ATTITUDES OF SECONDARY VOCATIONAL AND PRE-VOCATIONAL TEACHERS IN VIRGINIA TOWARD INTEGRATING VISUALLY AND HEARING HANDICAPPED STUDENTS INTO REGULAR CLASSES

by

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Dissertation submitted to the Graduate Faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

in

Vocational and Technical Education

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October, 1976

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ACKNOWLEDGEMENTS

The researcher wishes to express a sincere appreciation for the assistance and direction provided by his graduate committee: Drs. N. Alan Sheppard, William E. Dugger, Robert Frary, James L. Hoerner, Cherry K. Houck, and Ralph Ressler. A special debt of gratitude is owed to Dr. N. Alan Sheppard, who gave much encouragement and inspiration. Special thanks are also extended to Dr. Robert Frary for his advice on the selection of statistical tools, setting up of computer programs, and interpretation of results.

Miss Agnes M. Davis, Assistant Social Science Librarian, Virginia Polytechnic Institute and State University, went far beyond the call of duty in helping to find relevant literature. Mr. Don Cox and Mr. Jim Taylor, counselors with the Virginia Commission for the Visually Handicapped in Roanoke, provided much direction and financial assistance, without which this endeavor would have been much more difficult. Thanks go also to Miss Wanda Smith who spent many long hours typing this dissertation.

Much patience, understanding, and encouragement were exhibited by my wife, Judy, and son, Justin--to them I am forever grateful.

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THE PROBLEM

In recent years, American society and the educational system in particular have begun to focus more attention on the special educational needs of the handicapped. According to Parker, et al. (n.d.:1):

> With a growing recognition of the needs of this small but significant segment of the population, the courts, state legislatures, and federal government have asserted the right of the handicapped to medical treatment and educational opportunity. This has been a healthy development . . . .

An expanding pattern of federal legislation signifies the commitment of the national government to the education of the handicapped. The Vocational Education Act of 1963, as stated in the Federal Register (1970:257), provided for vocational education "for persons who have academic, socioeconomic, or other handicaps that prevent them from succeeding in the regular programs of vocational education."

The effort to make vocational education more responsive to the urgent needs of the handicapped was viewed by the Congress, a panel of consultants on vocational education, state advisory councils, and many vocational educators as mediocre. Therefore, the 1968 Amendments to the Act of 1963 ushered in the mandate for vocational

education to serve the handicapped. In the 1968 Vocational Education Amendments, Congress indicated its clear intent that top priority go to the handicapped. As reported in the Federal Register (1970:258), instead of being permissive, Part B of the Act requires that at least 10 percent of the basic federal allotment shall be used only for those persons.

As a result of the passage of the Vocational Education Act of 1963 and the Vocational Education Amendments of 1968, Congress intended to make occupational training and retraining accessible to all who desire it including those persons who are disadvantaged and handicapped. These persons are often denied the development of salable skills because of the lack of adequate facilities, equipment, special services, and programs.

Federal legislation has, in fact, greatly affected the education, training, and services provided for the handicapped, including the movement away from separate classes. As discussed in "Education Of The Handicapped Today" (1976), Public Law 93-380, the Education Amendments of 1974, specified due process requirements protecting the rights of handicapped students. In addition, it supported the principle of placing such students in the least restrictive educational environment.

Court decisions, according to Doran (1975), have further enhanced the rights of the handicapped to an education and have aided their movement toward heterogeneous classes. Still further,

legislation enacted by the Virginia General Assembly (1974) for the 1974-76 period has facilitated the placement of visually and hearing handicapped students into integrated classes. Standard #4 of the "Standards Of Quality For Virginia Public Schools" (Commonwealth Of Virginia, State Department of Education, 1974) states that:

> Each school division shall provide vocational education for all students planning to enter the world of work or make progress acceptable to the Board of Education toward achieving the plan submitted to the Board of Education on June 20, nineteen hundred seventy-five.

Performance objectives were also enacted for the same period. Objective #2 states that "By June 1976 at least ninety percent of high school graduates not continuing formal education should have a job entry skill." Objective #4 states that "By September 1975 at least 90,000 handicapped students should be enrolled in programs designed specifically to meet their educational needs."

The number of handicapped students with whom vocational and pre-vocational teachers may have to cope may be substantial. As reported in the Model To Serve Students With Special Needs In Regular Vocational Programs For Minnesota (1975), an increasing number of special needs students will probably enroll in regular vocational classes.

> In terms of numbers, a reasonable estimate would be that within vocational schools that do not use screening methods for student entry, a greater number than ever before of the student population may not succeed without some form of special assistance or program modification.

The role of teacher attitudes has frequently been cited as one of the most significant variables which influence the success

of integrating handicapped students into regular classes. Stated in the Model To Serve Students With Special Needs In Regular Vocational Programs For Minnesota (1975) is that:

> Attitudes play a significant role in determining what the beholder sees. . . . Generally, persons who have not had personal experience with handicapped individuals live with a set of stereotypes and myths.

Almost twenty years ago, Haring (1957) pointed out that the attitudes and understandings that teachers have about handicapped students are instrumental in determining the social, intellectual, and emotional adjustment of these students. Major (1961) suggested that although regular teachers have made a substantial pre-service investment, the preparation does not always include a study of adequate techniques for working with the educationally borderline student. These teachers may feel that their enterprises are being disrupted by seeming misfits and that their feelings are not likely to be changed by pressure, parental demands, administrative demands, or exhortation.

One can say, then, that the integration of handicapped students into regular classes, when this is the least restrictive alternative, has definitely been affirmed. Due to court decisions, federal laws, and state legislation, many more hearing and visually handicapped students will probably seek entry into regular vocational and pre-vocational classes in Virginia. The attitudes held toward these visually and hearing handicapped students and toward their presence by their regular vocational and pre-vocational teachers will probably be very influential in determining the success of the students in those regular courses.

STATEMENT OF THE PROBLEM

The central concern of this study was the examination of attitudes expressed by secondary vocational and pre-vocational teachers in Virginia toward the integration of visually and hearing handicapped students into their regular classes. More specifically, the following questions provided the major focus for the research:

1. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward the visually and hearing handicapped?

2. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia concerning the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes?

3. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward their own competencies to teach the visually and hearing handicapped in regular vocational and pre-vocational classes?

4. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward their willingness to work with resource and support personnel in order to program effectively for the instruction of the hearing and visually handicapped in regular vocational and pre-vocational classes?

5. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward the potential for success of the visually and hearing handicapped in the world of work?

6. What are some strategies which have been found to be helpful by Virginia's vocational and pre-vocational teachers in integrating visually and hearing handicapped students into regular vocational and pre-vocational classes?

7. To what extent are hearing and visually handicapped students who are enrolled in vocational and pre-vocational programs in Virginia attending regular classes?

RESEARCH HYPOTHESES

The following research hypotheses were formulated based upon a review of related literature:

1. No difference exists between teachers in the six vocational service areas in their attitudes toward the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes and their own regular classes.

2. No difference exists between teachers in the six vocational service areas in their attitudes toward willingness to work with resource and support personnel in order to program effectively for the instruction of the visually and hearing handicapped in regular vocational and pre-vocational classes.

3. No difference exists between teachers in the six vocational service areas in their attitudes toward the potential for success of the hearing and visually handicapped in the world of work.

4. No difference exists between teachers in the six vocational service areas in attitudes toward their own competencies to teach the visually and hearing handicapped in regular vocational and pre-vocational classes.

NEED FOR THE STUDY

As reported in the Digest Of Educational Statistics (1975), the total enrollment in the nation's public schools was comprised of the following percentages of visually and hearing handicapped students in 1970: hard of hearing, .3; deaf, .1; partially sighted, .1; and blind, less than .05. Also, according to the Superintendent of Public Instruction: 104th Annual Report (1974), there were 443,684 students enrolled in grades 7-12 in the public schools of Virginia during 1973-74. Assuming that Virginia is typical of the national averages, the following approximate numbers of hearing and visually handicapped students were enrolled in grades 7-12 in its schools during 1973-74: hard of hearing, 1,331; deaf, 444; partially sighted, 444; and blind, about 221.

Still further, visually and hearing handicapped students in Virginia are enrolled in residential schools at Hampton and Staunton. As listed in the Superintendent of Public Instruction: 104th Annual Report (1974), the following numbers of hearing and visually handicapped students were enrolled in grades 7-12 in these institutions during that year: hearing handicapped, 182, and visually handicapped, 45. The approximate total number of hearing and visually handicapped

students enrolled in secondary education programs in Virginia during 1973-74 was, thus, 2,156 and 709, respectively.

Interesting, in addition, is the fact as stated in the Superintendent of Public Instruction: 104th Annual Report (1974) that 47 percent of Virginia's high school graduates entered college during that year. Thus, about 53 percent of secondary school students in the state should logically choose a vocational or pre-vocational program of studies. Based upon the aforementioned data, one can predict that 1,143 hearing handicapped and 376 visually handicapped students might be enrolled in vocational and pre-vocational programs during any given year in Virginia.

The importance of this study is also indicated by the priorities for Part C funds of the Vocational Amendments of 1968 for fiscal year 1977. One of the top priorities for research dealing with the handicapped concerns studies which involve their integration into regular vocational classes. Integration of the handicapped into regular vocational classes is thus seen as a problem of national concern and this research is one effort in helping to find some solutions.

Historically, Virginia's Commission for the Visually Handicapped and Division of Vocational Rehabilitation have provided most of the vocational training for visually and hearing handicapped students in the state. Until shortly before this study, the only criteria to be met for one to be sponsored by either of these agencies was the possession of a hearing or visual handicap and a

reasonable prognosis that the client could be rehabilitated. Consequently, public school officials in Virginia have not been greatly concerned about vocational or pre-vocational programs for hearing and visually handicapped students.

Due to budget cuts, Virginia's Commission for the Visually Handicapped and Division of Vocational Rehabilitation are currently not able to serve the number of clients assisted in previous years. Furthermore, additional requirements must be met for one to be pronounced eligible for the services of either of these agencies. Not only must one have a physical, mental, or emotional handicap with a reasonable prognosis for rehabilitation, but one must also show financial need. Thus, individuals from middle and upper-income families have difficulty in qualifying for assistance.

This shortage of funds for rehabilitation in Virginia coupled with the more stringent eligibility requirements may mean that more students with visual and hearing handicaps will seek vocational training in the public schools. If this influx does occur, vocational educators in the state must be prepared to meet the demands placed upon them.

Virginia's vocational and pre-vocational teachers apparently have limited experience in teaching hearing and visually handicapped students. Mr. Dennis Holmes, Principal of the Virginia School For The Blind and Deaf at Staunton (August, 1975), stated that "To my knowledge, almost all vocational programs for hearing and visually handicapped students occur after graduation or termination of a high school

program and are under the auspices of state vocational rehabilitation programs." Due to this lack of experience in teaching hearing and visually handicapped students, vocational and pre-vocational teachers in the state may hold negative attitudes and possess misconceptions about these exceptional students. In addition, the teachers probably have limited knowledge about these two handicaps and their implications for vocational education. Therefore, a need exists to ascertain vocational and pre-vocational teachers' attitudes toward the integration of these exceptional students into regular vocational and pre-vocational classes and to solicit strategies from experienced teachers for possible use by those who are inexperienced in working with the visually and hearing handicapped.

Finally, this research may be only the beginning of inquiry into the integration of visually and hearing handicapped students into regular vocational and pre-vocational classes in Virginia. It may have the potential to influence the initiation of experimental studies concerning effective ways to integrate these exceptional students into regular vocational and pre-vocational classes. If integration efforts in Virginia are to benefit the students, they should be based on research and this effort may be a stimulus in that respect.

DEFINITION OF TERMS

The following operational definitions are provided to give focus and clarity pertaining to key concepts in the study:

1. Vocational education - refers to programs of study below college level organized to prepare one for entrance into a particular chosen vocation, or to upgrade employed workers; includes such divisions as Agricultural Education, Business Education, Home Economics Education, Distributive Education, and Vocational-Industrial Education.

2. Visually handicapped - refers to those persons with an incapacity for specific visual tasks, due to impairment of one or more of the visual organs; persons with a visual handicap may be described as:

   a. visually impaired - refers to those persons who can learn to read print
   b. blind - refers to those who cannot learn to read print, but who need instruction in braille

3. Hearing handicapped - refers to those persons who are deaf or hard of hearing:

   a. deaf - refers to those in whom the sense of hearing is non-functional for the ordinary purposes of life. The general group is made up of two distinct classes based entirely on the time the loss of hearing occurred. These include:
      1. the congenitally deaf - refers to those who were born deaf
      2. the adventitiously deaf - refers to those who were born with normal hearing but in whom the sense of hearing became non-functional later through illness or accident

b. the hard of hearing - refers to those in whom the sense of hearing, although defective, is functional with or without a hearing aid

4. Attitude - refers to an enduring organization of perceptual, motivational, emotional, and adaptive processes centering on some object in the person's world.

5. Regular vocational class - refers to those classes of vocational education where "non-handicapped" students are enrolled.

6. Integration - refers to the infusion of visually and hearing handicapped students into regular vocational classes with appropriate support services provided.

7. Pre-vocational education - refers to educational programs, usually on the junior high, intermediate, or middle school level, designed to provide students with exploratory experiences which will better enable them to choose a preparatory area in high school; includes Industrial Arts Education.

ASSUMPTIONS

On the basis of empirical evidence and logical reasoning, the following assumptions were made in conducting the research:

1. Most students who are visually or hearing handicapped can be successfully integrated into regular secondary vocational and pre-vocational classes.

2. Local school divisions in Virginia will comply with court decisions and governmental legislation.

3. Secondary vocational and pre-vocational teachers in Virginia would respond honestly and candidly to the survey questionnaire.

4. Secondary vocational and pre-vocational teachers in Virginia were aware of exceptional students who were enrolled in their regular vocational and pre-vocational classes during 1975-76.

LIMITATIONS

As in most research endeavors, certain factors affected, to some degree, the findings of this study. Therefore, the following limitations are noted:

1. The examination of teacher attitudes was accomplished by a self-reporting method; therefore, some care should be taken in generalizing to the population.

2. Response to the questionnaire was limited somewhat because lack of experience in an integrated setting was perceived by some of the sample as a basis for non-response.

3. Because few respondents indicated having teaching experience in an integrated setting, responses to the open-ended questions concerning strategies which have been successful in integrating hearing, visually, and other types of handicapped students into regular vocational and pre-vocational classes were somewhat limited.

4. A follow-up study of non-respondents was not conducted due to a lack of time and funds.

ORGANIZATION OF THE STUDY

The remainder of the study is organized as follows: Chapter 2 consists of the review of related literature; Chapter 3 is comprised of the research methodology; Chapter 4 involves the analysis of data; and Chapter 5 is concerned with the summary, conclusions, discussion, and recommendations.

Chapter 2

REVIEW OF RELATED LITERATURE

This chapter consists of the review of related literature and is divided into four major sections. The first portion deals with certain characteristics and education of hearing and visually handicapped students. The second facet consists of a review of available literature concerning the integration of visually and hearing handicapped students into regular classes. The third section examines some research which was undertaken to study the occupational adjustment of hearing handicapped individuals. The fourth part includes a review of literature concerning the semantic differential and the Likert Scale as means of examining attitudes. Finally, a summary concludes the chapter.

CHARACTERISTICS AND EDUCATION

Educating Hearing Handicapped Students

The educational provisions and techniques for teaching deaf students are significantly different from those utilized with hard-of-hearing pupils. Because the hard of hearing have the ability to acquire speech and language through hearing, the problem of teaching those students is mainly one of making it possible for them to learn

through the methods and techniques used with hearing students. With the use of hearing aids, some individual help in speech, speechreading, auditory training, and a few special arrangements, most of these pupils can acquire an education in classes with hearing students.

Deaf pupils, on the other hand, face quite a different problem. Because they do not hear speech, deaf students do not normally acquire language or the subtleties of meaning which are more readily acquired through the sense of hearing. The important factor to remember in educating deaf students is that their major deficiency is not so much lack of hearing as inability to develop speech and language through the sense of hearing (Kirk, 1972). Furthermore, Kirk asserted that the school in fulfilling its responsibilities to hard-of-hearing students must: (1) identify those needing help, (2) see that they are adequately diagnosed and given whatever medical treatment is necessary, and (3) provide an appropriate educational program. Concerning programming, most of these students can apparently gain more from being with normal pupils. They are not usually seriously academically retarded except possibly in speech, language, and reading. Most widely recommended is enrollment in the regular grades and provision of itinerant or special support services to help the students individually or in small groups. The instruction usually consists of: (1) training in the use of hearing aids, (2) training in auditory skills, (3) speechreading, (4) speech correction, and (5) assisting the regular teacher.

The major emphasis in the education of the deaf is the development of language and communication. Two differing modes of communication are oralism and manualism. The vast majority of deaf and deafened adults utilize various combinations of oral and manual modes, depending upon their proficiency and the nature of the situation. At the time of this study, three basic approaches were in use. The "oral approach" refers to the method of instruction which uses speech, speechreading, residual hearing, reading, and writing. School programs which adhere to this approach do not encourage the use of signs or fingerspelling. The "combined approach" is one which combines the oral approach with simultaneous use of fingerspelling. A teacher who uses this approach spells every word near his face as he says it. The "simultaneous approach" refers to the simultaneous use of oral communication, fingerspelling, and the use of signs.

Both the oral and the manual methods are in use at the time of this study. Most authorities agree that there is a place for each or for a combined method. No group insists that all deaf students should be taught by one particular method. Both residential and day schools advocate the oral method for those students who are capable of learning by it, but those who do not make progress are usually taught by the combined method (Kirk, 1972).

Kirk further stated that there are certain factors which influence the educational development of deaf students. The progress of these students in school is partially dependent upon their intelligence, rate of learning, ability to generalize, draw conclusions, and make use

of subtle cues. On non-verbal intelligence tests, the deaf range from mentally retarded to superior, with the average slightly below 100 IQ.

The age at which a child becomes deaf also has a significant influence upon his language and speech development. If a child does not lose his hearing until after he has acquired some speech and language, he at least has some concept of the process of communication and a base on which to build more speech and an understanding of language. If he is born deaf or loses his hearing before he learns to talk, he progresses much more slowly in these areas. In effect, the older a child is when he loses his hearing and the more advanced his speech, the easier will be his education.

Deaf students need a specialized curriculum, especially in the early stages of their formal education. Without hearing, a deaf child does not naturally acquire speech and language; without speech and language he does not acquire knowledge and an understanding of other subject matter. The specialized curriculum of a class for the deaf emphasizes the development of communication through vision and residual hearing and it includes: (1) speech development, (2) speechreading and auditory training, (3) language development, (4) reading, and (5) other school subjects.

Deaf students continue from the elementary school into high school in public school systems and residential institutions. In day schools, many of those students are assigned to regular classes in high school, but have an itinerant teacher who helps them in

their understanding of class discussion. With such assistance, some of the severely deaf are able to complete high school (Kirk, 1972).

Visually Handicapped Students

School assessment of visual problems is extremely important. Total blindness is relatively easy to recognize. Identification of a less severely handicapped student, however, is much more difficult. The necessity of an adequate vision screening program and systematic observation of visual behavior in school cannot be overestimated.

According to Kirk (1972), concentration on research concerning the visually handicapped has been primarily with the legally blind, and surprisingly little research has been done with partially seeing students. Generally speaking, however, it can be said that blindness affects the development of the blind pupil in that he becomes aware of the world through senses other than sight, primarily those of hearing, touch, and smell.

Several personal characteristics of visually handicapped students play an important role in their educational achievement. Motor coordination was investigated by Buell (1950) who found that blind children were inferior to the partially sighted, who were inferior to "normal" children. Norris, Spaulding, and Brodie (1957) found a high relationship between blind children's opportunities for learning and their motor performance.

Two case studies, however, illustrate the dangers of generalizing in this area. Gesell, Ilg, and Bullis (1950) followed the development of a blind child from infancy through the age of four and found

the sequence of development to be normally progressive in posture, manipulation, locomotion, exploration, language, and social behavior. Wilson and Halverson (1947), on the other hand, observed another blind child and found general developmental retardation which was most pronounced in motor areas.

To assess the intelligence of visually handicapped students is difficult since most standardized tests of intellectual functioning include visual items. To accomplish this examination, one should use verbal tests or performance tests using tactile and/or kinesthetic modalities. For the partially sighted, intelligence tests (such as the Stanford-Binet) are sometimes used. In general, and in spite of the deprivation of experience through limited or no vision, visually handicapped students show approximately the same distribution of scores on intellectual tasks as seeing pupils, when tests like auditory-vocal or haptic-motor channels of communication are used (Kirk, 1975).

Several examinations on differential cognitive abilities of visually handicapped students have been made. Bateman (1963) studied the effects of visual handicaps on the reading and psycholinguistic abilities of 131 students enrolled in classes for the partially sighted in public school classes in Illinois. She found that:

1. The IQ's on the Binet or WISC were normally distributed with an average IQ of 100.

2. In the Illinois Test of Psycholinguistic Abilities these students: (a) did not differ from the standardization norms in the

auditory-vocal channel subtests, but (b) performed significantly less well on visual reception, motor expression, visual sequential memory, and visual association.

3. Students with mild visual defects (visual acuity more than 20/70) were slightly lower in IQ and lower on the subtests of the ITPA than those with moderate (20/70 to 20/200) vision.

4. The visual-motor channel deficits were most marked in the severely defective group (those with visual acuity less than 20/200).

Tilman (1967) compared one hundred sighted with one hundred blind students on the Wechslier Intelligence Scale for Children. An item comparison showed that the blind scored the same as the sighted on arithmetic, information, and vocabulary. The blind were, however, inferior on items in terms of comprehension and similarities.

Tisdall, Blackhurst, and Marks (1967) compared residential and day school blind students with seeing students on tests of divergent thinking ability and found no significant differences between blind and seeing students or between residential and day school blind students.

The educational achievement of visually handicapped students has also been the subject of several investigations. In the 1930's Myers' (1930) and Peck's (1933) surveys of the educational achievement of partially seeing students indicated that at all grade levels the partially seeing scored as well as seeing students of the same chronological age.

A more intensive study of reading levels and reading errors made by students in classes for the partially seeing was conducted by Bateman (1963). Ninety-six partially seeing students attending segregated public school classes in grades two to four were examined on four reading tests which comprise the Monroe Diagnostic Reading Examination. Error types were analyzed to determine whether partially seeing students are characterized by any specific kinds of reading errors. Bateman concluded that:

1. The reading achievement of that sample was in general similar to that of seeing students.

2. The partially seeing students scored lowest on Gray's oral reading examination (which includes a time element) and highest on the silent reading test.

3. The analysis of errors compared with that of a normal sample of thirty seeing students indicated that the partially seeing group made more visual errors than did the seeing group sample, and either did not differ or made fewer errors in other areas.

Birch, et al. (1966) surveyed the school achievement of 903 fifth grade partially seeing students to determine their levels of educational achievement and to establish the appropriateness of type size. They found that although these students were of average intelligence, they were overage for their grade and two and one-half years retarded in academic achievement. They also concluded that no one type size could be considered superior. Nolan and Ashcroft (1959) found the average reading speed of 264 partially seeing students

(grades four through twelve) to be about one hundred words per minute, which was less than one-half the speed of seeing students.

Since the educational achievement of the blind is partially dependent upon their ability to read braille, many studies have been conducted on the levels of achievement attained by these individuals through this medium of instruction. Lowenfeld, Abel, and Hatlen (1967) studied the programs of teaching braille in the residential and day school programs throughout the United States. They concentrated on blind students in the fourth and eighth grades through the use of a questionnaire. In comparison with seeing students reading print, the reading comprehension scores on reading tests showed that fourth grade blind students were equal in braille reading ability to seeing students, while the eighth graders were superior to seeing eighth grade students. This result was explained by the authors to be a result of the higher intelligence ratings of the blind eighth graders, which averaged 110. In addition, the standardized tests administered in braille allowed for two to three times the reading time allowed for seeing students.

Some of the studies cited indicate that the visually handicapped have relatively normal educational achievement. Even the blind were equal to the seeing student in comprehension of reading when given more time to read the tests. An exception was the study by Birch, et al. (1966), who found that the "partially seeing" children were several years retarded. Kirk (1972) speculated that

since Bateman found that the most educationally retarded were students who had the most minor visual handicaps, it was possible that the Birch sample consisted of students who were referred to classes for the visually handicapped because they were educationally retarded and were also slightly visually handicapped. Apparently, the intelligence and educational achievement of visually handicapped students do not deviate substantially from that of seeing pupils.

Educating Visually Handicapped Students

Jones and Collins (1966) surveyed 353 local programs for the visually handicapped and fifty-four residential schools to determine the educational programs that were being used at that time. They found that there were many patterns of service offered to visually handicapped students. They defined the five most prominent patterns as: (1) full-time special class, (2) cooperative special class, (3) resource room, (4) itinerant teacher, and (5) teacher-consultant. Their study showed that the patterns of organization in school systems had changed markedly over the three periods reported: (1) prior to 1946, (2) 1946-55, and (3) 1956-63, with the full-time special class showing a marked decline over the three periods.

In relation to the general education of the visually handicapped, the general goals of education are the same for these students as for seeing pupils. The procedures, however, for attaining these goals are achieved by modification of instructional materials and special teaching procedures.

The curriculum for the special education of the visually handicapped should include: (1) adaptations of the general curriculum, (2) some additional or specialized content, and (3) specialized materials and equipment. Most of the adaptations necessary for visually handicapped students stem from an effort to provide comparable experiences which do not involve the use of sight or which utilize the limited vision available. That is, the pupils must be given tactual experiences and verbal explanations (Kirk, 1972).

Lowenfeld (1952) listed five principles suitable for teaching blind students: (1) individualization, (2) concreteness, (3) unified instruction, (4) additional simulation, and (5) self-activity.

One of the major additions to the curriculum for visually handicapped students is specific training for the utilization of residual vision. Barraga (1964) found that residual perception could be improved through training. Later, Barraga (1970) developed visual training exercises for blind students with remaining vision to be used by teachers of the visually handicapped. In addition, teachers can use methods and materials in special ways. Auditory and tactile aids to visual perception are also used. Other additions to the curriculum include: (1) training in the use of braille, (2) teaching command of the environment, (3) training in orientation and mobility, (4) training in improving listening skills, and (5) reading books with large type print.

Finally, specialized materials and equipment should be included in the education of visually handicapped students. Lighting is very

important for these individuals. Illumination must be free from glare and direct sunlight and evenly distributed throughout the room. Artificial illumination must be available for use at different times of the day. Other factors to be considered include the amount and height of window space, adequacy of artificial illumination, and coloring of walls and ceilings.

Classes for visually handicapped students require special equipment and materials designed to facilitate instruction and learning. These include the following: (1) a gray or green chalkboard, (2) paper, which is cream color, unglazed, and slightly rough, (3) pencils which are of heavy lead and soft, (4) typewriters, (5) dictaphones and record players, (6) projection and magnifying equipment, (7) braille materials, and (8) audio aids (Kirk, 1972).

CURRENT STATUS OF INTEGRATION

Of importance is the fact that "integration" means different things to different people. According to Regar (1974), to some the concept is similar to what has been called integration where children who are housed in isolated facilities are moved into regular school buildings and placed in special, self-contained classes alongside classes of non-handicapped children. On the other hand, to some people the concept means the total elimination of any semblance of specialized grouping on the basis of type of disability. Between these two extremes are varying efforts to assign students to the same

classes as non-handicapped students with special assistance provided to help maintain progress and prevent failure.

By way of a listing of principles, following is a compilation by Regar (1974:514) of what is involved in integration:

> 1. No student should be categorized with a label reflecting a gross diagnostic category.
> 2. Students should be evaluated with relevant instruments to determine those areas of strengths and weaknesses that relate directly to specific, objective instructional actions.
> 3. All students should be housed in the regular school building complex, or wherever other (non-handicapped) students are housed.
> 4. Groupings of all students in a school should be based on defined needs. For students with special needs, as much as possible in the way of additional support services should be provided both directly to the students and to their teachers.
> 5. Diagnostic and prescriptive services for students with special needs are not enough. Such services should be directly tied to implementation services, and whenever possible the same personnel who prescribe diagnostic and prescriptive services also should implement the instructional program, in cooperation with other teachers.
> 6. Consultation services to teaching personnel should have direct application to the instructional program, providing materials to use, techniques to try, and management strategies. Consultant personnel whose major offering is high status, with limited or no recommendations that can be translated directly into useful action, should not be used. Whenever possible, consultants should offer direct instructional service to students combined with service to other teachers.
> 7. Some students have severe disabilities and will have to be grouped together for at least part of the day.

Martin (1974) warned that successful integration requires careful planning. If this foresight is lacking, many students will probably be subjected to a painful and frustrating educational experience. He also acknowledged a fear that educators were failing to develop their approaches to integration with complete recognition of the barriers which must be overcome. These barriers are:

1. The question of the attitudes, fears, anxieties, and possibly overt rejection, which have faced handicapped students.

2. Efforts to provide training and experiences for regular classroom teachers are not keeping pace with the efforts to integrate.

3. Some logistical problems exist:

   a. Students come and go from classes at inappropriate times

   b. Special education resource teachers use different materials from regular classroom teachers and because they are part of separate administrative budgets may mean that they cannot get together on materials.

4. In some instances there is not enough material effort in developing programs of individualized instruction.

5. Too frequently one finds a failure to evaluate carefully a student's progress toward specific educational objectives, so one has to rely on instructors' subjective judgements as to whether or not a student is better off in an integrated setting.

Brenton (1974) stated that proponents of integration usually offer the following rationale for its adoption:

1. Handicapped students demonstrate greater achievement, both academically and socially, when their isolation ends.

2. A regular school setting does a better job than a segregated setting in helping handicapped students adjust to and cope with reality when they are adults.

3. Exposure to handicapped students helps normal students understand individual differences in people; it also helps to diminish the stereotyping of the handicapped.

In sharp contrast to statements in the rationale for integration were policies prior to 1963. Panitz (1975) stated that prior to 1963, thought of placing a handicapped student in a vocational laboratory was non-existent. There were, in fact, laws prohibiting local school districts from placing such students in approved programs.

Panitz (1975) further asserted that although many years had passed since the adoption of the Vocational Amendments, there were few results regarding the inclusion of handicapped students in vocational classes. One reason cited for this status was that industry was still apathetic toward taking a stand on vocational education for the handicapped. A second reason cited was that most vocational programs were not broad enough to adequately identify the special needs of handicapped students and help them develop their unused talents. A final reason mentioned was that few vocational educators had experience in teaching the handicapped.

Attitudes Toward Integration

One finds an increasing emphasis in Virginia on taking students with hearing and visual handicaps from segregated classrooms and placing them into integrated settings whenever possible. The success of these integration efforts, however, appears to depend heavily on the attitudes of educational personnel toward the inclusion of these handicapped individuals in regular classes.

Hjermstad (1974) was concerned with investigating selected personality characteristics and the effects of these characteristics as determiners of attitudes toward the handicapped. Results indicated that there were distinct personality differences in High Acceptor and Low Acceptor groups when a broad range of personality characteristics was considered. As measured by the California Psychological Inventory, the data indicated that positive attitudes toward the handicapped tended to be related to positive attitudes about oneself. Attitudes, as measured by the Attitudes Toward Disabled Persons Scale--Form O, and the variables selected for that study tended to support the generalization that attitudes toward the handicapped may be more related to personality and motivational factors than to specific demographic, academic, or experimental variables.

Two other studies were concerned with teachers' attitudes toward handicapped students after going through certain experiences. Shotel, Iano, and McGetligan were concerned with perceptions about the feasibility of integrating educable mentally retarded students into regular classes in schools utilizing the conventional grade organizational pattern. The experimental group consisted of teachers from schools with an integrative resource room program, while the control group contained instructors from schools with self-contained special classes. A questionnaire was administered to elementary school regular class teachers to determine the effect of an integrative resource room program on the teachers' attitudes toward handicapped students. The results indicated that the resource room plan had slight to moderate

effects on the teachers' attitudes and raised questions concerning the feasibility of integrating educable mentally retarded students into regular classes in schools utilizing the conventional grade organization pattern.

Fenton (1975) attempted to compare the effectiveness of four inservice programs designed to change teachers attitudes toward handicapped students and teacher knowledge of the correct placement of handicapped students. He found that the sex and years of teaching experience of participants had little or no value as predictors of the success of inservice training programs with respect to the two criterion variables under investigation. Significant differences did exist among the four inservice education programs. Attitude and knowledge changes in the participants, however, were generally in a negative direction.

The conclusions drawn in the "Five County Vocational Skills Training Program" (Russell, 1973) appear to be contradictory to those drawn in the three previous studies. Visually handicapped students were placed in the areas of Industrial Arts, Home Economics, and Distributive Education. A trained skill specialist supplemented the regular teacher's instruction immediately after a demonstration or presentation. Two of the conclusions drawn are pertinent to this study. He found that regular vocational teachers would enroll blind and partially sighted pupils if they received inservice training and that visually handicapped students could be successfully integrated into those regular vocational classes.

The Cascade System

This section of the review consists of an analysis of the cascade system as it relates to the principle of "least restrictive alternative." For schools, this principle affirms any practice that is also provided for ordinary students, but denies school officials the right to remove or restrict handicapped students without good reason and due process. Among all alternatives within a general educational system, handicapped students should be placed where they can obtain the best education at the least distance away from mainstream society (Doran, 1973).

The cascade system illustrates the least restrictive alternatives for differing degrees of handicaps. According to it, regular public school class is preferable to a regular classroom with specialist consultants; a regular classroom with specialist consultants is preferable to a regular classroom with itinerant teachers; and a regular classroom with itinerant teachers is preferable to a regular classroom with a special resource room. These statements are contingent upon the assumption that a handicapped student can be successful in each plan.

Some opinions concerning the merits of two of the alternatives within the cascade system were located in the literature. According to Stephens (1974), a survey of the literature pertaining to the administration of special education for the visually handicapped reinforced Dunn's (1963) conclusion that there appeared to be no studies concerned with the advantages or disadvantages of one plan of

organization with comparisons among plans up to the time of his publication.

Many suggestions, however, had been offered in favor of itinerant teacher plans and resource room teacher approaches in preference to special classes. Stephens and Birch (1974:197) cited five of the most frequently reported advantages:

> 1. Emphasis is placed on the student's abilities and likeness to other students rather than on his differences.
> 2. The wealth of resources within the regular school program is made available to these students by including them in most general school activities.
> 3. The services of specially prepared teachers may be available more easily to visually handicapped students who have additional major handicaps, and to both blind and partially seeing students when they are not kept together in the special class during the entire school day.
> 4. Teachers of the visually handicapped devote full-time to the individualized instruction of students.
> 5. The visually handicapped student is educated in a setting more closely approximating that which he will encounter in adult life.

Success In Integration

This facet of the literature review contains a screening of writings concerning success in integration. Initially, factors which contribute to the success of individual students to be integrated are considered.

Many writers emphasized that visually and hearing handicapped students should have reached certain stages of academic and social development before entering regular classes. Most of them, however, did not specify the criteria to be used in the determination of readiness. Hayes and Griffing (1967:5) did suggest some criteria which

should be used to determine if hearing impaired students should be placed in regular classes on a part-time basis:

1. The students can participate at or near the grade level of the regular class in using the receptive and expressive skills--speechreading, speech, language, reading, and writing.
2. The students' level of social and emotional maturity is at least equal to that of the students in the regular class to which they will be assigned.
3. The students concentrate on the job at hand and follow directions well.
4. The students are sufficiently independent, self-confident, and determined to function successfully in the regular class.
5. The students' ability to learn, as indicated by the results of a standardized test, is average or above average.
6. The students' chronological age is within two years of the average age of students in the regular class to which part-time assignment is considered.
7. The students in the regular class will accept them as members of the class and treat them with respect and consideration.
8. The teacher of the regular class understands the problems faced by these students assigned to the regular class and is prepared to help them solve each of these problems.
9. The enrollment of the regular class is sufficiently limited to permit the teacher to have the opportunity to provide the special help needed by these students.
10. Appropriate sound amplification is available to these students for their use in the regular classroom.
11. The families of these students are interested in having them assigned to regular classes, will help them with their home assignments as much as possible and advisable to do so, and will help them to solve any problems they may encounter in adjusting to the environment of the regular class.

No literature could be located concerning criteria to be considered before placing visually handicapped students into regular classes.

Glockner (1973:114) interviewed Dr. Jenny Klein, who offered a number of specific suggestions to teachers on how to help handicapped students. Among them are the following:

1. Learn as much as possible about the specific handicaps of students who will be in your course(s).
2. Arrange to talk with the parents of handicapped students so you can learn more about those students.

3. Ask special needs students to come speak with you before the class begins so they can get to know you and feel comfortable in the room.
4. Know what comes within the range of normal behavior for the age group with which you work.
5. Do not over-emphasize the fact to other students that handicapped students will be joining the group.
6. Keep your expectations positive but realistic.
7. Capitalize on the special students' strong points.
8. Be alert for any "normal" student in the group who seems to be cruel or overprotective.

Next, criteria for the success of integration programs are considered. Houck and Sherman (1975) stated that certain criteria should be applied to have a successful integration program. Among them are the following:

1. Preparatory training should exist at all levels including regular and special education teachers, administrative personnel, ancillary professionals, and parents. The content should include a study of the handicapping conditions, their educational implications, and role related tasks which will increase the likelihood of integration success.

2. Teacher training institutions should require each participant to develop a knowledge of exceptional students and their educational needs.

3. A full range of alternatives to the regular classroom should be available to students who require such programs.

4. Full supportive services should be available in school divisions which seek to integrate. Task analysis and planning for the students' psychological, educational, social, and health needs require constant communication between the teachers, administrative and

supervisory personnel, school psychologist, visiting teacher or school social worker, public or private health personnel, and the family.

5. Flexible, cooperative scheduling is essential.

Schoen, in "A Study of Practices and Problems In The Integration of Physically Handicapped Children In Regular School Programs," stated some findings which are relevant to this consideration of factors which are important in the success of integration programs. Among those results are:

1. All persons who are involved in the life of a handicapped student should be included in the planning and implementation of his program of integration.

2. Student competency in the basic skills, especially communication akills, and potential for making positive contributions to the regular class are important for successful integration experiences.

3. Regular teachers, no matter how willing, were not always able to work with handicapped students in an objective and constructive fashion. These regular teachers should have some say in their assignment to classes where integration is involved.

Kalfas (1976) listed some guidelines for the integration of handicapped students into regular vocational and pre-vocational classes. She stated that if physically and mentally handicapped students are to be successfully integrated into regular vocational classes, a careful matching of the student and a learning environment appropriate for him is essential. The following guidelines should be followed:

1. Make a comprehensive vocational assessment to ascertain insofar as possible that the student has the maturation level,

interest, and the ability (mental and physical capacity) to succeed in the course. Integration should be successful if:

a. Student's behavior (as measured by judgements of teachers and counselors) is not a threat to either his own safety or others; nor is it such that it will detract from his or others learning.
b. Student expresses interest in course content.
c. Recommendations of former and current instructors indicate probable success.
d. Results of vocational aptitude and interest tests are positive.
e. Results of occupational therapy evaluation are positive.
f. Situational assessment has indicated adequate performance in an occupational area at one or more of the following sites:
   (1) Work and job samples at a diagnostic center
   (2) Exploratory laboratory consisting of several mini-courses or modules
   (3) Other special needs prevocational laboratories or skill preparation courses
   (4) Another regular vocational course
   (5) Summer career orientation/vocational assessment program at an area vocational center
   (6) Residential summer career orientation/vocational assessment program for individuals with a particular handicapping condition.

2. Regular vocational teachers exhibit a willingness to work with special needs students.

3. Provide special supportive services to the regular vocational instructor:

a. Special education instructor or prevocational coordinator to serve as resource person to offer one-to-one assistance and to arrange tutorial aid for student when necessary.
b. Reduction of class size if handicapped students are included so that teacher has time to give individual instruction to all students. There should be a minimal number of handicapped students (three to five maximum) in any one regular vocational class; reduction of the regular class size to a maximum of fifteen is also advisable. The school administration should explore the feasibility of a quota system whereby a handicapped student would count as two regular students in the determination of class size.
c. Supportive services (e.g. interpreters, student aides, instructor aides, direct readers, tutorial aides) as needed both in and out of class.

4. Individualize instruction to the students interests, needs and abilities. Individual instruction takes into account evidence that persons vary in their learning ability, mode of learning, study

habits, interest, amount learned about a given topic, skill development, and communication skill levels. While there is a basic amount of information in each skill area which can be most economically disseminated to the students on a group-instruction basis, after a minimum level of knowledge has been achieved, the program in each course should become as individualized as possible. Such a flexible, individualized approach should include the following:

a. Individualized orientation session(s) for all handicapped students--this is imperative for the more seriously physically handicapped. Such an orientation should include information regarding special assistance available and a tour of classroom/laboratory to acquaint student with location of equipment and supplies (essential for visually impaired) and to provide opportunity for hands-on trial of special equipment. Optimally such orientation periods should be scheduled at a time when the class is not in session.
b. Instructional techniques should be based upon non-abstract principles which maximize hands-on experience and maximize theory and required bookwork. Media (e.g. video tapes, movies, filmstrips, overhead transparencies, taped materials) should be utilized to reinforce basic concepts.
c. Use of task analysis (e.g. breakdown of a process into its component parts and the mastery of each task before moving on to the next stage).
d. Use of commercial/staff developed individualized programmed instruction modules. Such modules may be particularly appropriate as part of a program sequence at the area vocational center since by that level the student should have developed the work habits and basic vocational competencies necessary to work without constant supervision.
e. Use of modular scheduling (e.g. a course is broken down into a series of modules which in turn are sub-divided into specific tasks to be performed). Each student proceeds at these tasks at his own rate of speed. It is not expected that all students complete all of the modules. The more vocationally handicapped student might concentrate mainly on those skills pre-requisite to an entry level job (e.g. sanding and taping in auto-body or only certain routines and machines in an office practice course).
f. Empathetic acceptance of handicapped students who are integrated into regular programs. Highly skilled individuals in the same surroundings tends to humiliate the slow and the unskilled. Instructors must foster interpersonal therapy.

OCCUPATIONAL ADJUSTMENT OF THE HEARING HANDICAPPED

The occupational adjustment of hearing handicapped individuals has been studied to some extent. Deaf adults adjust to practically any kind of job which does not require the ability to hear. The deaf are found in professions, managerial positions, skilled, semi-skilled, and laboring jobs. The most extensive survey of occupational adjustment was made by Martens (1936). Of 3,786 employed men who were profoundly deaf, about one-third were operatives in mills or factories, 533 were unskilled laborers, 330 were typesetters, and numerous other occupations were represented. Of 1,151 profoundly deaf women, 574 were employed as operatives in mills or factories, 120 as hotel or domestic servants, 75 as teachers, and 65 as dressmakers.

In a later study, Lunde and Bigman (1959) distributed a questionnaire to deaf persons across the United States. They received 10,101 completed schedules. Of the total group responding, four-fifths were employed. They found from the distribution of occupations that there were fewer deaf persons in the professional fields, managerial positions, and clerical and sales positions because of the necessity of communication in these jobs. There were greater numbers of deaf serving as skilled and semi-skilled workers, machine operators, and in similar positions.

The national surveys have indicated that 85 percent of deaf workers are successful in their occupations. Observations of others, according to Kirk (1972), also indicate that deafness does not

preclude successful employment and independence, especially in occupations that do not require oral communication skills.

No such studies could be located on the occupational adjustment of visually handicapped individuals.

THE MEASUREMENT OF ATTITUDES

The concept of attitude has been central to the field of social psychology from the start. Attitude is by definition a mental state. Within the limits of knowledge of physiological psychology, at the time of this research, such states were not subject to any direct "physical" measurement. This fact, along with a prevalent suspicion that "merely verbal" responses to questions concerning an individual's mental states are fundamentally untrustworthy, greatly impeded the development of social psychology in the early decades of this century. It was not until the 1920's that very systematic attempts were made to differentiate individuals according to verbal indications of social attitudes (Newcomb, Turner, Converse, 1965).

The Likert Scale

Although the Likert scale was not the earliest technique to be used to examine attitudes, Newcomb, Turner, and Converse (1965) stated that it may come closest to our intuitive ideas concerning the location of individuals on a positive-negative attitude continuum. The Likert item requires the subject to indicate the direction and degree of affect he feels concerning an object, event, or possible

state of affairs. Responses are made within a five category continuum, as in the following example:

> Encircle one of the symbols preceding each of the following statements. A stands for "Agree," SA for "Strongly Agree," D for "Disagree," SD for "Strongly Disagree," and ? for "Uncertain."
>
> SA A ? D SD If the same preparation is required, the female teacher should receive the same salary as the male.
>
> SA A ? D SD Female teachers should perform the same duties as males.

Hence, each item serves to classify the respondent at a point on a simple positive-negative continuum with respect to some relatively narrow and specific state of affairs. Typically, investigators have wished to deal in batteries of such items to reliably assess a more generalized reaction to some complex object. Further, Likert assumed that some reasonable method of combining an individual's responses toward specific aspects of the same object would provide a reliable inidcation of the individual's generalized attitude toward that common object.

Such a combining of responses to a number of items into a single summary produces an "attitude scale." Likert suggested a method of combining his items into a Likert scale. That method called for the assignment of a sequence of integer scores to the five ordinal categories of response and then prescribed a simple summation of these scores for the individual across the whole battery (Newcomb, Turner, and Converse, 1965).

The Semantic Differential

Another strategy for examining attitudes now attracting interest is to accept the fact that subjects may respond to even a relatively homogeneous domain of objects or situations in terms of a multiplicity of dimensions. One then carries on from that point, using relatively sophisticated techniques of statistical analysis, most often factor analysis, to ask such questions as "What are the minimal number of dimensions necessary to account for the patterns of responses?" and "What interpretations may be given each of these dimensions?" When reasonably clear answers to questions of this sort can be made, one can analytically locate the position of the subject as a point in a plane or a space of whatever number of dimensions is required to fit the data. Furthermore, by noting the projection of this point on the axes defining varying dimensions in the space, one can characterize the location of the individual on any one of the dimensions taken alone (Newcomb, Turner, and Converse, 1965).

One of the most prominent measurement procedures embracing multiple dimensions is a combination of a scaling procedure and an association method. Osgood, Suci, and Tannenbaum (1957) asked their subjects to respond to a word, known as a "concept," by rating it on a series of seven interval rating scales, each bounded by a pair of bipolar adjectives. In the example presented, the concept being rated is "father." Only two of the many scales are shown in this illustration. Typical instructions follow:

FATHER

active____:____:____:____:____:_X_:____passive

soft____:_X_:____:____:____:____:____hard

The purpose of this study is to measure the meanings of certain things to various people by having them judge them against a series of descriptive scales. In taking this test, please make your judgements on the basis of what these things mean to you.

If a person checks the scales in the manner indicated, it appears that the concept "father" has the connotation of a submissive person. In developing this technique, Osgood, Suci, and Tannenbaum initially used twenty such concepts and rated each one on the same list of fifty bipolar adjective scales. When one hundred subjects had rated each of the twenty concepts on the fifty scales, a factor analysis of the ratings revealed that a number of the scales of judgement were highly interrelated. They, thus concluded that there are three dimensions of meaning: an evaluation, a potency, and an activity dimension.

Since connotative meaning seems to have three major dimensions, one can devise an instrument by using a few scales to represent each of these three factors. Such an instrument is called a "semantic differential." The most commonly used semantic differential consists of four scales to measure the evaluation dimension, three to measure the potency dimension, and three to measure the activity dimension. In using the semantic differential, a subject rates a word, an object, a person, etc., on these ten scales. The ratings determine what the word connotes for that subject along each of the three dimensions.

In practice, variations of the semantic differential are being used as attitude scales. The most frequent usage involves the rating of words, persons, and objects on the evaluation scale alone. This dimension is the one most frequently utilized when persons are asked what something means to them. The evaluation scale is also the dimension that comes closest to the favorable-unfavorable continuum that is usually involved in attitude scales. Even when this single dimension of the semantic differential is used to examine attitudes, one is still dealing with a multiple-dimension scale. To take the good-bad scale as an example, one must first indicate a favorable or unfavorable direction by moving to the right or left of the neutral point. One then makes an intensity rating by moving beyond the neutral point toward the extreme right or left end of the scale. The semantic differential thus affords comparative ratings and also provides a means of analyzing the character of the differences found (Osgood, Suci, and Tannenbaum, 1957).

SUMMARY

1. The educational provisions and techniques for teaching deaf students are significantly different from those utilized with hard-of-hearing pupils.

2. Because the hard-of-hearing have the ability to acquire speech and language through hearing, the problem of teaching them is

merely one of making it possible for them to learn through the methods and techniques used with hearing students.

3. The major deficiency of deaf students is their inability to develop speech and language through the sense of hearing. Thus, the major emphasis in the education of the deaf is the development of language and communication.

4. Very little research has been done with partially seeing students, while more studies have been done on the legally blind.

5. Visually handicapped students must learn through senses other than sight.

6. Visually handicapped students are about average in cognitive abilities and school achievement.

7. A marked movement of visually handicapped students away from segregated classes and toward regular classes with support personnel has occurred.

8. The general goals and objectives of education are the same for visually handicapped and seeing pupils. The procedures, however, for attaining these goals are achieved by modification of instructional materials and by special teaching procedures.

9. Differing conceptions exist concerning the meaning of integration as it applies to handicapped students.

10. Successful integration of handicapped students requires careful planning.

11. Handicapped students are new additions to vocational laboratories.

12. Regular teachers have been more willing to accept handicapped students into their classes if they have attended inservice education programs concerning the relevant handicapping conditions and their implications for education.

13. Handicapped students can be placed into differing environments while integrating them into the public schools. Resource rooms and itinerant teacher plans are among the more popular ones.

14. It appears that visually and hearing handicapped students should have attained certain basic skills before being integrated into regular classes.

15. It appears that certain factors, if present, can help to increase the chances for success of integration efforts.

16. Hearing handicapped people have been successful in occupational adjustment, although some jobs are inappropriate for the deaf since those jobs require the ability to communicate.

17. Many different methods of examining attitudes exist. In choosing one to use, one should consider the objectives of his examination.

Chapter 3

RESEARCH METHODOLOGY

This chapter describes the research procedure and design. Following the introduction, the topics considered are: population and sample, data and instrumentation, data collection procedures, and statistical analysis and treatment of data. A summary concludes the chapter.

POPULATION AND SAMPLE

The target groups in this study were secondary vocational and pre-vocational teachers in the public schools of Virginia. These groups were identified by vocational service area according to the following categories: teachers of Agricultural Education, Business Education, Home Economics Education, Industrial Arts Education, Distributive Education, and Vocational-Industrial Education. During the 1974-75 or 1975-76 school years, the following numbers of instructors were employed in the six vocational service areas on the secondary school level in Virginia: Agricultural Education, 384; Business Education, 1,476; Distributive Education, 426; Home Economics Education, 1,016; Vocational-Industrial Education, 1,318; and Industrial Arts Education, 956 (Table 1). The number of

Table 1. Number of Vocational Teachers by Service Area in the Population

Vocational Service Area	Number of Teachers	Year
Agricultural Education	384	1975-76
Business Education	1,476	1975-76
Distributive Education	426	1975-76
Home Economics Education	1,016	1974-75
Industrial Arts Education	956	1975-76
Vocational-Industrial Education	1,318	1974-75
Total	5,576	

vocational and pre-vocational teachers in the population by service area and teaching level is shown in Table 2 on page 50.

Selection of Sample

The size of the population of vocational and pre-vocational teachers was quite large and the hypotheses required comparisons among the six vocational service areas. Consequently, a stratified random sample was selected. The number selected from each stratum of the population was determined by proportional allocation whereby each stratum contributed to the sample a number that was proportional to its size in the population. According to Wiersma (1975:254), stratified random sampling has the following advantages:

> 1. It guards against wild samples and ensures that no subpopulation will be omitted from the sample.
> 2. It avoids overloading in certain subpopulations and proportional allocation builds proportionality into the sample.
> 3. A more precise variance estimate is obtainable if there is considerable variability between strata means.

The total number of vocational teachers surveyed was 261. Of this sum, the following number of teachers from each vocational service area was mailed a questionnaire: Agricultural Education, 18; Business Education, 69; Distributive Education, 20; Home Economics Education, 47; Industrial Arts Education, 45; and Vocational-Industrial Education, 62 (Table 3). The number of vocational and pre-vocational teachers in the sample by service area is shown in Table 4 on page 52.

The sample size was determined via a procedure developed by Warmbrod (1965), who recommended a "rule of thumb" for determining

Table 2. Numbers and Percentages of Vocational and Pre-Vocational Teachers in the Population by Vocational Service Area and Teaching Level

Vocational Service Area	Junior High/Middle Intermediate: No. of Teachers	Percent of Service Area Population	Combined/ Senior High: No. of Teachers	Percent of Service Area Population	Total Teachers	Total Percentage
Agricultural Education	79	.21	305	.79	384	100
Business Education	92	.06	1,384	.94	1,476	100
Distributive Education	22	.05	404	.95	426	100
Home Economics Education	380	.37	636	.63	1,016	100
Industrial Arts Education	394	.41	562	.59	956	100
Vocational-Industrial Education	48	.04	1,270	.96	1,318	100
Total	1,015	NA	4,561	NA	5,576	NA

Table 3. Number of Vocational Teachers in Sample by Service Area

Vocational Service Area	Number in Sample
Agricultural Education	18
Business Education	69
Distributive Education	20
Home Economics Education	47
Industrial Arts Education	45
Vocational-Industrial Education	62
Total	261

Table 4. Numbers and Percentages of Vocational and Pre-Vocational Teachers in the Sample by Vocational Service Area and Teaching Level

Vocational Service Area	Junior High/Middle Intermediate: No. of Teachers	Percent of Service Area Population	Combined/ Senior High: No. of Teachers	Percent of Service Area Population	Total Teachers	Total Percentage
Agricultural Education	5	.28	13	.72	18	100
Business Education	6	.09	63	.91	69	100
Distributive Education	1	.05	19	.95	20	100
Home Economics Education	19	.40	28	.60	47	100
Industrial Arts Education	22	.49	23	.51	45	100
Vocational-Industrial Education	0	.00	62	1.00	62	100
Total	53	NA	208	NA	261	NA

sample size. He advised one to take into consideration the population variance, the alpha level, and the level of risk of exceeding the acceptable margin of error. This researcher, therefore, assumed that a .50 chance existed of expressing either positive or negative attitudes toward the inclusion of visually and hearing handicapped students into regular vocational and pre-vocational classes by the teachers. Secondly, the researcher assumed a 5 percent margin of error and a one in ten chance of exceeding that margin of error. See Appendix A for a description of the formula for determining sample size.

Lists of vocational teachers were then secured from the State Department of Education, Division of Vocational Education. Each vocational service area was considered as a separate entity. Each name was assigned a number in chronological order. Finally, a table of random numbers was consulted to select the proportional stratified random sample.

DATA AND INSTRUMENTATION

Instrument Selection and Construction

The survey instrument provided the data necessary to test the hypotheses posed in Chapter 1. Consequently, the Vocational Teacher Attitudinal Inventory (VTAI) consisted of four major sections. The first section was concerned with the collection of socio-demographic data from the participants. The information sought pertained to:

1. The vocational service area in which the respondents taught.

2. The academic level at which the respondents taught.
3. The sex of the respondents.
4. The geographic location of the respondents' schools.
5. The number of years teaching:
    a. in vocational education
    b. hearing handicapped students in segregated classes
    c. visually handicapped students in segregated classes
    d. hearing handicapped students in regular classes
    e. visually handicapped students in regular classes.

The second part of the first section allowed respondents with experience teaching hearing and/or visually handicapped students an opportunity to rank specified programs and/or experiences which best prepared them for their work with those students.

The second section of the VTAI addressed itself to the enrollment status of hearing and visually handicapped students. Its purpose was, more specifically, to examine the number of hearing and visually handicapped students enrolled in regular and segregated vocational and pre-vocational classes in Virginia's public secondary schools. Respondents were asked whether or not they taught any visually or hearing handicapped students in regular vocational, pre-vocational, or in special needs classes during the 1975-76 school year. If they responded positively to a particular question, respondents were then asked to indicate the number of students taught.

An attitudinal inventory comprised Section III of the VTAI. The first portion of Section III contained items which attempted to

examine the respondents' attitudes toward certain characteristics of visually and hearing handicapped students by judging them against a set of descriptive scales. A semantic differential scale was used here because it provided a sensitive and unidimensional measure of attitude.

The remainder of Section III was composed of a six-part Likert-type scale. Such a scale was used rather than the traditional five-point scale to alleviate the tendency of subjects to choose the mid-point of the scale (Newcomb, Turner, Converse, 1965). The Likert-type items in Section III were divided into the following categories:

1. Attitudes toward integration in general and how it applies to respondent's classes in particular.

2. Attitudes toward one's competency to teach the visually and hearing handicapped.

3. Attitudes toward one's willingness to work with resource and support personnel.

4. Attitudes toward the perceived potential for success in the world of work of hearing and visually handicapped students.

The purpose of Section IV of the VTAI was to secure suggested strategies for the integration of visually, hearing, and other types of handicapped students into regular vocational and pre-vocational classes. Only by teachers who had taught visually, hearing, or other types of handicapped students in regular classes were to respond. They were asked three open-ended questions concerning the strategies they had

found to be successful in integrating those handicapped students into regular vocational or pre-vocational classes.

Pilot Testing

Before the final form of the VTAI was prepared, the instrument was pilot tested on a group of practicing vocational teachers in Virginia. The primary purpose of this trial was to identify misunderstandings, ambiguities, and useless or inadequate items. Where concern was expressed and such concern was deemed legitimate by this researcher, appropriate alterations were made to the VTAI.

Scoring

Two data cards were used for each respondent and responses were coded according to the following system:

Card 1:

Column	Information
1-3	ID #
4-9	1 = check of service area 2 = no check of service area
10	1 = lower level 2 = higher level
11	1 = male 2 = female
12	1 = rural 2 = not rural
13	1 = urban 2 = not urban
14	1 = suburban 2 = not suburban
15-19	number of years teaching in 5 categories listed 1 = 0, 2 = 1-5, 3 = 6-10, etc.
20-27	4 2-digit numbers for number taught page 2
28-39	responses from semantic differential 1-7 from left to right (blank for non-answers)
80	1

Card 2:

Column	Information
1-3	ID #
4-55	responses to 52 items 1-6 from left to right
80	2

DATA COLLECTION PROCEDURES

A letter was sent to division superintendents of individuals selected to participate in the study. In the letter, the superintendents were notified that this research endeavor would take place and that selected vocational teachers in their divisions had been selected to participate. They were then asked to notify the researcher if they had any objections to personnel under their jurisdiction taking part in the survey. Two superintendents indicated such an objection; therefore, no teachers from their school divisions were mailed a questionnaire. Instead, instruments were sent to alternate instructors in other school divisions after permission had been granted by their superintendents.

Six division superintendents requested more detailed information about the survey. Three of them requested a copy of the dissertation proposal as well as the VTAI and cover letter. The other three division superintendents requested a copy of the questionnaire and the number of their teachers to be surveyed. This researcher complied with all of these requests. The questionnaires to personnel in these hesitant school divisions were not included in the first mailing.

After waiting three weeks for objections to be received from division superintendents, the questionnaires were mailed to participants. A cover letter addressed to the participant by name accompanied the VTAI. That letter served as the vehicle for introducing subjects to the VTAI and it explained the purposes and values of the

survey. Subjects were assured that the researcher was interested in the overall responses of the group and that individual responses would not be singled out and identified with them. They were then told that all responses would remain confidential.

The signatures of Dr. Dewey A. Adams and Dr. N. Alan Sheppard were added to the cover letter to help motivate response. For, according to Wiersma (1975:142), "The matter of who signs the cover letter is of some improtance. Response may be improved if the cover letter carries the signature of someone who is (or appears to be) associated in some way with the subjects." A vocabulary list was also included in the package to aid subjects in responding to the questionnaire. Finally, a stamped, self-addressed envelope and a sharpened pencil were inserted into the envelope with the other materials.

Two weeks after the initial mailing, positive responses had been received from the school divisions which had requested more information about the survey. Consequently, questionnaires were mailed to selected individuals in those systems.

Three weeks after the first mailing, the return rate of survey instruments greatly decreased, so a post-card reminder was mailed to non-respondents. This researcher noted that the non-respondents had probably been very busy, but that it would be greatly appreciated if they would return their completed questionnaires as soon as possible. The reminder was signed by this researcher.

On May 1, 1976, the researcher terminated the acceptance of returned questionnaires. He felt that further time could not be spent

on this facet of the study. Furthermore, sufficient funds were not available to send another post-card reminder or to make telephone calls to non-respondents. A return rate of 67 percent had been achieved with the following rates of return for the six vocational service areas: Agricultural Education, .56; Business Education, .76; Distributive Education, .70; Home Economics Education, .63; Industrial Arts Education, .62; and Vocational-Industrial Education, .66.

The 67 percent response rate was deemed adequate by this researcher. Babbie (1973:164), in discussing an acceptable response rate, said, "I feel that a response rate of at least 50 percent is adequate for analysis and reporting. A response rate of 60 percent is good. And a response rate of 70 percent or more is very good."

STATISTICAL ANALYSIS AND TREATMENT OF DATA

The general nature of the attitudes of teachers in the six vocational service areas toward the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes was examined by scrutinizing mean scores of the twenty-nine visual and twenty-nine hearing items comprising the four facets of the Likert portion of the VTAI. If a statement on the questionnaire implied a positive attitude and the mean score was between 1.00 and 3.50, the attitude was considered to be positive; whereas, if a mean score was between 3.51 and 6.00, the attitude was

considered to be negative. On the other hand, if a statement implied a negative attitude and the mean score was between 1.00 and 3.50, the attitude was considered to be negative; whereas, if a mean score was between 3.51 and 6.00, the attitude was considered to be positive.

In the next phase of the data analysis, frequencies for numbers of visually and hearing handicapped students reported to be enrolled in regular and special needs classes during 1975-76 were ascertained by counting responses to the appropriate items on page 2 of the VTAI. Mean scores were then obtained for the six vocational service areas for the twelve semantic differential items on page 3 of the VTAI by using the Condescriptive Program of the Statistical Package for the Social Sciences. Finally, data from the Likert-type items were analyzed by employing the BMD 08M program. After considering other possible methods of statistical treatment, factor analysis was deemed by this researcher to be the most appropriate statistical tool with which to analyze the data pertaining to the four hypotheses. This decision was reached in part because of the following attributes of factor analysis discussed by Nie, et al. (1975):

1. It allows for the construction of indices to be used in later analyses.
2. It allows for the testing of hypotheses about the structuring of variables in terms of the expected number of significant factors and factor loadings.
3. It allows for the exploration and detection of patterning of variables with a view to the discovery of new concepts and a possible reduction of data.

This researcher deemed it desirable to divide the factor analysis into two separate facets--one for visually handicapped items and the other for hearing handicapped items on the Likert portion of the VTAI. The factoring solution chosen was that of principal component analysis. The following procedure was undertaken for both facets of the analysis:

1. The correlation matrix was prepared by performing the following operations:

    a. Means and standard deviations for the twenty-nine appropriate items on the VTAI were obtained
    b. A 29 x 29 correlation matrix between items was prepared.

2. The initial inferred factors were extracted by performing the following operations with ones in the diagonals of the correlation matrix:

    a. Eigenvalues were determined
    b. The cumulative proportion of the total variance for the twenty-nine items was determined
    c. The estimated and final communality of the twenty-nine items was determined
    d. A 29 x 6 factor matrix before rotation was determined.

3. A varimax rotation of six factors to a terminal solution was performed after several trials with other numbers of factors. The six factor solution offered the most plausible interpretation while accounting for a major portion of the total variance (See Tables 5 and 6).

Table 5. Rotated Factor Matrix for Hearing Factors

Likert Item #	Factor* 1	2	3	4	5	6
13	.47	.01	-.13	-.21	-.19	-.02
14	.49	-.06	-.38	-.05	.08	-.18
15	-.53	.04	.13	.28	.21	-.22
16	.80	-.11	-.18	.12	-.05	-.01
17	-.14	.04	.14	.12	.84	-.08
18	-.19	.04	.03	.05	.86	-.04
19	-.07	-.09	.13	.07	.87	-.05
20	.76	.11	-.09	-.04	-.05	.05
21	-.56	-.30	-.08	.16	.19	-.16
22	.73	.20	-.00	-.20	-.07	.04
23	.45	.05	-.06	-.11	-.29	-.26
24	.73	.18	-.00	-.16	-.09	.01
26	.09	.03	.04	.89	.03	.03
28	.21	.02	.05	-.81	-.02	-.11
30	-.19	.09	-.02	.70	.13	-.08
31	.03	.03	.06	.04	.02	.81
32	-.01	.17	-.11	-.07	.19	-.63
33	-.16	-.18	-.26	.55	.08	.23
34	-.24	-.57	-.10	.04	.03	-.13
35	.36	.61	.03	.13	.09	-.08
36	.21	.59	.11	.06	-.03	-.16
40	.11	-.85	.19	.08	-.05	-.07
41	.02	-.79	.27	.06	-.10	-.06
42	-.16	.76	-.11	.07	-.14	-.15
44	-.17	-.03	.69	-.07	.04	.13
45	.06	.09	-.72	.06	-.10	-.21
47	-.08	-.05	.67	.13	-.01	-.17
49	-.08	.29	-.58	-.07	-.13	-.16
51	-.09	-.01	.74	-.18	.08	-.04

*1. Attitude toward integration as it pertains to my classes
2. Willingness to work with resource and support personnel
3. Potential for success of hearing handicapped in the world of work
4. Personal adequacy
5. Opinion on success of methods to cope with hearing problems
6. Attitude toward individualization

Table 6. Rotated Factor Matrix for Visual Factors

Likert Item #	Factor* 1	2	3	4	5	6
1	-.67	.05	-.03	.15	-.21	-.10
2	-.72	-.01	-.16	-.05	.08	-.23
3	.19	-.15	.25	-.42	.49	-.27
4	-.78	.01	-.11	-.07	-.12	.04
5	.06	-.07	.17	-.19	.91	.01
6	.03	-.08	.12	-.17	.91	-.02
7	.04	-.15	.18	-.16	.91	.06
8	-.80	.18	-.08	.09	.03	.16
9	.16	-.06	.12	-.34	.52	-.20
10	-.83	.23	.00	.23	.01	.14
11	-.73	.07	.03	.10	-.06	-.10
12	-.81	.25	.02	.18	-.10	.07
25	-.10	-.04	.14	-.77	.16	.03
27	-.40	.16	.18	.66	-.14	-.18
29	.05	-.02	.14	-.69	.37	-.11
31	-.01	-.09	.03	-.09	.04	.68
32	.03	.21	-.20	.17	.12	-.59
33	.21	-.21	-.20	-.65	.17	.19
34	.24	-.59	-.05	-.15	.08	-.08
35	-.27	.67	-.00	-.01	-.12	-.17
36	-.20	.64	.14	-.00	-.18	-.24
37	-.09	-.78	.34	-.17	.05	.12
38	-.06	-.73	.42	-.17	.07	.12
39	-.33	.55	.17	-.19	.03	-.45
43	.19	-.06	.71	.01	.21	.21
46	-.59	.06	-.19	-.28	.01	-.50
48	.11	-.04	.73	-.15	.13	.01
50	-.55	.19	-.10	-.19	.05	-.47
52	.03	-.07	.80	.12	.18	.04

*1. Attitude toward integration as it pertains to my classes
2. Willingness to work with resource and support personnel
3. Potential for success of hearing handicapped in the world of work
4. Personal adequacy
5. Opinion on success of methods to cope with hearing problems
6. Attitude toward individualization

a. Factor score coefficients were determined

b. Factor scores were determined for each respondent.

4. Factor scores were used to determine correlation coefficients between the thirty-two variables and six factors on the VTAI. The following steps were involved:

a. Means and standard deviations for the thirty-two variables were determined

b. A 32 x 32 correlation matrix for the thirty-two variables was obtained

c. A 32 x 6 correlation matrix for the variables and factor scores was obtained.

5. A critical values table was consulted to determine the critical value for correlation coefficients for 154 respondents and an alpha level of .05. The critical value was found to be .16.

For 154 subjects, a correlation coefficient of .16 is significant at the .05 level of probability. The significant coefficients in the two 32 x 6 correlation matrices were especially important to the outcomes of this study. Of these 384 coefficients, thirty-nine were statistically significant. However, with this number of statistical tests, the possibility of Type I errors had to be considered. Since answering most of the research questions required the inspection of six to eight coefficients and the probability of committing no more than one Type I error in seven tests is over .95, this researcher decided, conservatively, that at least

three significant coefficients would be required in a group of six to eight coefficients to answer a research question or to reach other conclusions.

Finally, responses to the open-ended questions concerning strategies that have been found to be successful in integrating visually, hearing, and other types of handicapped students into regular classes were analyzed. Each suggested strategy was first recorded. The list was then scrutinized and duplicate suggestions were eliminated. The particular vocational service area(s) from which each suggestion was made was then noted by placing a check mark in the appropriate column. Suggestions made by a majority of vocational service areas for each type of handicap were identified by placing an asterisk to the right of those suggestions which qualified.

SUMMARY

The population which was sampled included secondary vocational and pre-vocational teachers in Virginia. A proportional, stratified random sample of teachers was selected according to vocational service area. The sub-samples included teachers of Agricultural, Business, Distributive, Home Economics, Industrial Arts, and Vocational-Industrial Education.

The VTAI was constructed to gather data concerning the numbers of hearing and visually handicapped students in regular vocational and pre-vocational classes in Virginia, to examine attitudes of vocational

and pre-vocational teachers toward characteristics of visually and hearing handicapped students and toward their integration into regular classes, and to obtain suggested strategies for the integration of visually and hearing handicapped students into regular secondary vocational and pre-vocational classes. The VTAI was pilot tested on practicing vocational and pre-vocational teachers and appropriate alterations made where deemed necessary. Division superintendents were then contacted to request approval to survey teachers under their jurisdiction.

The VTAI was mailed and a 67 percent rate of response was achieved. Once the responses had been received, the data analyses were performed. First, the general nature of attitudes toward integrating hearing and visually handicapped students into regular vocational and pre-vocational classes was determined by noting the mean score and direction of each Likert item. Then, frequencies for numbers of visually and hearing handicapped students reported to be enrolled in regular and special needs classes during 1975-76 were ascertained by counting responses to the appropriate items on page 2 of the VTAI.

Mean scores were obtained by vocational service area for the twelve semantic differential items on page 3 of the VTAI. The Condescriptive program from the Statistical Package for the Social Sciences was used to perform the calculations.

Data from the Likert-type items pertaining to the hypotheses were analyzed by employing the BMD 08M program. The factor analysis

was divided into two separate portions--one for items which pertained to the hearing handicapped and the other for visually handicapped items. Factor scores were obtained for each participant. Correlation coefficients were then obtained for variables and factor scores. The correlation coefficients were finally examined to ascertain which ones were significant.

Responses to the open-ended questions were finally analyzed. Each suggested strategy was recorded. The list was then scrutinized and duplicate suggestions were eliminated. The vocational service area(s) which made each suggestion was then noted. Suggestions which were made by a majority of vocational service areas were indicated by placing an asterisk to the right of the appropriate suggestions.

Chapter 4

PRESENTATION OF DATA AND ANALYSIS OF RESULTS

The primary purpose of this chapter is to present the findings of the study. To reiterate, the central concern of this investigation was to examine the attitudes of secondary vocational and pre-vocational teachers in Virginia toward integrating visually and hearing handicapped students into regular vocational and pre-vocational classes. Seven research questions and four hypotheses were formulated to deal more specifically with this concern.

First, data concerning the general nature of attitudes relative to the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes are presented. Then, the analysis of data is presented relative to each of the four hypotheses. Next, data concerning the remaining research questions which were not stated as null hypotheses are presented. Other results which do not coincide with research questions or with hypotheses are then shown. Finally, responses to the three open-ended questions are analyzed.

ATTITUDES TOWARD INTEGRATION

The general nature of the attitudes of vocational and pre-vocational teachers in Virginia toward integrating visually and

hearing handicapped students into regular vocational and pre-vocational classes is examined initially. Refer to Tables 7 and 8 for this data. The reader is reminded that the Likert items #1-24 on the VTAI concerned respondents' attitudes toward integration in general and as it pertained to their own classes in particular. For hearing items, negative attitudes were expressed by teachers in the six vocational service areas on three of twelve statements. For visual items, ten positive and two negative attitudes were expressed.

Likert items #25-34 concerned respondents' perceptions toward their own competencies to teach the visually and hearing handicapped. For hearing items, three positive and four slightly negative attitudes were expressed by respondents from the six vocational service areas. For visual items, six positive attitudes and one negative attitude were expressed.

Items #35-42 pertained to the respondents' willingness to work with resource and support personnel. For hearing handicapped items, five positive and no negative attitudes were expressed. For visual items, four positive attitudes and one negative attitude were expressed.

Items #43-52 pertained to attitudes toward the potential for success in the world of work. For hearing items, five positive and no negative attitudes were expressed. For visual items, five negative attitudes were expressed.

The following statements are made relative to the data presented above:

Table 7. Mean Scores for Hearing Items on Likert Portion of Questionnaire

Item #	Positive or Negative Statement	Mean Score	Positive or Negative Attitude	Portion of Questionnaire
13	negative	3.04	negative	Respondents' attitudes toward integration in general and as it pertains to their regular classes.
14	negative	4.17	positive	
15	positive	3.78	negative	
16	negative	3.56	positive	
17	positive	2.96	positive	
18	positive	2.93	positive	
19	positive	2.88	positive	
20	negative	3.72	positive	
21	positive	3.33	positive	
22	negative	2.73	negative	
23	negative	3.95	positive	
24	negative	3.68	positive	
26	positive	4.09	negative	Respondents' attitudes toward their own competencies to teach the visually and hearing handicapped.
28	negative	2.78	negative	
30	positive	4.00	negative	
31	positive	2.37	positive	
32	negative	4.46	positive	
33	positive	3.55	positive	
34	positive	2.78	positive	
35	negative	4.30	positive	Respondents' willingness to work with resource and support personnel.
36	negative	4.13	positive	
40	positive	2.18	positive	
41	positive	2.13	positive	
42	negative	4.85	positive	
44	positive	2.10	positive	Respondents' attitudes toward perceived potential for success in world of work.
45	negative	5.13	positive	
47	positive	2.67	positive	
49	negative	4.93	positive	
51	positive	2.17	positive	

Table 8. Mean Scores for Visual Items on Likert Portion of Questionnaire

Item #	Positive or Negative Statement	Mean Score	Positive or Negative Attitude	Portion of Questionnaire
1	positive	2.97	positive	Respondents' attitudes toward integration in general and as it pertains to their regular classes.
2	negative	4.07	positive	
3	positive	3.70	negative	
4	negative	3.48	negative	
5	positive	2.86	positive	
6	positive	2.83	positive	
7	positive	2.78	positive	
8	negative	3.61	positive	
9	positive	3.23	positive	
10	negative	3.62	positive	
11	negative	3.82	positive	
12	negative	3.57	positive	
25	negative	3.99	positive	Respondents' attitudes toward their own competencies to teach the visually and hearing handicapped.
27	positive	2.73	positive	
29	negative	3.93	positive	
31	positive	2.34	positive	
32	negative	4.46	positive	
33	positive	3.51	negative	
34	positive	2.74	positive	
35	negative	4.32	positive	Respondents' willingness to work with resource and support personnel.
36	negative	4.14	positive	
37	positive	2.11	positive	
38	negative	2.08	negative	
39	negative	4.77	positive	
43	negative	2.06	negative	Respondents' attitudes toward perceived potential for success in the world of work.
46	positive	5.01	negative	
48	negative	2.63	negative	
50	positive	4.81	negative	
52	negative	2.14	negative	

1. Respondents expressed mixed attitudes toward integration in general and as it pertains to their regular classes for both the visually and hearing handicapped.

2. Respondents expressed mixed positive attitudes toward their own competencies to teach the visually and hearing handicapped.

3. Respondents expressed generally positive attitudes toward their willingness to work with resource and support personnel in order to program effectively for teaching both hearing and visually handicapped students.

4. Respondents expressed positive attitudes toward the perceived potential for success in the world of work for hearing handicapped students, but they expressed negative attitudes concerning the potential for success in the world of work of the visually handicapped.

RESULTS FROM TESTING OF HYPOTHESES

In this section, each hypothesis is stated followed by an explanation of whether or not it was retained. They were originally stated on pages 6 and 7 and are derived from research questions #2-5. The reader is reminded that correlation coefficients are considered significant only if three or more correlation coefficients of .16 or above are situated vertically or horizontally in a group of factors or variables (see discussion on page 64). In Table 9, the variables are located to the left and the factors are situated across the top. Factors #5 and #6 are not shown there since they are not necessary in the consideration of any of the hypotheses.

Table 9. Correlation Coefficients Between Variables 1-6 and Factors 1-4

VARIABLES: Responses from Teachers in	FACTORS 1 Attitudes Toward Integration for		2 Willingness to Work with Resource and Support Personnel		3 Perceived Potential for Success in World of Work		4 Personal Adequacy	
	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped
1. Agricultural Education	.06582	-.05254	-.11367	-.13328	-.06616	-.05296	.00685	.04144
2. Business Education	.04276	-.03458	-.04795	-.05615	-.02719	.04644	-.08030	.06719
3. Distributive Education	.10453	-.03847	.04555	.05801	.08115	.03742	-.13807	.13530
4. Home Economics Education	-.04222	.01611	.03366	.04310	.00423	.00467	-.06352	.00939
5. Industrial Arts Education	-.04813	.04733	.18075*	.17052*	-.06429	-.04928	.01420	-.05125
6. Vocational-Industrial Education	-.06324	.03730	-.07814	-.06529	.09437	.01672	.17423*	-.10376

*Signifies a correlation coefficient of .16 or above

Hypothesis one:

No difference exists between teachers in the six vocational service areas in their attitudes toward the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes and their own regular classes. No correlation coefficients .16 or above exist for Factor #1 (attitude toward integration) and Variables #1-6 (vocational service area). Consequently, the data suggest the retention of hypothesis one. Refer to Table 9 in considering results of this hypothesis.

Hypothesis two:

No difference exists between teachers in the six vocational service areas in their attitudes toward willingness to work with resource and support personnel in order to program effectively for the instruction of the visually and hearing handicapped in regular vocational and pre-vocational classes. Since only two correlation coefficients of .16 or above exist for Factor #2 (willingness to work with resource and support personnel) and Variables #1-6 (vocational service areas), the data support the retention of hypothesis two. Refer to Table 9 in considering results of this hypothesis.

Hypothesis three:

No difference exists between teachers in the six vocational service areas in their attitudes toward the potential for success of the hearing and visually handicapped in the world of work. Since no correlation coefficients of .16 or above are found for Factor #3

(perceived potential for success in world of work) and Variables #1-6 (vocational service areas), the data support the retention of hypothesis three. Refer to Table 9 in considering results of this hypothesis.

Hypothesis four:

No difference exists between teachers in the six vocational service areas in attitudes toward their own competencies to teach the visually and hearing handicapped in regular vocational and pre-vocational classes. Since only one correlation coefficient of .16 or above is located for Factor #4 (personal adequacy) and Variables #1-6 (vocational service area), hypothesis four is retained. See Table 9 for a detailed breakdown of the results which supported the retention of this hypothesis.

ADDITIONAL RESEARCH QUESTIONS

Two research questions which were not re-stated as research hypotheses are considered here. Research question one asks: What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward the visually and hearing handicapped? Mean scores for the semantic differential items are shown in Table 10 on page 76. The scores range from 1 to 7, with 1 to 3.99 being interpreted as favorable and 4 to 7 as unfavorable attitudes. For the most part, mean scores were between 1 and 3.99. Teachers of Agricultural Education had the highest mean score on ten of the twelve items and had a mean score of 4.545 on the coordinated-awkward item of the VTAI.

Table 10. Mean Scores on Responses to Semantic Differential Regarding Perceptions of Characteristics of the Visually and Hearing Handicapped

	Agricultural Education	Business Education	Distributive Education	Home Economics Education	Industrial Arts Education	Vocational-Industrial Education
Visually Handicapped						
1. Coordinated	4.545*	2.755	3.357	3.200	3.286	3.095
2. Intelligent	3.000	1.585	1.857	1.867	2.607	2.238
3. Achievers	2.273	1.981	2.500	2.100	2.643	2.381
4. Mature	3.273	2.189	2.143	2.200	2.571	2.286
5. Teachable	2.000	1.509	1.500	1.433	1.964	1.810
6. Well-behaved	2.364	1.547	1.786	1.767	2.107	2.048
Hearing Handicapped						
1. Coordinated	2.727	2.208	2.286	2.367	2.500	2.762
2. Intelligent	2.545	1.755	1.214	1.667	2.500	2.429
3. Achievers	2.818	2.170	2.249	1.967	2.429	2.405
4. Mature	3.000	2.057	2.143	1.933	2.500	2.310
5. Teachable	2.000	1.509	1.714	1.267	1.857	1.810
6. Well-behaved	2.364	2.019	1.929	2.033	2.321	2.143

Interpretation of Mean Scores

1-3 = favorable
4-7 = unfavorable

*Signifies a negative attitude

Research question seven asks: To what extent are hearing and visually handicapped students who are enrolled in vocational and pre-vocational programs in Virginia attending regular classes? The data from the current enrollment questions generated by respondents are presented in Table 11. The highest number of visually handicapped students reported to be enrolled in regular vocational and pre-vocational classes during 1975-76 was in Business Education. In addition, both Home Economics and Vocational-Industrial Education teachers reported the highest number of hearing handicapped students in regular vocational and pre-vocational classes during the same year. One respondent indicated that he instructed a visually handicapped student in a segregated class and no respondents reported teaching a hearing handicapped student in a segregated class.

OTHER RESULTS

Four other findings not stated as research questions or as hypotheses to be tested became evident upon inspecting the two correlation matrices between thirty-two variables and six factors. Data relevant to these results are found in Table 12 on page 79. First, look at Factor #5 of hearing and visual (opinion on success of methods to cope with hearing/visual problems) and Variable #6 (Vocational-Industrial Education). Next, look at Factor #6 of visual (attitude toward individualization) and Variable #6 (Vocational-Industrial Education). Finally, look at Factor #4 of hearing (personal adequacy) and Variable #6 (Vocational-Industrial

Table 11. Numbers of Visually and Hearing Handicapped Students Taught By Respondents During 1975-76

Service Area	Visually Handicapped in Regular Class	Hearing Handicapped in Regular Class	Visually Handicapped in Special Class	Hearing Handicapped in Special Class
Agricultural Education	1	0	0	0
Business Education	8	3	1	0
Distributive Education	0	4	0	0
Home Economics Education	3	8	0	0
Industrial Arts Education	4	4	0	0
Vocational-Industrial Education	4	8	0	0
Total	20	27	1	0

Table 12. Correlation Coefficients for Variables 7-32 and 6 Factors

VARIABLES	1 Attitudes Toward Integration for		2 Willingness to Work with Resource and Support Personnel		3 Perceived Potential for Success in World of Work		4 Personal Adequacy		5 Opinions of Success of Methods to Cope with Hearing/Visual Problems		6 Attitude Toward Individualization	
	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped
6. Vocational-Industrial Education	-.06324	.06529	-.07814	-.06524	.09437	.01672	.17423*	-.10376	.19379*	.17922*	.07419	.16377*
7. Level	-.05705	.07842	-.03926	-.02440	.06200	.03261	-.01859	.03054	-.00520	-.01592	.09671	.07348
8. Sex	-.01102	.00593	.07606	.06197	-.05681	-.09059	.15288	.15689	.02312	-.00876	.08978	.09067
9. Rural	.00063	-.07835	-.14641	-.15116	-.07487	-.02426	.13062	.11059	.04988	.10261	-.16921*	-.13030
10. Urban	.10788	-.06727	.21812*	.19982*	.02571	.01182	-.09940	.06596	-.03963	-.06492	.18141*	.14901
11. Suburban	-.07476	.14186	-.01867	.01369	.04394	-.00729	-.06566	.07350	-.02055	-.06524	.02170	.01291
12. Years of experience in vocational education	.05081	-.06203	.03041	-.00971	-.04297	-.05320	.04709	-.03879	.10502	.11814	.06295	.07657
13. Years experience teaching hearing handicapped students in segregated classes	.18944*	-.12150	-.02893	-.00604	-.00851	-.04797	-.06958	.06957	-.09086	-.09614	.15957	.19772*
14. Years experience teaching visually handicapped students in segregated classes	.18132*	-.09246	-.03009	.01407	-.00023	-.05568	.01650	.00102	-.06045	-.08408	.11679	.18650*
15. Years experience teaching hearing handicapped students in regular classes	.26589*	-.22325*	.08640	.06066	-.16851*	-.14427	.02417	-.06198	-.18700*	-.17197*	.05807	.08190
16. Years experience teaching visually handicapped students in regular classes	.20939*	-.08740	.07085	.05224	-.09823	-.14296	.01079	.00312	-.13979	-.16681*	.04238	.12469
17. Number of visually handicapped students taught in regular classes during 1975-76	.01224	.06987	-.08988	.03645	.14401	.09395	.04647	.01318	.05481	-.00861	.05785	.10048
18. Number of hearing handicapped students taught in regular classes during 1975-76	.02858	-.09011	.06773	.02043	-.10141	-.00670	-.08685	.03956	-.08801	-.02148	-.13536	-.13728

Table 12. (continued)

	VARIABLES	1 Attitudes Toward Integration for		2 Willingness to Work with Resource and Support Personnel		3 Perceived Potential for Success in World of Work		4 Personal Adequacy		5 Opinions of Success of Methods to Cope with Hearing/Visual Problems		6 Attitude Toward Individualization	
		Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped	Hearing Handicapped	Visually Handicapped
	19. Number of visually handicapped students taught in segregated classes during 1976-76	.03317	-.06142	.08953	.04752	-.04683	-.00056	-.08538	.05601	-.06968	-.02648	-.07468	.07899
	20. Number of hearing handicapped students taught in segregated classes during 1975-76	-.02886	-.02044	.00665	-.02915	-.01273	-.03017	-.02773	.01316	-.03705	.00552	-.06529	-.07033
Visually Handicapped	21. Coordinated	-.14108	.21064*	.15270	.13763	.22736*	.08054	.02238	.04851	.01585	.01933	-.07805	.01040
Visually Handicapped	22. Intelligent	-.03372	.08987	.04919	.05395	.12210	.04565	-.02931	.03152	-.01372	-.05249	.05971	.08076
Visually Handicapped	23. Achievers	-.08479	.14663	.03940	.02245	.07383	-.03611	-.06652	.10848	.05529	.01845	-.03312	.00268
Visually Handicapped	24. Mature	-.09771	.13660	.00732	.01037	.18525*	.07977	-.01120	.05734	.06381	.02004	.02120	.05826
Visually Handicapped	25. Teachable	-.03990	.09388	-.05494	-.03153	.12543	.02660	.07556	-.02689	.11977	.02730	.06960	.11654
Visually Handicapped	26. Well-behaved	.07451	.00871	.01053	-.01001	.12413	.06693	-.11797	.14023	.02434	-.02385	-.05779	.02833
Hearing Handicapped	27. Coordinated	-.06915	.14190	.08159	.11651	.28900*	.27670*	-.04292	.07530	.08286	.06094	-.04392	.01592
Hearing Handicapped	28. Intelligent	-.02860	.11548	.05823	.10812	.22900*	.19259*	.01199	.03114	.10661	.07032	.00829	.03291
Hearing Handicapped	29. Achievers	-.02113	.10196	.10753	.14007	.24233*	.21323*	.03101	.02221	.05432	.04827	-.06939	-.00120
Hearing Handicapped	30. Mature	-.07991	.14254	-.05392	-.01939	.24102*	.19069*	-.01132	.07073	.08817	.06761	.02479	.04759
Hearing Handicapped	31. Teachable	-.04056	.10121	-.09810	-.03492	.22961*	.19299*	.11722	-.05804	.19215*	.10344	.09318	.10438
Hearing Handicapped	32. Well-behaved	.01451	.02670	.06588	.07149	.17783*	.18664*	-.07312	.11169	.06982	.05276	-.09046	-.05294

*Signifies a correlation coefficient of .16 or above

Education). Four correlations of .16 or above are found for Variable #6 (Vocational-Industrial Education). Corresponding to these findings, the following statements are made. Teachers of Vocational-Industrial Education, more so than teachers from the other five service areas, tended to express more positive attitudes toward:

1. Their personal adequacy to teach the hearing handicapped.
2. The success of methods to cope with hearing problems.
3. The success of methods to cope with visual problems.
4. Their ability to individualize instruction for the visually handicapped.

Refer again to Table 12. Look at Factor #1 of hearing (attitude toward integration) and Variables #13-16 (years of experience in teaching hearing handicapped students in regular and segregated classes). Four correlations of .16 or above are found in this group. Corresponding to this finding, one can state that those teachers with more experience instructing hearing handicapped students tended to express more positive attitudes toward the integration of hearing handicapped students into regular vocational and pre-vocational classes.

Next, refer again to Table 12. Look at Factor #3 of hearing and visual (attitude toward potential for success in the world of work) and Variables #27-32 (attitudes toward personal characteristics of the hearing handicapped). Twelve correlation coefficients of .16 or above are found. Corresponding to this finding, one can state that those who responded negatively concerning attitudes toward

selected characteristics of the hearing handicapped tended to express more negative attitudes toward the potential for success in the world of work for the hearing handicapped. Those teachers, however, tended to express more positive attitudes toward the potential for success in the world of work for the visually handicapped.

Finally, refer again to Table 12. Look at Variable #15 (years experience teaching hearing handicapped in regular classes). Then look at Factor #1 of hearing and visual (attitude toward integration), Factor #3 of hearing (potential for success in world of work), and Factor #5 of hearing and visual (success of methods to cope with hearing/visual problems). Five correlation coefficients of .16 or above are found. Consequently, the following statement is made: Those teachers with more experience teaching the hearing handicapped in regular classes tended to express more favorable attitudes toward:

1. The integration of hearing handicapped students into regular vocational and pre-vocational classes.

2. The potential for success in the world of work of the hearing handicapped.

3. The success of methods to cope with hearing problems.

4. The success of methods to cope with visual problems.

5. The integration of visually handicapped students into regular vocational and pre-vocational classes.

OPEN-ENDED QUESTIONS

Suggestions given by respondents of strategies which they have found to be helpful in the integration of hearing, visually, and other types of handicapped students into regular vocational and pre-vocational classes are presented here. Table 13 shows suggestions for hearing handicapped students; Table 14 shows suggestions for visually handicapped students; Table 15 shows suggestions for other types of handicapped students. In each table, suggested strategies are presented at the left and the six vocational service areas are displayed at the right. A check mark (✓) is placed under each vocational service area which made a particular suggestion and an asterisk is located to the right of each suggestion which was made by a majority of the vocational service areas.

The reader is reminded that only 17 percent of the respondents answered the open-ended questions. Response was limited by the fact that only participants with experience in integrated settings were asked to respond to them.

SUMMARY

This chapter contained the presentation of data and results of the analysis. The analysis of results concerning the general nature of attitudes toward the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes indicated that:

Table 13. Suggested Strategies for Integrating Hearing Handicapped Students Into Regular Classes

Suggestion	AE	BE	DE	HEE	IAE	VIE
Talk directly to them during class discussion		✓				
Talk individually to each one while he is doing assigned work		✓	✓			
Place student near the teacher *	✓	✓		✓	✓	✓
Use individualized instruction		✓		✓	✓	
The strategy should vary with each student					✓	
Be more patient					✓	
Encourage other students to help them *	✓		✓	✓	✓	
Explain to other students how they can be of help					✓	
Don't rely too heavily on instructional materials requiring the ability to hear	✓					
Turn up the volume on audio equipment	✓					
Learn what the handicap is and do what is necessary to give the student a chance	✓					
Speak distinctly		✓				
Use a chalkboard as much as possible		✓				
Teach and treat them the same as other students						✓
Use many visual aids						✓
Provide them with many hands-on experiences				✓		✓
Repeat key points or ideas several times				✓		
Keep students facing the teacher				✓		
Prepare special materials (did not specify)				✓		
Use a microphone (battery-powered)				✓		
Look directly at the students when speaking				✓		
Draw many diagrams and explain them				✓		
Consult with the hearing specialist				✓		

AE = Agricultural Education
BE = Business Education
DE = Distributive Education
HEE = Home Economics Education
IAE = Industrial Arts Education
VIE = Vocational-Industrial Education

✓ = Suggestion made by respondent from the service area
* = Signifies a suggestion made by a majority of vocational service areas

Table 14. Suggested Strategies for Integrating Visually Handicapped Students Into Regular Classes

Suggestion	AE	BE	DE	HEE	IAE	VIE
Let other students help them *	✓	✓		✓	✓	
Give them books with large print		✓				
Give them individual help		✓				
Use individualized instruction		✓		✓		
Make assignments orally		✓				
Vary the strategy with each student					✓	
Be more patient				✓	✓	
Explain to the rest of the class how they can be of help					✓	
Seat them at the front of the room	✓		✓		✓	
Teach them as much as possible like normal students, but still give them special attention					✓	
Be sure that lighting is adequate	✓					
Make changes in instructional materials (did not specify)	✓			✓		
Learn what the handicap is and do what is necessary to give them a chance	✓					
Use as many hand-outs as possible, rather than writing on a chalkboard			✓			
Place them on projects where they can perform safely						✓
Make safety an important part of the course						✓
Teach and treat them the same as other students						✓
Give them many hands-on experiences						✓
Use visual aids which have dark print						✓
Write very largely				✓		
Use heavy felt-tip pens				✓		
Use record books, etc.				✓		
Help students with basic skills				✓		
Tell students to feel everything				✓		

AE = Agricultural Education
BE = Business Education
DE = Distributive Education
HEE = Home Economics Education
IAE = Industrial Arts Education
VIE = Vocational-Industrial Education

✓ = Suggestion made by respondent from the service area
* = Signifies a suggestion made by a majority of vocational service areas

Table 15. Suggested Strategies for Integrating Other Types of Handicapped Students Into Regular Classes

Suggestion	AE	BE	DE	HEE	IAE	VIE
Instructor should go slowly		✓				
Be firm in making students do assigned work		✓				
Individualize instruction						✓
Seat them at the front of the room						✓
Be sure they understand what they are to do						✓
Help them to feel they are an important part of the class						✓
Use many visual aids						✓
Give them many hands-on experiences						✓
Make equipment modifications (did not specify)				✓		
Have simple projects				✓		
Repeat main points				✓		
Evaluate by observing--rathering than by testing				✓		
Find a good work partner for each one				✓		
Use oral evaluations				✓		

AE = Agricultural Education
BE = Business Education
DE = Distributive Education
HEE = Home Economics Education
IAE = Industrial Arts Education
VIE = Vocational-Industrial Education

✓ = Suggestion made by respondent from the service area

1. Respondents expressed mixed attitudes toward integration in general and as it pertains to their regular classes for both the visually and hearing handicapped.

2. Respondents expressed mixed attitudes toward their own competencies to teach the visually and hearing handicapped.

3. Respondents expressed generally positive attitudes toward their willingness to work with resource and support personnel in order to program effectively for teaching both hearing and visually handicapped students.

4. Respondents expressed positive attitudes toward the perceived potential for success in the world of work for hearing handicapped students, but they expressed negative attitudes concerning the potential for success in the world of work for the visually handicapped.

Data analysis supported the retention of all four hypotheses. They were as follows:

Hypothesis one:

No difference exists between teachers in the six vocational service areas in their attitudes toward the integration of hearing and visually handicapped students into regular vocational and prevocational classes and their own regular classes.

Hypothesis two:

No difference exists between teachers in the six vocational service areas in their attitudes toward willingness to work with

resource and support personnel in order to program effectively for the instruction of the visually and hearing handicapped in regular vocational and pre-vocational classes.

Hypothesis three:

No difference exists between teachers in the six vocational service areas in their attitudes toward the potential for success of the hearing and visually handicapped in the world of work.

Hypothesis four:

No difference exists between teachers in the six vocational service areas in attitudes toward their own competencies to teach the visually and hearing handicapped in regular vocational and pre-vocational classes.

Four results were found which had not been hypothesized:

1. Teachers of Vocational-Industrial Education, more so than teachers from the other five service areas, tended to express more positive attitudes toward:

    a. Their personal adequacy to teach the hearing handicapped.
    b. The success of methods to cope with hearing problems.
    c. The success of methods to cope with visual problems.
    d. Their ability to individualize instruction for the visually handicapped.

2. Those teachers with experience instructing hearing handicapped students tended to express more positive attitudes toward

the integration of the hearing handicapped into regular vocational and pre-vocational classes.

3. Those teachers who expressed negative attitudes concerning selected characteristics of the hearing handicapped tended to express negative attitudes toward the potential for success in the world of work of the hearing handicapped. Those teachers, however, tended to express positive attitudes toward the potential for success in the world of work for the visually handicapped.

4. Those teachers with more experience instructing hearing handicapped students in regular classes tended to express more favorable attitudes toward:

a. The integration of hearing handicapped students into regular vocational and pre-vocational classes.
b. The potential for success in the world of work of the hearing handicapped.
c. The success of methods to cope with hearing problems.
d. The success of methods to cope with visual problems.
e. The integration of visually handicapped students into regular vocational and pre-vocational classes.

Chapter 5

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

SUMMARY

Purpose of the Study

The central concern of this study was to examine attitudes of vocational and pre-vocational teachers in Virginia toward the integration of visually and hearing handicapped students into regular public school vocational and pre-vocational classes. More specifically, the following questions provided the major focus for the study:

1. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward the visually and hearing handicapped?

2. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia concerning the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes?

3. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward their own competencies to teach the visually and hearing handicapped in regular vocational and pre-vocational classes?

4. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward their willingness to work with resource and support personnel in order to program effectively for the instruction of the hearing and visually handicapped in regular vocational and pre-vocational classes?

5. What are the attitudes of secondary vocational and pre-vocational teachers in Virginia toward the potential for success of the visually and hearing handicapped in the world of work?

6. What are some strategies which have been found to be helpful by Virginia's vocational and pre-vocational teachers in integrating visually and hearing handicapped students into regular vocational and pre-vocational classes?

7. To what extent are hearing and visually handicapped students who are enrolled in vocational and pre-vocational programs in Virginia attending regular classes?

Research Methodology

The population which was sampled included secondary vocational and pre-vocational teachers in Virginia. A proportional stratified random sample of teachers was selected with the stratification and control variable being vocational service area. The sub-samples included teachers of Agricultural, Business, Distributive, Home Economics, Industrial Arts, and Vocational-Industrial Education. The Vocational Teachers Attitudinal Inventory was constructed to collect data pertaining to the research questions. The VTAI was then pilot

tested on practicing vocational teachers and appropriate alterations were made where considered necessary. Letters were then sent to division superintendents requesting their permission to survey vocational and pre-vocational teachers under their jurisdiction. The VTAI was mailed and a response rate of 67 percent was achieved.

The data analysis was conducted next. First, the general nature of respondents' attitudes toward the integration of hearing and visually handicapped into regular vocational and pre-vocational classes was examined by considering the mean score and direction of each Likert item on the VTAI. Then, frequencies for numbers of visually and hearing handicapped students reported to be enrolled in regular and special needs classes during 1974-75 were ascertained by counting responses to the appropriate items on page two of the VTAI. Thirdly, mean scores were determined by vocational service area for the twelve semantic differential items on page three of the VTAI by using the Condescriptive program from the Statistical Package for the Social Sciences. Fourthly, data from the Likert-type items pertaining to the four hypotheses were analyzed by employing the BMD 08M program. The factor analysis was divided into two separate portions--one for hearing handicapped items and one for visually handicapped items. Factor scores were obtained for each respondent. Correlation coefficients were then calculated for the variables and factor scores. A table of critical values was consulted to determine the significance level for correlation coefficients with 154 respondents and an alpha level of .05. The critical value was found to be .16. Finally,

responses to the open-ended questions were analyzed according to the following system: each suggested strategy was recorded; the list was then scrutinized and duplicate suggestions were eliminated; each vocational service area which made a particular suggestion was then noted; and, an asterisk was placed to the right of each suggestion which was made by a majority of service areas.

Results of the Study

The analysis of results concerning the general nature of attitudes toward the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes indicated that:

1. Respondents expressed mixed attitudes toward integration in general and as it pertains to their own regular classes for both the hearing and visually handicapped.

2. Respondents expressed mixed attitudes toward their own competencies to teach the visually and hearing handicapped.

3. Respondents expressed generally positive attitudes toward their willingness to work with resource and support personnel in order to program effectively for teaching both the visually and hearing handicapped.

4. Respondents expressed positive attitudes toward the potential for success in the world of work for hearing handicapped students, but they expressed negative attitudes concerning the visually handicapped.

The data supported the retention of all four research hypotheses.

The highest number of visually handicapped students reported to be in regular vocational and pre-vocational classes during 1975-76 was in Business Education. In addition, both Home Economics Education and Vocational-Industrial Education teachers reported the highest number of hearing handicapped students enrolled in regular vocational and pre-vocational classes during the same year. One respondent indicated that he was instructing a visually handicapped student in a segregated class, while no respondents reported teaching a hearing handicapped student in a segregated class.

On the twelve items of the semantic differential, attitudes were generally positive. Teachers of Agricultural Education had the highest mean score (poorest attitude) on ten items. They felt, in addition, that visually handicapped students are somewhat awkward.

Some other results, not originally hypothesized were also indicated by the correlation matrices between thirty-two variables and six factors. Thus, the following statements are warranted:

1. Teachers of Vocational-Industrial Education, more so than teachers from the other service areas, tended to express more positive attitudes toward:

    a. Their personal adequacy to teach the hearing handicapped.
    b. The success of methods to cope with hearing problems.
    c. The success of methods to cope with visual problems.

d. Their ability to individualize instruction for the visually handicapped.

2. Those teachers with more experience instructing hearing handicapped students tended to express more positive attitudes toward the integration of the hearing handicapped into regular vocational and pre-vocational classes.

3. Those teachers who expressed negative attitudes concerning selected characteristics of the hearing handicapped tended to express negative attitudes toward the potential for success in the world of work for the hearing handicapped. Those teachers, however, tended to express more positive attitudes toward the potential for success in the world of work for the visually handicapped.

4. Those teachers with more experience instructing hearing handicapped students in regular classes tended to express more favorable attitudes toward:

a. The integration of hearing handicapped students into regular vocational classes.

b. The potential for success in the world of work of the hearing handicapped.

c. The success of methods to cope with hearing problems.

d. The success of methods to cope with visual problems.

e. The integration of visually handicapped students into regular vocational and pre-vocational classes.

Strategies which teachers have found to be helpful in integrating hearing, visually, and other types of handicapped students

into regular vocational and pre-vocational classes were also examined. The following suggestions were made concerning hearing handicapped students by a majority of vocational service areas:

1. Place student near the teacher.
2. Encourage other students to help them.

One suggestion was offered pertaining to visually handicapped students by a majority of vocational service areas:

1. Let other students help them.

No suggestions concerning strategies for integrating other types of handicapped students were offered by a majority of vocational service areas.

CONCLUSIONS

The conclusions reached were based on the results of the study and, as such, were bound by the assumptions and limitations as stated in Chapter 1. The conclusions drawn were as follows:

1. Virginia's vocational and pre-vocational teachers hold similar mixed attitudes toward the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes.

2. Given that their sample data were limited, teachers of Agricultural Education hold less favorable attitudes toward selected characteristics of the hearing and visually handicapped than do respondents from the other vocational service areas.

3. The data indicated that most visually and hearing handicapped students who are enrolled in vocational and pre-vocational classes are apparently attending regular classes.

4. The data indicated that fewer visually handicapped than hearing handicapped students are apparently enrolled in vocational and pre-vocational classes.

5. Membership in Vocational-Industrial Education tends to be correlated with expressing more positive attitudes toward certain facets of integrating visually and hearing handicapped students into regular vocational and pre-vocational classes.

6. The expression of negative attitudes by teachers toward selected characteristics of the hearing handicapped influences their attitudes in a positive direction toward the potential for success in the world of work for the hearing handicapped, but influences their attitudes in a positive direction toward the potential for success in the world of work for the visually handicapped.

7. Experience teaching hearing handicapped students influences attitudes in a positive direction toward their integration into regular vocational and pre-vocational classes.

8. Experience teaching hearing handicapped students in regular classes influences attitudes in a positive direction toward selected facets of integrating hearing and visually handicapped students into regular vocational and pre-vocational classes.

9. Concerning suggested strategies for successfully integrating visually, hearing, and other types of handicapped students into regular vocational and pre-vocational classes in Virginia:

a. The strategies appear to be easily implemented.

b. Similar strategies do not appear to have been successful in all vocational service areas.

c. Most vocational and pre-vocational teachers appear to be unaware of the seemingly obvious strategies.

DISCUSSION

In this section, the researcher examines findings which he considers unexpected and offers some possible explanations for them. First, Agricultural Education teachers felt that visually handicapped students are somewhat awkward. This researcher's opinion is that, in the past, Agricultural Education has been one of the leaders in special needs courses. In addition, the sub-sample of Agricultural Education teachers was rather small. Furthermore, only eleven respondents from this service area completed the semantic differential section of the VTAI, which may have reduced the validity of the findings. Finally, only one Agricultural Education teacher indicated that he was teaching a visually handicapped student in an integrated or a segregated class and this lack of exposure to visually handicapped students may also have influenced this finding.

That teachers of Vocational-Industrial Education expressed more positive attitudes toward selected facets of integrating hearing and visually handicapped students into regular vocational and pre-vocational classes was quite unexpected. This vocational service area is the only one in Virginia which requires an extended period of work

experience in order to be certified. Perhaps these non-classroom, realistic experiences influenced these more optimistic attitudes which distinguished Vocational-Industrial Education teachers from the rest.

Those teachers with experience instructing hearing handicapped students in regular classes expressed more positive attitudes toward the integration of the visually handicapped into regular vocational and pre-vocational classes. This researcher speculates that the experiences of these teachers with hearing handicapped students were positive and that the positive attitudes formed may have been projected to the visually handicapped.

Those teachers who expressed negative attitudes concerning selected characteristics of the hearing handicapped also expressed positive attitudes toward the potential for success in the world of work for the visually handicapped. Many hearing handicapped individuals have difficulty acquiring the ability to think because they do not develop language. Most visually handicapped persons do develop thought because they can hear and develop language. This difference between the two handicapping conditions may have affected this result.

That teachers expressed negative attitudes toward the potential for success in the world of work was a great surprise to this researcher. One possible explanation might be that less visually than hearing handicapped students were reported to be in vocational

and pre-vocational classes and that teachers' original stereotypes of the visually handicapped have not yet been erased or that they have been reinforced by some negative experiences with those few students.

Finally, the limited quantity and scope of the strategies which have been found to be helpful in integrating hearing and visually handicapped students into regular vocational and pre-vocational classes was a disappointment to this researcher. So few teachers indicated experience in instructing visually, hearing, and other types of handicapped students and even fewer reported any training to work with them that a better response may have been impossible.

RECOMMENDATIONS

The study indicates some negative attitudes on the part of respondents from the six vocational service areas concerning selected characteristics of hearing and visually handicapped students and toward facets of their integration into regular vocational and pre-vocational classes. These disparities, however, are not of the proportion to justify a complete revision of existing vocational and pre-vocational teacher education programs by vocational service area. Consequently, the following long-term recommendations are offered to improve pre-service and in-service programs for vocational and pre-vocational teachers:

1. Colleges and universities which offer curricula in vocational and pre-vocational teacher preparation should require prospective teachers to take at least introductory course work in the exceptionalities and their implications for vocational education.

2. Colleges and universities which offer curricula in vocational and pre-vocational teacher preparation should expose prospective teachers to visually and hearing handicapped students through observations and practice teaching experiences.

3. School divisions which plan to integrate hearing and/or visually handicapped students into regular vocational and pre-vocational classes should sponsor in-service education programs to familiarize vocational and pre-vocational teachers with these two exceptionalities and their implications for education.

4. Experimental studies should be conducted in the six vocational service areas to help determine which modifications of equipment, facilities, and materials facilitate the successful integration of hearing and visually handicapped students into their regular vocational and pre-vocational classes.

5. Vocational and pre-vocational teachers who will teach hearing and/or visually handicapped students in regular vocational and pre-vocational classes should be required to demonstrate relevant competencies.

6. Colleges, universities, and local school divisions which offer preparatory or in-service education programs for teachers of

Agricultural Education should emphasize the development of more positive attitudes toward the visually and hearing handicapped.

This researcher would also like to offer a set of recommendations which apparently could be accomplished more quickly than those listed above to aid vocational and pre-vocational instructors to become better teachers of the visually and hearing handicapped. They are as follows:

1. Individualized study modules should be developed to enable teachers to cope with the special conditions found within vocational and pre-vocational classes designed to serve hearing and visually handicapped students.

2. The National Association of Vocational Education Special Needs Personnel should conduct sessions at an annual convention of the American Vocational Association concerning strategies for the integration of hearing and visually handicapped students into regular vocational and pre-vocational classes.

3. The Virginia Vocational Association should continue to support equal opportunity for the handicapped in vocational and pre-vocational classes by lobbying for relevant legislation in the Virginia General Assembly.

4. A more cooperative relationship between vocational education, special education, and rehabilitative agencies should be developed in Virginia to help generate strategies for successfully integrating hearing and visually handicapped students into regular vocational and pre-vocational classes.

5. If similar studies are conducted in the future, this researcher recommends that:

   a. Attitudes toward only one class of handicap be examined in a study.

   b. Differentiation be made between the differing degrees of that one handicap.

SUMMARY

This concluding chapter began with a summary of the study. Next, conclusions were drawn. Then, a discussion section was presented. Finally, short-term and long-term recommendations were offered with implications for taking appropriate measures to prepare vocational education personnel to work effectively with visually and hearing handicapped students.

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APPENDICES

APPENDIX A

DETERMINATION OF SAMPLE SIZE

Statistical Facts:

1. 5% = degree of freedom or margin of error
2. 1/10 = risk of exceeding acceptable margin of error
3. 50-50 = variability of population

$$n_o = \frac{t^2(s^2)}{d^2}$$

$$n_o = \frac{(1.65)^2(.50 \times .50)}{(.05)^2}$$

$$n_o = \frac{2.7225 \times .25}{.0025}$$

$$n_o = 272$$

$$n = \frac{n_o}{1 + \frac{N_o}{N}}$$

$$n = \frac{272}{1 + \frac{272}{5576}}$$

$$= \frac{272}{1 + .0487804}$$

$$= 259.3$$

t = risk of exceeding margin of error

s^2 = variance

d = margin of error

APPENDIX B

DETERMINATION OF SUB-SAMPLES

Area	Population	% of Total	# in Sub-Sample
Vocational-Industrial Education	1318	.2363701	62
Agricultural Education	384	.0688665	18
Distributive Education	426	.0763988	20
Business Education	1476	.2647058	69
Home Economics Education	1016	.1822094	47
Industrial Arts Education	956	.171449	45

APPENDIX C

SURVEY INSTRUMENT

ATTITUDES OF VIRGINIA VOCATIONAL TEACHERS TOWARD INTEGRATING THE VISUALLY AND HEARING HANDICAPPED

Part I - Sociodemographic Data

Directions: Please respond to the following items by placing a check (✓) in the appropriate place(s) or by listing the desired information.

Vocational Service Area:
- Agricultural Education ___
- Business Education ___
- Distributive Education ___
- Home Economics Education ___
- Industrial Arts Education ___
- Trade and Industrial Education ___

Academic Level on Which You Teach:
- Junior High/Middle/Intermediate School ___
- High School ___

Sex: Male ___ Female ___

Geographical Location: Rural ___ Urban ___ Suburban ___

Years Taught:

	0	1-5	6-10	11-15	16-20	21-25	Over 25
In Vocational Education							
Hearing Handicapped in Segregated Classes							
Visually Handicapped in Segregated Classes							
Hearing Handicapped in Regular Classes							
Visually Handicapped in Regular Classes							

TO BE ANSWERED ONLY BY THOSE WHO HAVE TAUGHT HEARING AND/OR VISUALLY HANDICAPPED STUDENTS. Please rank in the blanks to the left programs and/or experiences which best prepared you for your work with visually and/or hearing handicapped students. You need only rank those items which seem appropriate.

___ In-service program related to the handicapped sponsored by local school system
___ In-service program related to the handicapped sponsored by State Department
___ In-service program related to the handicapped sponsored by a college or university
___ College or university courses in Special Education, please specify

_____

___ College/university courses in _____ (specify area)
___ Intern teaching experience in handicapped programs
___ Your own readings on the handicapped
___ Consultants
___ Military experience
___ Other (business, industry, etc.) _____(specify)

Part II - Enrollment Status of Visually and Hearing Handicapped Students

Directions: The purpose of this section is to examine the number of hearing and visually handicapped students enrolled in vocational education programs in Virginia's public schools. Please place a check (✓) next to the appropriate response or list the information requested.

Do you have any visually handicapped students in your regular vocational courses? Yes __ No __ Uncertain __

If you checked "yes" for the question above, what is the total number? ___

Do you have any hearing handicapped students in your regular vocational courses? Yes __ No __ Uncertain __

If you checked "yes" for the question above, what is the total number? ___

Do you teach any visually handicapped students in a special needs course? Yes __ No __

If you checked "yes" for the question above, what is the total number? ___

Do you teach any hearing handicapped students in a special needs course? Yes __ No __

If you checked "yes" for the question above, what is the total number? ___

Part III - Attitudinal Inventory

Directions: The purpose of this section is to examine some of your attitudes toward the visually and hearing handicapped. This group of items will attempt to measure your perception of characteristics of hearing and visually handicapped students by judging them against a set of descriptive scales. Please make your judgements on the basis of what these characteristics mean to you. You will find two different handicapping conditions to be judged and beneath each a set of scales. You are to rate the characteristics on each of these scales. Please place your checks (✓) in the middle of spaces and don't omit any scales.

Example

If you feel that the concept is to one end of the scale, you would place your check as follows:

fair ✓ : ___ : ___ : ___ : ___ : ___ : ___ unfair

fair ___ : ___ : ___ : ___ : ___ : ___ : ✓ unfair

- - - - - - - - - - - - - - - - END DIRECTIONS - - - - - - - - - - - - - - - -

CHARACTERISTICS OF THE

A. Visually Handicapped

coordinated ___ : ___ : ___ : ___ : ___ : ___ : ___ awkward

intelligent ___ : ___ : ___ : ___ : ___ : ___ : ___ retarded

achievers ___ : ___ : ___ : ___ : ___ : ___ : ___ non-achievers

mature ___ : ___ : ___ : ___ : ___ : ___ : ___ immature

teachable ___ : ___ : ___ : ___ : ___ : ___ : ___ uneducable

well-behaved ___ : ___ : ___ : ___ : ___ : ___ : ___ disruptive

B. Hearing Handicapped

coordinated ___ : ___ : ___ : ___ : ___ : ___ : ___ awkward

intelligent ___ : ___ : ___ : ___ : ___ : ___ : ___ retarded

achievers ___ : ___ : ___ : ___ : ___ : ___ : ___ non-achievers

mature ___ : ___ : ___ : ___ : ___ : ___ : ___ immature

teachable ___ : ___ : ___ : ___ : ___ : ___ : ___ uneducable

well-behaved ___ : ___ : ___ : ___ : ___ : ___ : ___ disruptive

C. ATTITUDES TOWARD INTEGRATION IN GENERAL AND AS IT APPLIES TO MY PROGRAM IN PARTICULAR

Directions: This group of items contains statements which require you to indicate the direction and degree of feeling you have concerning the integration of visually and hearing handicapped students into regular classes. Encircle one of the symbols preceeding each of the following statements. In the box are the symbols and what they stand for.

SA = Strongly Agree
A = Agree
TA = Tend to Agree
TD = Tend to Disagree
D = Disagree
SD = Strongly Disagree

Example

If the same preparation is required, the female teacher should receive the same salary as the male. (SA) A TA TD D SD

- - - - - - - - - - - - - - - - END DIRECTIONS - - - - - - - - - - - - - - - -

1. Visually handicapped students should be taught in special classes. SA A TA TD D SD

2. Regular vocational students will feel uncomfortable if visually handicapped students are instructed in the same class. SA A TA TD D SD

3. Instructing visually handicapped students in regular classes will not place too many demands upon the regular teacher. SA A TA TD D SD

4. Placing visually handicapped students in regular classes will slow down the regular vocational classes. SA A TA TD D SD

5. With sufficient modifications of EDUCATIONAL MATERIALS, visually handicapped students can be successfully integrated into regular classes. SA A TA TD D SD

6. With sufficient modification of TEACHING PROCEDURES, visually handicapped students can be successfully integrated into regular classes. SA A TA TD D SD

7. With sufficient modification of FACILITIES and EQUIPMENT, visually handicapped students can be successfully integrated into regular classes. SA A TA TD D SD

8. The successful integration of visually handicapped students into my regular vocational classes would require too much modification of EDUCATIONAL MATERIALS. SA A TA TD D SD

9.	The successful integration of visually handicapped students into my regular vocational classes would not require more modification of TEACHING PROCEDURES than I am willing to make.	SA	A	TA	TD	D	SD
10.	The successful integration of visually handicapped students into my regular vocational classes would necessitate too much modification of FACILITIES and EQUIPMENT to be worth it.	SA	A	TA	TD	D	SD
11.	Integrating visually handicapped students into regular vocational classes will not be beneficial to them.	SA	A	TA	TD	D	SD
12.	Integrating visually handicapped students into regular vocational classes takes too much time away from regular vocational students.	SA	A	TA	TD	D	SD
13.	Hearing handicapped students should be taught in special classes.	SA	A	TA	TD	D	SD
14.	Regular vocational students will feel uncomfortable if hearing handicapped students are instructed in the same class.	SA	A	TA	TD	D	SD
15.	Instructing hearing handicapped students in regular classes will not place too many demands upon the regular teacher.	SA	A	TA	TD	D	SD
16.	Placing hearing handicapped students in regular classes will slow down the regular vocational students.	SA	A	TA	TD	D	SD
17.	With sufficient modification of EDUCATIONAL MATERIALS, hearing handicapped students can be successfully integrated into regular classes.	SA	A	TA	TD	D	SD
18.	With sufficient modification of TEACHING PROCEDURES, hearing handicapped students can be successfully integrated into regular classes.	SA	A	TA	TD	D	SD
19.	With sufficient modification of FACILITIES and EQUIPMENT, hearing handicapped students can be successfully integrated into regular classes.	SA	A	TA	TD	D	SD

20. The successful integration of hearing handicapped students into my regular vocational classes would require too much modification of EDUCATIONAL MATERIALS. SA A TA TD D SD

21. The successful integration of hearing handicapped students into my regular vocational classes would not require more modification of TEACHING PROCEDURES than I am willing to make. SA A TA TD D SD

22. The successful integration of hearing handicapped students into my regular vocational classes would require too much modification of FACILITIES and EQUIPMENT. SA A TA TD D SD

23. Integrating hearing handicapped students into my regular vocational classes will not be beneficial to them. SA A TA TD D SD

24. Integrating hearing handicapped students into my regular vocational classes will take too much time away from the regular vocational students. SA A TA TD D SD

D. PERCEPTIONS TOWARD YOUR COMPETENCY TO TEACH THE VISUALLY AND HEARING HANDICAPPED

25. I feel less than adequate to be able to diagnose the learning needs of visually handicapped students. SA A TA TD D SD

26. I feel adequate in my ability to diagnose the learning needs of hearing handicapped students. SA A TA TD D SD

27. I feel very competent in being able to identify and utilize appropriate teaching methods that will be beneficial to visually handicapped students. SA A TA TD D SD

28. I do not feel competent in being able to identify and utilize appropriate teaching methods that will be beneficial to hearing handicapped students. SA A TA TD D SD

29.	I feel insufficiently knowledgeable of characteristics of visually handicapped students and of the implications of this handicap to successfully teach them.	SA A TA TD D SD
30.	I feel sufficiently knowledgeable of characteristics of hearing handicapped students and of the implications of this handicap to successfully teach them.	SA A TA TD D SD
31.	I feel competent in the use of individualized instruction.	SA A TA TD D SD
32.	I do not feel competent in the use of instructional techniques which maximize hands-on experience and minimize theory and required bookwork.	SA A TA TD D SD
33.	I feel adequate in the use of observations and descriptions of manual performances (task analysis) in working with hearing and visually handicapped students.	SA A TA TD D SD
34.	I would be willing to participate in an in-service education program to help prepare me to teach the visually and hearing handicapped.	SA A TA TD D SD

E. WILLINGNESS TO WORK WITH RESOURCE AND SUPPORT PERSONNEL

35.	Resource/support personnel would waste valuable class time that is needed to teach vocational subject matter content.	SA A TA TD D SD
36.	I would not be spending my limited preparation time effectively by working with resource/support personnel.	SA A TA TD D SD
37.	I would try to work cooperatively with special consultants to plan and carry out programs of study for individual visually handicpped students.	SA A TA TD D SD
38.	I would not attempt to work in harmony with special teachers who help visually handicapped students understand class lectures and discussion.	SA A TA TD D SD

39.	I would not work with resource room teachers in helping visually handicapped students develop better basic skills.	SA A TA TD D SD
40.	I would try to work cooperatively with special consultants to plan and carry out programs of study for individual hearing handicapped students.	SA A TA TD D SD
41.	I would attempt to work in harmony with special teachers who help hearing handicapped students understand class lectures and discussion.	SA A TA TD D SD
42.	I would not work with resource room teachers in helping hearing handicapped students develop better basic skills.	SA A TA TD D SD

F. PERCEIVED POTENTIAL FOR SUCCESS IN THE WORLD OF WORK

43.	I feel visually handicapped students are incapable of getting a job after graduation.	SA A TA TD D SD
44.	Hearing handicapped students can get a job upon graduation.	SA A TA TD D SD
45.	Hearing handicapped students cannot be totally self-supporting after graduation.	SA A TA TD D SD
46.	Visually handicapped students can be totally self-supporting after graduation.	SA A TA TD D SD
47.	After graduation, hearing handicapped persons will not have more than the average number of accidents on the job.	SA A TA TD D SD
48.	Visually handicapped persons will have too many accidents on the job.	SA A TA TD D SD
49.	Hearing handicapped students, once they get a job, will not be able to hold on to it.	SA A TA TD D SD
50.	Visually handicapped students can hold on to a job once they get it.	SA A TA TD D SD

51. Hearing handicapped students will be able to get along with their co-workers once they obtain full-time employment. SA A TA TD D SD

52. Visually handicapped students will not be able to get along with their co-workers when they obtain full-time employment. SA A TA TD D SD

Part IV - Suggested Guidelines For Integration

TO BE ANSWERED ONLY BY TEACHERS WHO HAVE TAUGHT VISUALLY, HEARING, OR OTHER TYPES OF HANDICAPPED STUDENTS IN REGULAR VOCATIONAL CLASSES

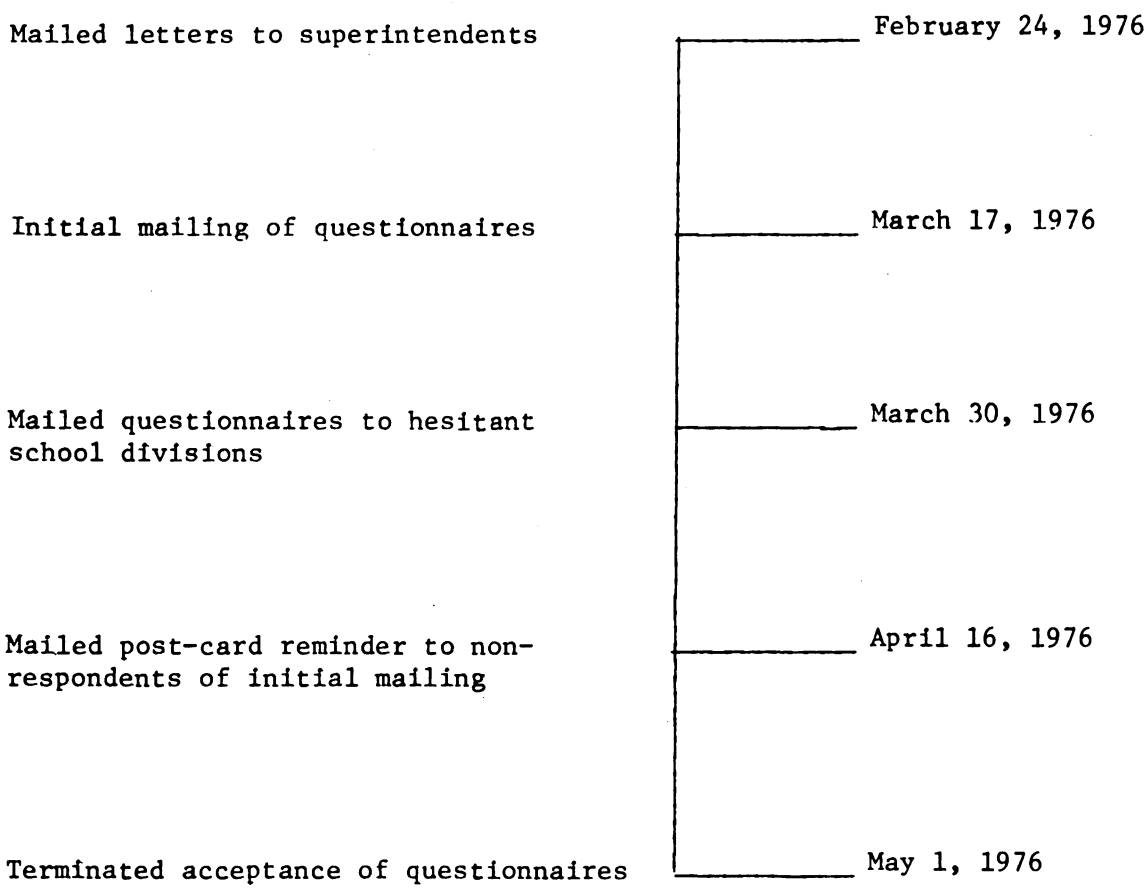
A. What strategies have you found to be successful in integrating hearing handicapped students into regular vocational programs?

B. What strategies have you found to be successful in integrating visually handicapped students into regular vocational classes?

C. What strategies have you found to be successful in integrating other types of handicapped students into regular vocational classes?

APPENDIX D

TIME LINE FOR DATA COLLECTION


Mailed letters to superintendents
February 24, 1976
Initial mailing of questionnaires
March 17, 1976
Mailed questionnaires to hesitant school divisions
March 30, 1976
Mailed post-card reminder to non-respondents of initial mailing
April 16, 1976
Terminated acceptance of questionnaires
May 1, 1976

APPENDIX E

VOCABULARY SENT WITH QUESTIONNAIRE

Vocabulary

The following definitions, hopefully, will aid you in completing the questionnaire:

Vocational education - refers to program of study below college level organized to assist one in choosing a vocation, to prepare one for entrance into that vocation, or to upgrade employed workers; includes such divisions as agricultural education, business education, home economics education, distributive education, vocational-industrial education, and industrial arts education.

Visually handicapped - refers to those persons with an incapacity for specific visual tasks, due to impairment of one or more of the visual organs; persons with a visual handicap may be described as:

(1) visually impaired - refers to those who can learn to read print
(2) blind - refers to those who cannot learn to read print, but who need instruction in braille

Hearing handicapped - refers to those persons who are deaf or hard of hearing:

(1) deaf - refers to those in whom the sense of hearing is non-functional for the ordinary purposes of life. The general group is made up of two distinct classes based entirely on the time the loss of hearing occurred
    (a) congenitally deaf - refers to those who were born deaf
    (b) adventitiously deaf - refers to thosw who were born with normal hearing, but in whom the sense of hearing became non-functional later through illness or accident
(2) hard of hearing - refers to those in whom the sense of hearing, although defective, is functional with or without a hearing aid

Regular vocational program - refers to those programs of vocational education where non-handicapped students are enrolled

Integration - refers to the inclusion of visually handicapped and/or hearing handicapped students into regular vocational programs with appropriate support services provided

Regular vocational student - refers to those students who can succeed in a vocational program with no modifications

APPENDIX F

CORRESPONDENCE

COLLEGE OF EDUCATION

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DIVISION OF VOCATIONAL & TECHNICAL EDUCATION

We would like to request your support and approval for an important survey of secondary pre-vocational and vocational teachers in Virginia in conjunction with a doctoral dissertation. The two primary purposes for the distribution of the questionnaire are to:

1. examine attitudes toward the integration of visually and hearing handicapped students into regular vocational programs and

2. secure some suggested guidelines for the integration of hearing and visually handicapped students into regular vocational programs.

If you have any objections to pre-vocational or vocational teachers in your division participating in the survey, please notify Mr. Logan within seven days of the date on the postmark. If he has not heard from you within that time, he will proceed with the survey.

Thanking you in advance,

Dewey A. Adams
Division Director

Frederick Logan
Graduate Student

N. Alan Sheppard
Assistant Professor

COLLEGE OF EDUCATION

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

OFFICE OF THE DIRECTOR OF GRADUATE STUDIES AND RESEARCH

March 1976

You have been selected to participate in a survey of secondary vocational teachers in Virginia, in conjunction with a doctoral dissertation. Two major purposes exist for distributing the questionnaire and they are to:

1. examine attitudes of vocational teachers in Virginia toward the integration of visually and hearing handicapped students into regular vocational classes and

2. secure some suggested guidelines for the successful integration of hearing and visually handicapped students into regular vocational classes.

This study should have significant implications for the education of special needs students in the Commonwealth of Virginia. Please rest assured that your right to confidentiality and anonymity will be protected. Consequently, the number in the right-hand corner will be used to eliminate respondents from a follow-up study and will not be used for purposes of data analysis.

Your division superintendent has already approved your participation in this survey. Your prompt help in this effort will be greatly appreciated.

Sincerely,

Dewey A. Adams
Division Director

Frederick Logan
Graduate Student

N. Alan Sheppard
Assistant Professor

Post-Card Reminder

Dear

I'm sure you've been very busy lately. With spring here and only one quarter of the school year left, your existence has probably been hectic. Could you, however, take a few minutes to complete the questionnaire concerning the integration of visually and hearing handicapped students into regular vocational and pre-vocational classes, which should have arrived about March 18. Please disregard this reminder if your response is already in the mail. Your help will be greatly appreciated.

Sincerely,

Frederick Logan
Graduate Student

APPENDIX G

CORRELATION COEFFICIENTS OF 32 VARIABLES AND 6 FACTORS FOR HEARING AND VISUALLY HANDICAPPED ITEMS

Table 16. Correlation Coefficients for 32 Visually Handicapped Variables and 6 Factors

Variable	Factor 1	2	3	4	5	6
1	-.05254	-.13328	-.05296	.04144	.04022	-.11583
2	-.03458	-.05615	.04644	.06719	-.09041	-.18725
3	-.03847	.05801	.03742	.13530	-.08946	.14807
4	.01611	.04310	.00467	.00939	-.05505	.04215
5	.04733	.17052	-.04928	-.05125	-.01188	-.01907
6	.03730	-.06529	.09437	-.10376	.17992	.16377
7	.07842	-.02440	.03261	.03054	-.01592	.07348
8	.00593	.06197	-.09059	-.15689	-.00876	.09067
9	-.07835	-.15116	-.02426	-.11059	.10261	-.13030
10	.10788	.19982	.01182	.06596	-.06492	.14901
11	.014186	.01369	-.00729	.07350	-.06524	.01291
12	-.06203	-.00604	-.05320	-.03879	.11814	.07657
13	-.12150	-.00604	-.04797	.06957	-.09614	.19772
14	-.09246	.01407	-.05568	.00102	-.08408	.18650
15	-.22325	.06066	-.14427	-.06198	-.17197	.08190
16	-.08740	.05224	-.14296	.00312	-.16681	.12469
17	.06987	-.03645	.09395	.01318	-.00861	.10048
18	-.09011	.02043	-.10141	-.08685	-.02148	-.13728
19	-.06142	.04752	-.00056	.05601	-.02648	-.07899
20	-.02444	-.02915	.03017	.01316	.00552	-.07033

Table 16. (continued)

Variable	Factor 1	2	3	4	5	6
21	.21046	.13763	.08054	.04851	.01933	.01040
22	.08987	.05395	.04565	.03152	-.05249	.08076
23	.14663	.02245	-.03611	.10848	.01845	.00268
24	.13660	.01037	.07977	.05734	.02004	.05826
25	.09388	-.03153	.02660	-.02689	.02730	.11664
26	-.00871	-.01001	.06693	.14023	-.02385	.02833
27	.14190	.11651	.27670	.07530	.06094	-.01592
28	.11548	.10812	.19259	.03114	.07032	.03291
29	.10196	.14007	.21323	.02221	.04827	-.00120
30	.14254	-.01939	.19069	.07073	.06761	.04759
31	.10121	-.03492	.19299	-.05804	.10344	.10438
32	.02670	.07149	.18664	.11169	.05276	-.05294

Table 17. Correlation Coefficients for 32 Hearing Handicapped Variables and 6 Factors

Variable	Factor 1	2	3	4	5	6
1	.06582	-.11367	-.06616	.00685	.06346	-.17375
2	.04276	-.04795	-.02719	-.08030	-.06996	-.15391
3	.10453	.04555	.08115	-.13807	-.08496	.12587
4	-.04222	.03366	.00423	-.06352	-.08489	.11316
5	-.04813	.18075	-.06429	.01420	-.03182	.02360
6	-.06324	-.07814	.08437	.17423	.19379	.07419
7	-.05705	-.03926	.06200	-.01859	-.00520	.09671
8	-.01102	.07606	-.05681	.15288	.02312	.08978
9	.00063	-.14641	-.07487	.13052	.04988	-.16921
10	.19788	.21812	.02571	-.09940	-.03963	.18141
11	.14186	-.01867	.04394	-.06566	-.02055	.02170
12	.05081	-.00971	-.04297	.04709	.10502	.06295
13	.18944	-.02893	-.00851	-.06958	-.09086	.15957
14	.18132	-.03009	-.00023	.01650	-.06045	.11679
15	.26589	.08640	-.16851	.02417	-.18700	.05807
16	.20939	.07085	-.09823	.01079	-.13979	.02438
17	.01224	-.08988	.14401	.04647	.05481	.05785
18	.02858	.06773	-.10141	-0.8685	-.08801	-.13536
19	.03317	.08953	-.04683	-.08538	-.06968	-.07468
20	-.02886	.00665	-.01273	-.02773	-.03705	-.06529

Table 17. (continued)

Variable	Factor 1	2	3	4	5	6
21	.21064	.15270	.22736	.02238	.01585	-.07805
22	-.03372	.04919	.12210	-.02931	-.01372	.05971
23	-.08479	.03940	.07383	-.06652	.05529	-.03312
24	-.09771	.00732	.18525	-.01120	.06381	.02120
25	-.03990	-.05494	.12543	.07556	.11977	.06960
26	.07451	.01053	.12413	-.11797	.02434	-.05779
27	-.06915	.08159	.28900	-.04292	.08286	-.04392
28	-.02860	.05823	.22900	.01199	.10661	-.00829
29	-.02113	.10753	.24233	.03101	.05432	-.06939
30	-.07991	-.05392	.24102	-.01132	.08817	.02479
31	-.04056	-.09010	.22961	.11722	.19215	.09318
32	.01451	.06588	.17783	-.07312	.06982	-.09046

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ATTITUDES OF SECONDARY VOCATIONAL AND PRE-VOCATIONAL TEACHERS IN VIRGINIA TOWARD INTEGRATING VISUALLY AND HEARING HANDICAPPED STUDENTS INTO REGULAR CLASSES

by

Frederick P. Logan, Jr.

(ABSTRACT)

This study's major purpose was to examine attitudes of Virginia's pre-vocational and vocational teachers toward integrating visually and hearing handicapped students into their regular classes. The research questions consisted of five inquiries into the nature of attitudes toward: (1) selected characteristics of the visually and hearing handicapped, (2) integrating hearing and visually handicapped students, (3) their own competencies to teach these students, (4) their willingness to work with resource and support personnel, and (5) the potential for success in the world of work of these students. Also, the extent to which these students who were enrolled in vocational and pre-vocational classes were attending regular classes was examined. Finally, strategies which have been found helpful in integrating these students into regular classes were solicited. Four hypotheses of no difference between six vocational service areas were stated for research questions #2-5 and were tested at the .05 level.

The Vocational Teacher Attitudinal Inventory was constructed and pilot tested. Research question #1 was addressed by a semantic differential section and the four hypotheses by a Likert portion. Open-ended

questions were posed to secure suggested strategies and direct questions were asked concerning enrollment during 1975-76. Questionnaires were mailed to a stratified, proportional, random sample of 261 teachers and a 67 percent response rate was achieved.

The Likert items data pertaining to the four hypotheses were analyzed by using the BMD 08M program which performs factor analysis. The semantic differential data were analyzed by employing the Condescriptive program of the Statistical Package for the Social Sciences. The enrollment data and responses to open-ended questions were manually analyzed. The general nature of attitudes across vocational service areas was examined by inspecting mean scores and direction of the fifty-eight Likert items.

The data supported the retention of the four research hypotheses. Concerning the general nature of attitudes toward integration across service areas, analysis of results indicated that: (1) respondents expressed mixed attitudes toward integration in general and as it pertains to their own regular classes for the visually and hearing handicapped, (2) respondents expressed mixed attitudes toward their own competencies to teach the hearing and visually handicapped, (3) respondents expressed generally positive attitudes toward their willingness to work with resource and support personnel concerning the visually and hearing handicapped, and (4) respondents expressed positive attitudes toward the potential for success in the world of work for the hearing handicapped, but they expressed negative attitudes concerning the visually handicapped.

Factor analysis resulted in four non-hypothesized findings, which were that: (1) Teachers of Vocational-Industrial Education tended to express more positive attitudes toward (a) their personal adequacy to teach the hearing handicapped, (b) the success of methods to cope with hearing and visual problems, (c) their ability to individualize instruction for the visually handicapped; (2) Those teachers with more experience instructing the hearing handicapped tended to express more positive attitudes toward the integration of the hearing handicapped; (3) Teachers who expressed negative attitudes concerning selected characteristics of the hearing handicapped tended to express negative attitudes toward the potential for success in the world of work for the hearing handicapped, but expressed positive attitudes for the employment success of the visually handicapped; (4) Teachers with more experience instructing hearing handicapped students tended to express more positive attitudes toward (a) the integration of the hearing and visually handicapped students into regular classes, (b) the potential for success in the world of work of the hearing handicapped, (c) the success of methods to cope with hearing and visual problems.

Those few teachers who reported teaching visually and/or hearing handicapped students indicated that all but one were being taught in regular classes.

Conclusions were made and long-term and short-term recommendations were offered based upon these findings.