One point was assigned to each correct response on the General Information Inventory. Therefore, the scores on the knowledge test could range from 10 to 0. Since it has already been shown that knowledge does have a bearing on a person's attitude toward a person, object, or group, the subject's amount of knowledge about hearing impairments could give an indication of that subject's acceptance of such a child.

Major Research Hypotheses

To evaluate the effectiveness of the simulation in changing the attitudes of teachers toward the integration of exceptional children the following hypotheses were generated and tested:

> H-1. A simulation experience for in-service regular classroom teachers will not result in an attitudinal shift, toward the acceptance of acoustically impaired children in the regular classroom, as compared to a corresponding lecture-discussion presentation.
>
> H-1A. A simulation experience for in-service regular classroom teachers will result in an attitudinal shift, in a positive direction, toward the acceptance of acoustically impaired children as compared to a corresponding lecture-discussion presentation.

H-2. A simulation experience for in-service regular classroom teachers will not result in an attitudinal shift, toward the realistic placement of acoustically impaired children, as compared to a corresponding lecture-discussion presentation.

H-2A. A simulation experience for in-service regular classroom teachers will result in an attitudinal shift, in a positive direction, toward the realistic placement of acoustically impaired children, as compared to a corresponding lecture-discussion presentation.

H-3. In-service regular classroom teachers with high initial levels of cognitive information about hearing and hearing impairment will not have a greater shift in attitude, relative to the acceptance of acoustically impaired children, as a result of a simulation experience as compared to regular classroom teachers with low initial levels of cognitive information about hearing and hearing impairment.

H-3A. In-service regular classroom teachers with high initial levels of cognitive information about hearing and hearing impairment will have a greater shift in attitude, in a positive direction, relative to the acceptance of acoustically impaired children, as a result of a simulation experience as compared to regular classroom teachers with low initial levels of cognitive information about hearing and hearing impairment.

H-4. In-service regular classroom teachers with high initial levels of cognitive information about hearing

and hearing impairment will not have a greater attitudinal shift, relative to the realistic placement of acoustically impaired children, as a result of a simulation experience as compared to in-service regular classroom teachers with low initial levels of cognitive information.

H-4A. In-service regular classroom teachers with high initial levels of cognitive information about hearing and hearing impairment will have a greater attitudinal shift, in a positive direction, relative to the realistic placement of acoustically impaired children, as a result of a simulation experience as compared to in-service regular classroom teachers with low initial levels of cognitive information.

Experimental Design and Procedures

The specific experimental design for this study was the Campbell and Stanley (1963) Design Number 10, The Nonequivalent Control Group Design. Figure 6 illustrates the design of this study.

One day prior to the beginning of the unit on acoustically handicapped children, the pretest packet (consisting of the Classroom Integration inventory and the General Information Inventory) and the personal data questionnaire were given out to all of the subjects (the test packet may be found in Appendix B and the questionnaire in Appendix A).

After both groups had completed the three day unit, which included the simulation on the last day for the treatment group, the Classroom

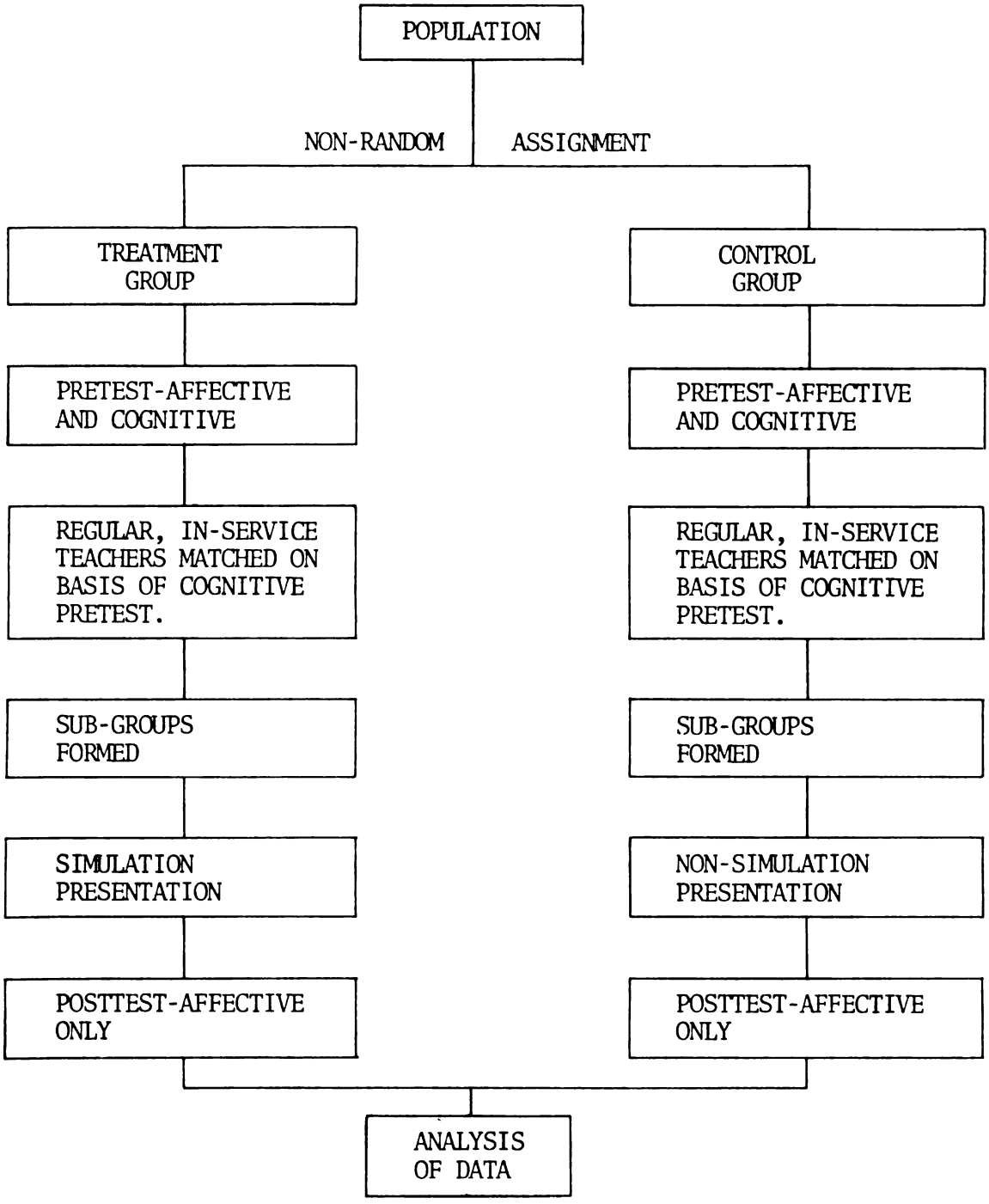

FIGURE 6. Experimental Design of the Study.

Integration Inventory was handed out again and the subjects asked to re-take the test. They were permitted to take the test home with them for both the pretest and posttest. This was done for two reasons, it was felt that the tests would require about an hour to an hour and a half to complete and that class time should not be taken up for this task. Also, it was felt that, if the tests were administered during class time, there might be undo pressure on the subjects to complete the test creating unwanted test anxieties and raising the possibility of erroneous responses, particularly on the Classroom Integration Inventory.

The second group did not experience the simulation but, instead was given further lecture-discussion presentation utilizing television (keeping the modes of presentation for the two groups as equal as possible). Because the second group was not left untreated, as with most control groups, the second group is being referred to as a comparison group.

Since the present investigator could not exert any control over registration for the two sections of the course, it became necessary to use a design for unmatched groups, or nonequivalency.

In an effort to overcome some of the nonequivalencies between the groups, a matching technique was used to construct the groups and subgroups. The matching was done on the basis of the test scores on the ten items of the General Information Inventory relating to knowledge about hearing impairment. Several studies (dickstein and Dripps, 1958; Haring, 1956; and Proctor, 1967) have shown the existence of a positive

correlation between attitudes toward and knowledge about a particular object class. For this reason, it was felt that cognitive information was an appropriate matching tool.

Since the Treatment Group had only 14 regular classroom teachers with past teaching experience, all 14 subjects were used and were matched with 14 from the Comparison Group.

In addition to using cognitive information levels for matching, the groups were matched as closely as possible by: (1) sex (12 females and 2 males in each group); (2) age (treatment group mean age was 27.0 and the comparison group mean age was 26.86); and (3) teaching experience (all subjects had at least one year of actual teaching experience).

One additional factor which may have helped minimize intergroup and intragroup differences is the fact that all of the subjects had elected to take the course, voluntarily. There was, aparently, some interest in the problems of exceptional children and possibly a positive attitude toward integration had been developed prior to enrollment in the course.

Analysis of the Data

The test of significance of each of the research hypotheses is based upon an analysis of covariance, as described by McNemar (1962). Because of the non-random groups used as the sample in the present study, the analysis of covariance was selected in order to make allowances for uncontrolled variables and for setting forth the sampling error adjustment which is needed in testing the statistical significance of the diference between "corrected" means (McNemar, 1962).

The methods for scoring the Classroom Integration Inventory and computing the realism score and the acceptance score have been discussed previously in this chapter. The tests were scored by hand by this investigator and rechecked by two other persons. The scores were then recorded to be prepared for analysis.

Since the General Information Inventory responses were on the same machine-scorable answer sheets, a key was punched and these responses were also scored and checked by hand. The same check-recheck procedures were used with these items as was used with the Classroom Integration Inventory. The scores were computed and recorded to be prepared for analysis.

The data gathered were analyzed in relation to the kind of treatment given each group. That is, to determine whether the simulation did cause a shift in teacher acceptance and realistic placement among

the subjects in the experimental group and if that shift was positive and significant as compared to the comparison group. The data were analyzed utilizing an analysis of covariance in a 2 X 2 factorial design as illustrated in Figure 7.

COMPARISON HIGH COGNITIVE	TREATMENT HIGH COGNITIVE
COMPARISON LOW COGNITIVE	TREATMENT LOW COGNITIVE

Figure 7. Two-by-Two Data Analysis Design.

For the purposes of this study and in consideration of the research hypotheses of this study, acceptance of a hypothesis will be contingent upon reaching an alpha level of at least .05.

CHAPTER FOUR

ANALYSIS OF THE DATA

This chapter will deal with the testing of the hypotheses listed in Chapter III and will include a brief discussion of the findings related to each of the hypotheses. While the findings will be discussed in this chapter, conclusions and recommendations based on these findings will be presented in Chapter V.

Testing of the Hypotheses

In an effort to determine the effectiveness of simulation in changing teachers' attitudes toward the integration of exceptional children into the regular classroom, a simulation of hearing loss was developed and its effectiveness was tested in terms of the hypotheses listed in Chapter III.

The first hypothesis to be tested in the present study was:

> H-1. A simulation experience for in-service regular classroom teachers will not result in an attitudinal shift, toward the acceptance of acoustically impaired children in the regular classroom as compared to a corresponding lecture-discussion presentation.

Table 2 reports the sums of squares, adjusted sums of squares, and

degrees of freedom which are required for an analysis of covariance and the F test for significance. The resultant F value of 7.82 is greater than the critical F value of 7.77 which is needed for significance at an alpha level of .01. Therefore, Null Hypothesis 1 may be rejected and support for Alternate Hypothesis 1A is implied. The Comparison and Treatment Group means, standard deviations, and ranges are reported in Table 3.

Table 2. -- Analysis of Covariance for "Acceptance" for the Treatment and Comparison Groups.

	Total	Within	Between	F
Sum of Squares	182.0	160.28	21.72	--
Adjusted Sum of Squares	181.04	137.89	43.15	7.82
Degrees of Freedom	--	25	1	---

F= 7.77 at Alpha .01

The analysis of covariance and the F test value do not indicate the direction of the shifts for the groups. Examination of the means of the pretest-posttest gain scores indicates additional support for Alternate Hypothesis 1A. The pretest-posttest gain score for the Treatment Group was + 1.50 and for the Comparison Group was - 1.00 (indicating a negative shift on the part of the Comparison Group). The shift for the Treatment Group was positive and away from the Comparison Group. This, then, adds additional support for the Directional Alternate Hypothesis 1A, which was presented in Chapter III.

Table 3. -- Comparison of the Gain Score Mean, Range and Standard Deviation for the Treatment and Comparison Groups.

	Acceptance Scores			Realism Scores		
Group	Mean	S.D.	Range	Mean	S.D.	Range
Treatment	+1.50	2.98	-5 to +5	+1.43	2.41	-3 to +8
Comparison	-1.00	3.37	-5 to +5	+.57	2.79	-4 to +5

The second hypothesis to be tested was:

> H-2 - A simulation experience for in-service regular classroom teachers will not result in an attitudinal shift, toward the realistic placement of acoustically impaired children, as compared to a corresponding lecture-discussion presentation.

As with Hypotheses 1-1A, an effort was made to determine the effectiveness of the simulation in changing teachers' attitudes toward the integration of acoustically impaired children into the regular classroom. This hypothesis relates to the teacher's ability to realistically determine appropriate educational placement of an acoustically impaired child.

Table 4 reports the sum of squares, adjusted sum of squares, and degrees of freedom which are required for an analysis of covariance and the F test of significance. The resultant F value of 2.65 is well below the critical F value of 4.24 which would be necessary to claim significance for rejecting the null hypothesis at an Alpha level of .05. The Null Hypothesis 2 cannot, therefore, be rejected.

Table 4. -- An Analysis of Covariance for "Realistic Placement (Realism)" for the Treatment and Comparison Groups.

	Total	Within	Between	F
Sum of Squares	291.0	263.0	28.0	--
Adjusted Sum of Squares	288.27	260.67	27.6	2.65
Degrees of Freedom	--	25	1	--

F= 4.24 at Alpha .05

The third hypothesis to be tested was:

> H-3 - In-service regular classroom teachers with high initial levels of cognitive information about hearing and hearing impairment will not have a greater shift in attitude, relative to the acceptance of acoustically impaired children, as a result of a simulation experience as compared to regular classroom teachers with low initial levels of cognitive information about hearing and hearing impairment.

In the testing of this hypothesis, knowledge about hearing and hearing impairment are looked at as variables affecting the teachers' attitudes about the acoustically impaired child. The relation of the initial level of knowledge, as measured by the General Information Inventory, to the experience resulting from the simulation was considered. The measure used to look at attitude was the teacher's acceptance of the acoustically impaired child.

Table 5 reports the necessary sum of squares, adjusted sum of squares, and degrees of freedom for conducting an analysis of covariance and the resultant F value. Table 6 reports the means, standard deviations, and ranges for the high cognitive and low cognitive subgroups within the Treatment Group. The F value of 10.15 is well above the critical F value of 7.77 needed for significance at an Alpha level of .01. The null hypothesis is, therefore, rejected and support established for the Alternate Hypothesis 3A.

Table 5. -- Analysis of Covariance for "Acceptance" for the High and Low Cognitive Level Groups.

	Total	Within	Between	F
Sum of Squares	182.0	176.86	5.14	--
Adjusted Sum of Squares	181.04	137.89	43.15	10.15
Degrees of Freedom	--	25	1	--

F= 7.77 at Alpha .01

While the F value is sufficient for rejection of the null hypothesis, it does not indicate the direction of the shift for the groups. An examination of the means of the pretest-posttest gain scores shows that the high cognitive level subgroup had a mean gain of + 1.86 and the low cognitive level group had a mean gain of + 1.14. This, then, would indicate a shift in a positive direction and give additional support to the directional Alternate Hypothesis 3A.

Table 6. -- Comparison of the Gain Score Mean, Range and Standard Deviation for the High Cognitive and Low Cognitive Subgroups Within the Treatment Group.

	Realism Scores			Acceptance Scores		
Group	Mean	S.D.	Range	Mean	S.D.	Range
High	+1.00	1.29	0 to +5	+1.86	1.77	-1 to +2
Low	+1.50	3.50	-5 to +6	+1.14	3.98	-3 to +8

The fourth hypothesis to be tested was:

> H-4 -Inservice regular classroom teachers with high initial levels of cognitive information about hearing and hearing impairment will not have a greater attitudinal shift, relative to the realistic placement of acoustically impaired children, as a result of a simulation experience as compared to in-service regular classroom teachers with low initial levels of cognitive information.

As with Hypotheses 3-3A, Hypotheses 4-4A look at the relation of knowledge to the experience resulting from the simulation. This hypothesis relates to the teacher's ability to realistically place an acoustically impaired child into an "appropriate" educational setting.

Table 7 reports the necessary sums of squares, adjusted sums of squares, and degrees of freedom for conducting an analysis of covariance and the resultant F value. The F value of .012 is well below the critical F value of 4.24 necessary for significance at an Alpha level of .05. As a result, the Null Hypothesis 4 cannot be rejected.

Table 7. -- Analysis of Covariance for "Realistic Placement (Realism)" for the High and Low Cognitive Level Groups.

	Total	Within	Between	F
Sum of Squares	291.0	288.72	2.28	--
Adjusted Sum of Squares	288.27	288.13	.14	.012
Degrees of Freedom	--	25	1	--

F= 4.24 at Alpha .05

Basically, this study set out to test four hypotheses which dealt with the attitudes of regular classroom teachers toward the integration of exceptional children into the regular classroom. The four hypotheses relate to the two specific dimensions of attitude toward integration that are measured by the Classroom Integration Inventory: (1) acceptance of exceptional children by regular classroom teachers and (2) the realistic placement of exceptional children into educational settings (as compared to similar judgements made by a panel of experts). Hypotheses 1-1A and 3-3A deal with the former dimension (acceptance) while Hypotheses 2-2A and 4-4A deal with the latter (realism).

To summarize, the results of the study, given in terms of the above dimensions, are shown in Table 8. The pertinent data are listed along with the indication and level of significance or non-significance.

Table 8. -- Summation of results of analysis of covariance for all research hypotheses.

	Actual F	Critical F	Significance	Reject Null
H1-1A	7.82	7.77	.01	Yes
H2-2A	2.65	4.24	-- (.05)	No
H3-3A	10.15	7.77	.01	Yes
H4-4A	.012	4.24	-- (.05)	No

Discussion

As has been mentioned above, Hypotheses 1-1A and 3-3A deal with the acceptance of exceptional children (specifically, acoustically impaired children) by regular classroom teachers. An examination of the results of the analyses shows that, in both cases, the null hypotheses were rejected and support for the directional alternate hypotheses was implied. Additional examination of the pretest-posttest gain scores show that the shifts were in a positive direction for the appropriate groups. Table 9 summarizes the information relating to the rejection of Null Hypotheses 1 and 3 and the support of the Directional Alternate Hypotheses 1A and 3A.

Table 9. -- Supportive data for the rejection of Null Hypotheses 1 and 3 and the support of the Directional Alternate Hypotheses 1A and 3A.

	Actual F	Critical F	Alpha Level	Pretest-Posttest Gain	Direction
H1	7.82	7.77	.01	+ 1.50	Positive
H3	10.15	7.77	.01	+ 1.86	Positive

As has already been mentioned, Hypotheses 2-2A and 4-4A deal with the teacher's ability to place acoustically impaired children in appropriate educational settings, when compared with the judgements of a panel of experts in the field of special education.

An examination of the results of the analyses shows that, in neither case, did the F value reach the critical F levels for significance at at least the .05 level and, therefore, neither null hypothesis could be rejected.

While neither null hypothesis was rejected, an examination of the pretest-posttest gain score means shows that the shifts for the appropriate groups, while not significant, did move in a positive direction. Table 10 summarizes the information relating to the Null Hypotheses 2 and 4.

Table 10. -- Pertinent data relating to Null Hypotheses 2 and 4.

	Actual F	Critical F	Alpha Level	Pretest-Posttest Gain	Direction
H2	2.65	4.24	.05	+ 1.43	Positive
H4	.012	4.24	.05	+ 1.00	Positive

In final summary, it should be noted that, after having analyzed the gathered data, the simulation experience seems to have been most effective in modifying teachers' attitudes toward greater acceptance of acoustically impaired children. While the simulation experience seems to have had some effect on a teacher's ability to place acoustically impaired children in appropriate settings, no conclusions can be drawn because of the lack of significance in either case.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

SUMMARY

The purpose of the present study was to determine whether the attitude of regular classroom teachers toward the integration of acoustically impaired children could be modified through having experienced a simulation of hearing loss.

The simulation consisted of a videotaped presentation about the Zwislocki Acoustic Bridge. Tha audio track was passed through a General Radio Corporation Multi-Filter and, as a result, certain pre-determined frequencies in the voice of the teacher were eliminated. Three different types of hearing loss were thus simulated on the videotape--a flat loss of about 22 dB; a gradual high frequency loss with frequencies above 2000 hertz effectively eliminated; and a precipitous high frequency loss with frequencies above 800 hertz effectively eliminated.

The simulation videotape was presented to a class of regular and special education majors enrolled in an introductory course on the "Education of Exceptional Children." Its purpose was to simulate the condition of the acoustically impaired child in the regular classroom. It was this experience which was being considered as a strategy for modifying, in a more accepting direction, the attitudes of regular

classroom teachers toward the integration of exceptional children, in general, and acoustically impaired children, specifically, into the regular classroom.

The population consisted of the members of two sections of "Education of Exceptional Children" during the 1971 Summer term in the College of Education at Michigan State University. From this population, twenty-eight in-service, regular classroom teachers were chosen as the research sample. There were fourteen subjects chosen from each section and the subjects were matched on the basis of cognitive pretest scores from the General Information Inventory, a cognitive test of knowledge about exceptionality.

With the Treatment group, the fourteen subjects were divided into two subgroups, again based upon the General Information Inventory pretest scores. The subgroups were a High Initial Cognitive Information Level Subgroup and a Low Initial Cognitive Information Level Subgroup. The median score for the total group was used as the dividing line for setting up these subgroups.

To measure attitude change, the Classroom Integration Inventory was selected as the test instrument. The Classroom Integration Inventory has two dimensions to it which makes it a useful tool for the needs of this study. Utilizing two separate scoring techniques, an acceptance score and a realism score can be obtained. The acceptance score is an indicator of how accepting a teacher is toward exceptional children, in general, and toward exceptional children in the regular

classroom, specifically. The realism score indicates a teacher's ability to place an exceptional child in an "appropriate" educational setting, as compared with similar judgements made by a panel of experts in the field of special education.

Both test instruments, the General Information Inventory and the Classroom Integration Inventory, were administered prior to the three-day experience and following the simulation, which was presented on the last day of the three-day experience, the Classroom Integration Inventory was readministered. The pretest-posttest gain scores on the Classroom Integration Inventory were used in the analysis and to determine significance.

An analysis of covariance and F test were used to analyze the gathered data and to test for significance of results. One analysis compared the gain scores of the Treatment Group (which experienced the simulation) to the gain scores of the Comparison Group. A second analysis compared the High Initial Cognitive Information Sub-Group (in the Treatment Group) gain scores to the Low Initial Cognitive Information Sub-Group (also in the Treatment Group). A minimum alpha level of .05 was used as the critical level of significance for rejecting the null hypotheses. The hypotheses which were tested in this study were:

H-1. A simulation experience for in-service regular classroom teachers will not result in an attitudinal shift, toward the acceptance of acoustically impaired children in the regular classroom as compared to a corresponding lecture-discussion presentation.

H-2. A simulation experience for in-service regular classroom teachers will not result in an attitudinal shift, toward the realistic placement of acoustically impaired children, as compared to a corresponding lecture-discussion presentation.

H-3. In-service regular classroom teachers with high levels of cognitive information about hearing and hearing impairment will not have a greater shift in attitude, relative to the acceptance of acoustically impaired children, as a result of a simulation experience as compared to regular classroom teachers with low initial levels of cognitive information about hearing and hearing impairment.

H-4. In-service regular classroom teachers with high initial levels of cognitive information about hearing and hearing impairment will not have a greater attitudinal shift, relative to the realistic placement of acoustically impaired children, as a result of a simulation experience as compared to in-service regular classroom teachers with low initial levels of cognitive information.

The analysis of the data supported the rejection of Null Hypotheses 1 and 3 and support was implied for Alternate Hypotheses 1A and 3A.

Alternate Hypotheses 1A and 3A were directional hypotheses which indicated that the shifts would be in a positive direction. In addition to implying support for the Alternate Hypotheses, further support was gained upon analysis of the direction of movement of the scores. The scores for both groups and for all of the individuals within each of the groups moved in a positive direction.

Several difficulties were encountered during the progress of this study. First, the sample size was limited to 14 per group because of the limited number of subjects in the Treatment Group. With only 14 regular, in-service classroom teachers in the Treatment Group, it was necessary to limit the Comparison Group to the same number. A second difficulty which was encountered was the problem of standardizing the output of the sound track of the simulation. A sound level meter was used in an attempt to maintain a constant output level. Despite this, the acoustics of the classroom in which the simulation was presented, presented numerous problems, e.g. - dead spots. Also, at least once during the presentation, the University grounds crew passed by the window of the classroom with a power mower that tended to drown out the audio.

Conclusions

Based on the analysis of the data, the following conclusions can be supported:

1. The simulation experience was effective in modifying the attitudes of in-service, regular classroom teachers toward the acoustically impaired child.

2. The simulation experience was most effective in creating a more accepting attitude toward the acoustically impaired child, on the part of in-service, regular classroom teachers.

3. There was no change noted in the teachers' ability to realistically place acoustically impaired children into the most appropriate educational setting.

4. In-service, regular classroom teachers with high initial levels of cognitive information about hearing and hearing impairment had significantly greater changes in attitude, in terms of acceptance of the acoustically impaired child, than in-service, regular classroom teachers with low initial levels of cognitive information.

While the above conclusions are self-explanatory, some further discussion is warranted to support these conclusions. The analysis of the data showed that the two null hypotheses which were concerned with the teacher's acceptance of the acoustically impaired child (Hypotheses 1 and 3), had been rejected. Support was gained, therefore, for the

Alternate Hypotheses (1A and 3A) dealing with acceptance. While the analysis showed a change in the attitude (acceptance), it was necessary to examine the mean gain scores to determine the direction of the shift. This subsequent examination showed that the shifts for the appropriate groups (the Treatment Group in Hypothesis 1 and the High Initial Cognitive Information Level Sub-Group in Hypothesis 3) were in a positive direction. Thus, it may be said that the simulation was effective in creating a more accepting attitude on the part of in-service, regular classroom teachers toward the acoustically impaired child.

The data analysis relating to the two hypotheses which were concerned with the teacher's ability to realistically place an acoustically impaired child into an appropriate educational setting (Hypotheses 2 and 4) showed that the shifts which occured as a result of the simulation were not sufficient to be significant and, therefore, the null hypotheses could not be rejected.

The findings of this study, related to realistic placement, substantiate those of Haring (1956) and Proctor (1967). Both of these studies used different methods of presentation of the information on exceptionality and neither found that, on the basis of experience or information, there was a change (improvement) in the classroom teacher's ability to realistically determine the most advantageous placement for the exceptional children described in the Classroom Integration Inventory. Both Haring (1956) and Proctor (1967) concluded that:

> whether or not teachers had experience with exceptional children in their classroom seemed to make little difference in their ability to be more accurate in their judgment concerning the placement of these children (Haring, 1956).

A review of the results of the three studies which used the Classroom Integration Inventory shows that there is apparently little or no relationship between experience and/or knowledge and a teacher's ability to realistically place exceptional children in appropriate educational settings.

A reason for this lack of evidence might be the inability of the test instrument (the Classroom Integration Inventory) to measure what it was designed to measure. When Proctor (1967) reestablished the scoring key, she reported a large disparity in inter-judge agreement on the most appropriate educational placement. She shows a range of agreement from 73 percent to 53 percent (Proctor, 1967). With a panel of experts having such difficulty determining appropriate placement, it seems that the task might be far too difficult for a classroom teacher.

In summary, the Classroom Integration Inventory may not be a valid measure of a teacher's ability to realistically place exceptional children in appropriate educational settings.

It can also be concluded, on the basis of the data, that teacher

attitudes toward exceptional children can be changed as a result of experiencing a simulation of the handicap involved.

There are, though, some words of caution which must be voiced with regard to the changing of teachers' attitudes through simulation or by any other means. The instruments used for measuring attitudes and attitude change was a paper and pencil test. Such an instrument requires only one form of response on the part of the teacher; that is, a low level written response in the form of selecting one choice of five givens. Caution must be observed in drawing conclusions on attitude change solely on the basis of verbal response. Verbal behavior is only one indicator of attitude (Zimbardo and Ebbesen, 1970). There is need for more and better indicators of attitude in order to make some wide-ranging conclusions about the effectiveness of one method or another in changing an individual's attitude.

Implications for Future Research

As mentioned above, there are other dimensions of behavior related to attitude than verbal behavior. In order to determine the effectiveness of one method or another in changing attitudes, it is necessary to consider several of the dimensions of attitude-related behavior.

One such possibility would be in the form of a longitudinal study observing teacher behavior in the classroom with an exceptional child. Procedures similar to those used in this study (simulation) or by Haring (1956) (workshop--i.e.-in-service training) could be used but with the addition of several observational evaluations of the teacher's behavior in the classroom.

Another alternative would be to develop a new simulated situation into which a teach would be placed. This situation would require the teacher to perform for a given period of time in a classroom with an exceptional child integrated as a part of the class. While this type of evaluation may not provide information on behavior in the same way that actual experience "on-the-job" would, it would still provide a wider range of response to the situation than does a written test.

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APPENDIX A

PERSONAL QUESTIONNAIRE

The following questionnaire is designed to give us certain information about you and your background as a teacher. We request that you answer all applicable questions as thoroughly as possible.

1. NAME_____ 2. SEX:___M ___F

3. STUDENT NUMBER:_____ 4. AGE_____

5. MAJOR:_____
(i.e. - secondary ed., special ed., etc.)

6. Are you presently employed as a teacher? _____YES _____NO

7. If yes, how long have you been teaching? (check appropriate box):

_____0-1 years; _____2-5 years; _____more than 5 years.

8. If no, have you student taught yet? _____YES _____NO.

9. On what level do you now teach (or, if you have only student taught, on what level did you student teach)?

_____ Pre-School

_____ Primary

_____ Middle School

_____ Junior High (7-9)

_____ Senior High (10-12)

_____ Post-Secondary (This would include any area outside senior high school - such as voc-ed, community college, etc.)

10. Have you ever had a handicapped or exceptional child in one of your classes?

_____YES _____NO

11. If yes, what was the nature of the handicap? (i.e. - Mentally retarded, crippled, hearing impaired, etc.).

_____

_____

_____

12. If you have had contact with an exceptional or handicapped child in your classroom, how many years have you had such contact?

_____1-2 years; _____3-5 years; _____more than 5 years.

13. Do you have anyone in your family who might be considered handicapped or exceptional?

_____YES _____NO

14. What is the nature of the handicap? A descriptive phrase such as hearing impaired or visually impaired will be sufficient here.

_____

_____

15. Have you had any other form of contact with a handicapped or exceptional child or adult? (such as a neighbor, an associate at work, a friend, etc.).

_____YES _____NO

16. If yes, what was the nature of the contact?

_____

_____

_____

17. If yes, how long have you had this contact?

_____1-2 years; _____3-5 years; _____ more than 5 years.

18. Why are you enrolled in Education 424? _____

_____

_____

19. Finally, if you were teaching in the public schools, and were told by your principal that this coming Fall your class would include a child who was exceptional or handicapped and would require some special accomodations for the class, what would your reaction be?

APPENDIX B

TEST PACKAGE

Teachers are ordinarily faced with a wide variety of problems, arising from the many different kinds of students they work with each cay. On the following pages you will find brief descriptions of the behavior of a number of exceptional children. In each case, you are to indicate how you would prefer to handle the situation if the decision were entirely up to you.

INSTRUCTIONS: Read each item and mark the correspondingly number space on the answer sheet as follows:

A If you feel that you could handle such a student in your regular classroom without any fundamental change in your present procedures.

B If you feel that you could handle such a student in your regular classroom provided advice from a specialist or consultant was occasionally made available to you whenever you felt a need for such aid in dealing with some particular problem.

C If you feel that you could handle such a student in your regular classroom provided there was a full-time specialist available at your school who could provide supplementary training for the student and frequent consultation with you.

D If you feel that such a student would benefit most by being assigned to a special class or school.

E If you feel that such a child cannot be handled profitably within the context of regular or special public education.

Mark each item clearly, filling the space between the dotted lines on the special answer sheet. Please do not make any marks in this booklet.

A. IN REGULAR CLASSROOM
B. WITH PART-TIME AID
C. WITH FULL-TIME AID
D. IN SPECIAL CLASS OR SCHOOL
E. NOT FOR PUBLIC EDUCATION

1. Alfred is defiant and stubborn, likely to argue with the teacher, be willfully disobedient, and otherwise interfere with normal classroom discipline.

2. Barbara weras thick glasses, and her eye-balls jerk spasmodically from side to side; she can't see the blackboard very well, and reads poorly.

3. Chuck can get about only in a wheel chair; someone must move it for him, or carry him in their arms, because he is unable to control his limbs.

A. IN REGULAR CLASSROOM
B. WITH PART-TIME HELP
C. WITH FULL-TIME HELP
D. IN SPECIAL CLASS OR SCHOOL
E. NOT FOR PUBLIC EDUCATION

4. Donald is six years old and does not speak very much; what he does say is indistinct and childish, with many missing or incorrect sounds.

5. Earl is eight and wears cowboy boots to class because he hasn't learned to tie his own shoelaces; he is generally cheerful and well-behaved, but talks very little and is incapable of following any but the most simple directions.

6. Florence is immature and oversensitive, likely to burst into tears at the slightest provocation.

7. When Alice wears her hearing aid she hears as any other youngster; her voice sounds flat and hollow, and is somewhat unpleasant to hear.

8. Suzy frequently gets so excited she loses control of herself and wets the floor.

9. Ruth is very much like other eleven-year-olds in most respects but, occasionally, during the day, a rhythmical quiver will pass over her face and she becomes totally oblivious for a few seconds.

10. Roger's face was severely disfigured in an auto accident; although he is completely recovered physically, the surgeons do not expect to be able to make his appearance more acceptable for mahy years.

11. Alan wears a leg brace and walks with the aid of crutches; he gets along quite well by himself though and ordinarily needs no help from anyone.

12. Bernard is a bully, given to teasing other children and provoking fights with them.

13. Cora is supposed to have a hearing loss, but she seems to hear all right when she sits at the right end of the front row of seats.

14. Debby cannot use bathroom facilities unless someone is there to help her; she is perfectly capable of making her needs known in ample time to avoid accidents.

15. Clara has a noticeable scar on her upper lip; her speech seems to be coming through her nose and she is hard to understand.

16. Dotty is eight; she has difficulty following the class and doesn't seem to learn to read at all.

A. IN REGULAR CLASSROOM
B. WITH PART-TIME AID
C. WITH FULL-TIME AID
D. IN SPECIAL CLASS OR SCHOOL
E. NOT FOR PUBLIC EDUCATION

17. Eight-year-old Edward sucks his thumb all the time, apparently indifferent to reactions of parents, teachers, or other children.

18. Every few weeks, without any warning, Stella will have a violent physical convulsion during which she may bite her tongue or lose control of her sphincters; after several minutes she returns to consciousness.

19. Sylvia's height is grotesque; she towers over every other child in elementary school and wears adult-size clothes.

20. Flora has neither bladder nor bowel control and must be taken to the bathroom at frequent intervals.

21. David squints through his eyeglasses, even when he sits at the front of the room, and cannot read the blackboard or his book quite as rapidly as many of the other children.

22. Occasionally Edward will repear a sound two or three times before he seems able to go on; he speaks when called upon, but does not volunteer much.

23. Chuck doesn't seem to catch on to things as quickly as most, and needs to have things explained over and over afain; eventually, though, he appears to learn everything the others do even though it has taken longer.

24. Doris is slow, absent-minded, and a daydreamer; she seems usually quiet and withdrawn, avoids others, and is inhibited and restrained in her behavior.

25. Every hour or so Henry stares upwards at the ceiling for several seconds and loses consciousness; he has been like this for several years but is otherwise developing normally.

26. Fred can feel the vibrations of loud music from a radio or phonograph, knows when a door has been slammed, but does not hear speech unless it is shouted.

27. Greg tires easily and needs frequent opportunities to rest; excessive stimulation or excitement must also be avoided.

28. Harold is a capable student but has a physical defect which appears to evoke laughter, ridicule, avoidance, and rejection from the other children.

A. IN REGULAR CLASSROOM
B. WITH PART-TIME AID
C. WITH FULL-TIME AID
D. IN SPECIAL CLASS OR SCHOOL
E. NOT FOR PUBLIC EDUCATION

29. Irv is sexually precocious; masturbates in class, uses obscene language, and has made advances to several girls in his class.

30. Jane can tell the direction from which the sunshine enters her classroom; she cannot read the letters in an ordinary book.

31. Albert does not pronounce all of his speech sounds correctly, but can be understood.

32. Betty is only a little over seven but she can read the fifth grade reader very well; however, her handwriting is poor and she is about average in most other things.

33. Chester is deceitful, tells lies, and cheats in school and at play; he has been involved in several thefts, and is a persistent truant.

34. Generally speaking, Everett can control his bladder and bowel, although he is likely to have an occasional accident.

35. Jerry does perfectly good work as long as he is left alone; he becomes extremely tense and anxious, however, whenever an adult speaks to him.

36. Virginia rubs and blinks her eyes occasionally when reading, and seems to find it difficult to distinguish between certain letters of the alphabet.

37. Andy hears most, but not everything, that is said in class even though he wears a hearing aid.

38. Stan's walk is a slow shuffle; he gets along on level surfaces or moderate inclines quite well, but is unable to manage stairs at all.

39. Roy has a bright purple birthmark which covers one cheek and the side of his neck.

40. Several times a day Lester says he smells bananas; usually this means that he will soon fall to the floor in a convulsion which may last several minutes.

41. Carla is a persistent talker, whisperer and notepasser.

42. Bert could play songs with one finger on the piano when he was four; now, in the first grade, he has begun composing little melodies to which he gives names like "Rainy Day," "Bert's Bike," or "Juice-Time."

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43. June's eyes are crossed but she has adequate vision in either eye despite the muscle imbalance.

44. Laura's speech is laboriously slow, tortured, jerky and indistinct; her voice is monotonous in pitch and she cannot control its intensity.

45. Harry sulks, and sometimes gets quite noisy, whenever he loses the direct attention of the teacher.

46. William can't hear anything with his left ear, but he gets along fairly well if he can sit in one row by the window, in a room on the quiet side of the building, with the class to his right.

47. Ben is unable to walk and has been confined to a wheelchair; he manages this very skillfully and needs very little help.

48. Les was born with a malformed left hand which is withered and misshapen up to the elbow.

49. When Terry was five he was run over, losing both his legs and genitals; he gets around quite well now but his bladder discharges into a bag which must be emptied several times a day.

50. Once or twice during the year Peter has complained of a peculiar feeling in his stomach; about a minute afterwards he has lost consciousness and his body has been first ridgid and then convulsed for several minutes.

51. John has no difficulty on the playground or at the blackboard but he gets quite uncomfortable when he has to use his eyes at close range for any length of time.

52. Hugh eventually mutilates and destroys everything that gets into his hands; his books are marked and torn, his desk ink-stained and scarred, and he has even managed to crack a blackboard panel.

53. When anything happens to John the whole school knows it. A bump on the playground produces tears and wailing, an "A" for an exam brings on unrestrained shrieks of delight.

54. Sam moves about somewhat awkwardly and his limbs are in a slight but eontinual tremor that becomes pronounced when he is nervous or excited.

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55. Arnold is an extremely bright nine-year-old who is far ahead of the rest of the class in most subjects; he spends a good deal of his time working on a mathematical system he calls "kinestatics."

56. Bill has difficulty in starting to talk, grimaces and strains, and repeats sounds on about half the words he says in class.

57. Kate weighs enough for two children her age; it is almost impossible for her to aqueeze into a standard desk.

58. Although Melvin does not really soil himself, as the day draws on he begins to smell more and more of feces.

59. A hearing aid provides no help for Harriet; she lipreads fairly well and can hear when she is not facing the speaker if shouted at.

60. Helen's right hand may sometimes begin to tremble uncontrollably; during the next few minutes the spasmodic movement spreads along her arm, shoulder, and hear before it finally stops.

INSTRUCTIONS: Read each item and mark the correspondingly numbered space on the answer sheet. Mark each item clearly, filling the space between the dotted lines on the special answer sheet.

101. The congenital deaf child will probable display (1) articulatory disorders; (2) voice abnormalities; (3) retarded language growth; (4) all of the above.

102. The deaf, deafened, and hard-of-hearing are different categories based mainly on (1) degree of hearing loss; (2) speech development; (3) lip reading ability; (4) amount of hearing loss and age of onset.

103, Hard-of-hearing children usually have a decibel loss of (1) 0-15 dB; (2) 20-60 dB; (3) 70-90 dB; (4) 90-100 dB.

104. The criticism of the manual method of theching the deaf is that (1) it is too difficult to learn; (2) it is difficult for these pupils to communicate with hearing people; (3) few teachers know the method; (4) it is too symbolic.

105. Educating and rehabilitating the hard-of hearing is primarily (1) developing language; (2) fitting hearing aids; (3) giving audiometric tests; (4) teaching lip reading and speech correction and auditory training.

106. The oral method of teaching the deaf refers to (1) teaching by means of speech and lip reading; (2) only by auditory training; (3) developing speech and language; (4) teaching arithmetic and reading.

107. The criterion used for placement of a child in a class for the deaf is (1) speech development, intelligence, and hearing loss; (2) disease causing the loss and intelligence; (3) speech development alone; (4) hearing loss alone.

108. The attitudes of teachers toward handicapped children is (1) verbalized acceptance but somewhat rejecting; (2) completely accepting; (3) the same as toward their normal children; (4) more understanding.

109. The attitudes of parents toward their disabled children tend to be (1) oversolicitous, rejecting; (2) accepting, understanding; (3) the same as toward their normal children; (4) more positive than toward their normal children.

110. The attitudes of disabled persons toward themselves tend to be (1) not significantly different from normal children; (2) negative; (3) accepting; (4) more positive than normal children.