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A COMPARATIVE INVESTIGATION OF THE VOCATIONAL
ASPIRATIONS OF DEAF HIGH SCHOOL BOYS.**

**University of Arizona, Ed.D., 1967
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**A COMPARATIVE INVESTIGATION OF THE VOCATIONAL
ASPIRATIONS OF DEAF HIGH SCHOOL BOYS**

by

Armin George Turechek

**A Dissertation Submitted to the Faculty of the
COLLEGE OF EDUCATION**

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In the Graduate College

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THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

I hereby recommend that this dissertation prepared under my
direction by Armin G. Turechek
entitled A Comparative Investigation of the Vocational
Aspirations of Deaf High School Boys
be accepted as fulfilling the dissertation requirement of the
degree of Ed.D.

David Wayne Smith
Dissertation Director

5/10/67
Date

After inspection of the dissertation, the following members
of the Final Examination Committee concur in its approval and
recommend its acceptance:*

<u>Lloyd E. McCann</u>	<u>5-8-67</u>
<u>Emil J. Garbat</u>	<u>5-10-67</u>
<u>Bill Christensen</u>	<u>5-10-67</u>
<u>B. E. Simpson</u>	<u>5-10-67</u>
<u>D. W. Smith</u>	<u>5/10/67</u>

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SIGNED:

Armin G. Turckek

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A COMPARATIVE INVESTIGATION OF THE VOCATIONAL
ASPIRATIONS OF DEAF HIGH SCHOOL BOYS

Armin G. Turechek, Ed. D.

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This study was designed to determine what factors influenced the choices of occupations by deaf high school boys and whether these occupational aspirations could be altered by external stimuli. The population of 117 boys was drawn from three residential schools for the deaf: twenty-one from the Arizona School for the Deaf and the Blind, Tucson, Arizona; sixty-two from the California School for the Deaf, Riverside, California; and thirty-four from the Colorado School for the Deaf and the Blind, Colorado Springs, Colorado.

Selection of the boys was based on age, intelligence, amount of hearing loss, and age at onset of the loss. Homogeneity of the groups in terms of age, intelligence, and socio-economic backgrounds was determined by use of Bartlett's Test of Homogeneity.

The literature established that a number of factors were suspected of having an influence on the underemployment of the adult deaf. This study considered whether underaspiration on the part of deaf students could lead to accepting positions below their capabilities upon graduation.

Only boys were included who were at least fifteen years of age as of September 1, 1965; had a hearing loss of 70 decibels or more; had the onset of the hearing loss at least by age three; had attended a residential school for the deaf for a minimum of two years, and had an intelligence quotient of 80 or better.

Each subject was pre-tested with the Occupational Aspirations Questionnaire, Form I, the Wechsler Intelligence Scale for Children, or the Wechsler Adult Intelligence Scale, the Minnesota Vocational Interest Inventory, and was given an audiometric test. The socio-economic level of each student was determined by aligning parental occupational status with the various categories of Jeff's Socio-Economic Scale. The level of the occupational aspirations was determined by use of Roe's classification of occupations by level of function.

The Colorado group was provided occupational information and tours of various manufacturing concerns during the second semester of the 1965-66 school year. All of these lessons were offered by a special instructor with an interpreter present. The Arizona group was given vocational evaluations at the Rehabilitation Center of the University of Arizona followed by individual counseling. The California group served as the control group.

The hypotheses of the study were designed to fit the construct of the null hypothesis. The statistical procedures used were the t test, product-moment correlation, and Chi square. The following were discovered: A change from a significance level of .01 to .001 was found in the total

occupational aspirations between the Colorado and California groups. A significant difference (.05 level) was discovered between the total occupational aspirations between the Arizona and California groups. No significant difference was found in the total occupational aspirations between the Arizona and Colorado groups.

No significant correlation was found between the occupational aspirations and the levels of interests as measured by the Minnesota Vocational Interest Inventory. Significant correlations were found between the occupational aspirations of the boys and the following: the parental occupational levels; the socio-economic status of the families; the occupations suggested by the parents and the teachers. Only 57 per cent of the parents and 35 per cent of the teachers had consulted with the boys regarding occupational goals.

Chi square analyses revealed a probability level of far less than .01 in the differences between the occupational aspirations and the number of employed males throughout the United States in each occupational group. The probability level was also far less than .01 for the difference between the occupational aspirations and the number of deaf males employed in each occupational group. The percentage of boys aspiring to Occupational Group I (29.8 per cent) far exceeded the percentage of males employed at that level throughout the United States (12.9 per cent) and the percentage of deaf males employed at this level (6.0 per cent). This difference indicated a tendency to overaspire on the part of deaf boys. The percentage of deaf boys aspiring to

Occupational Group IV positions (42.8 per cent) compared favorably with the percentage of deaf men occupied at this level (45.0 per cent) but exceeded the number¹ of men throughout the United States working at this level (20.0 per cent).

CHAPTER I

INTRODUCTION

Introduction to the Problem

In recent years there has been an increasing awareness of the status of the deaf in society. One problem has been in the level of employment of deaf adults. Employment should not be thought of as merely having a job. For the maximum utilization of human resources and for the self respect of the individual, employment should be at the highest level of which the person is capable.

The deaf have not attained the level of employment that is indicated by their innate abilities and the degree of training they have received. They are not employed at the same level as their hearing peers (Lunde & Bigman, 1959). A number of studies have revealed the wide discrepancy existing in the employment levels of these two groups. This discrepancy cannot be explained in terms of hearing loss, speech ability, or lipreading skill. These factors may have a bearing and certain investigators have ascribed the under-employment of some deaf to these (Lunde & Bigman, 1959; Lerman, 1965). However, it is doubtful that these are the major determinants. There is the possibility that in his eagerness to obtain employment, the deaf youngster may take the first opportunity offered him. Sometimes the desire to work in a factory employing other deaf may also be a factor.

The unemployment rate for the deaf is about four times the national average (Boatner, 1964, p. 66). The fact that so many deaf are unemployed may lead to a sense of insecurity on the part of the deaf employee and make him reluctant to seek employment elsewhere even if his present placement is unsatisfactory.

This study was undertaken to determine whether attitudes existing before the deaf youth graduates from high school have an influence on his choice of vocation. Many studies have been made of the development of vocational aspirations of hearing children (Super, 1960; Tiedeman, 1963; Roe, 1956; Holland, 1959). To date, this development remains an unexplored area in the growth and development of deaf children.

The methods utilized in this study were selected on the basis of their use in previous studies with hearing students. Realizing the communication handicap of the deaf child, consideration was given to the matter of ease of administration and interpretation of the instruments and techniques.

The Problem

The possibility of vocational guidance or vocational evaluations followed by counseling changing the vocational aspirations of deaf high school boys was the basis for this study.

Educators have long been concerned with the problem of pupils selecting occupational goals which were not consistent with their aptitudes and abilities. Among the deaf, this problem has been

emphasized by the fact that a greater percentage of the deaf are employed in the skilled, semiskilled, and unskilled levels as compared with the national average for all employed people (Lunde and Bigman, 1959). Conversely, a smaller proportion of the deaf are found among the higher level occupations (Lunde and Bigman, 1959).

The traditional educational approach in schools for the deaf needs to be reassessed. (Lerman, 1965; Advisory Committee on Education of the Deaf, 1965). It has been indicated that the deaf child has difficulty in selecting an occupation based upon a realistic appraisal of his abilities and the requirements of the occupation to which he aspires. (Levine and Safian, 1958; Myklebust, Neyhus, and Mulholland, 1962; Williams, 1964).

The need for counseling and guidance services in schools for the deaf has been pointed out by Dillon (1964) and Stuckless (1965).

Different studies have shown that age, family socio-economic status, age of onset of handicap, sex, motivation to work, I.Q., family constellation, interests, and education have relevance to determining the person's occupational level, and his satisfaction and adjustment to work. (Dawis, 1959; Friend, 1948; Kloster, 1956; Lipsett, 1954; Schletzer, 1959; Scollay, 1957; Thorndike, 1947; Roe, 1956).

Research in this area was summarized by Lockwood when he wrote:

During the past two decades, researchers and writers in the area of guidance almost unanimously have deplored the lack of realism and the maldistribution of the vocational choices, preferences, and interests of high school youth.

These same researchers have often recommended that school systems set up organized programs of vocational choices. Results of these studies with high school students have shown: (1) that, though wiser vocational choices are frequently made at higher grade levels, pupils generally are aiming 'too high' in their choices; (2) that chances for social and economic advancement are determining job choices of future men and women with little thought being given to individual fitness, in terms of ability, for vocations selected; (3) that pupils of high mental ability sometimes select vocations offering limited opportunities, and pupils of low mental ability sometimes select occupations for which they are not intellectually fitted; (4) that vocational choices tend to fall in the upper and middle categories of the occupational scale - those with most prestige, highest salaries, require most education; and (5) that lower occupational levels simply do not attract boys and girls in a society with our traditions of self-advancement. It seems fair to generalize that many of the youth studies have been unrealistic in their approaches to their vocational preferences. (Lockwood, 1958, p. 98)

The formulation of career patterns may be influenced by a number of factors such as intelligence, age, sex, parental socio-economic level, occupational level of the parents, advice from parents or teachers, and availability of occupational information. Some of these variables have been investigated in this study.

The Importance of the Problem

Most research in the area of employment of the deaf has been focused on the types of occupations, levels of occupations, and vocational adjustment of adult deaf employees. (Lunde and Bigman, 1959; Stuckless, 1965; Williams, 1964; Boatner, 1964; Furfey, 1964)

A few studies in recent years have been concerned with the types of vocational offerings included in the programs of schools for the deaf. The problem of underemployment of the deaf has been of paramount concern to educators and rehabilitation workers. Various reasons have

been advanced for this underemployment but few have been critically examined to determine their influences. One area that has been completely overlooked is that of the deaf child's vocational aspirations before graduating. These attitudes may have a profound influence on the eventual selection of an occupation.

In an effort to assist students in developing more realistic goals, a few schools have employed guidance counselors and established guidance programs. Few of these counselors were adept at communicating with the deaf and generally their work involved giving intelligence and aptitude tests. In the few instances where the counselor was able to communicate with the deaf pupils, he had been able to establish a counseling relationship. (Shaffer, 1965)

The present study was designed to explore one area of undergraduate behavior of deaf high school boys that could affect out of school success. Three groups of deaf high school boys were selected for this study. The occupational aspirations of the subjects were determined by means of pre- and post-test questionnaires. Vocational guidance was given students in the first group through lectures, movies, discussions, counseling, and tours of industrial plants. Students in the second group were given individual vocational evaluations followed by counseling. The third group served as the control group and received neither vocational guidance nor vocational evaluations.

There are implications that this study could serve as a basis for revision of high school curricula to include more time for guidance or to modify existing guidance procedures. Identification of

differences in the aspirations of deaf and hearing students could possibly stimulate further research and ultimately contribute to a better understanding of the deaf person.

Selection Criteria

The subjects chosen for this study were selected from the California School for the Deaf at Riverside, the Arizona School for the Deaf and the Blind at Tucson, and the Colorado School for the Deaf and the Blind at Colorado Springs. These schools were selected as being representative of schools for the deaf in the southwestern section of the United States. The California school has a student population of 525; the Arizona school has a population of 222 deaf students; and the Colorado school has 177 deaf students enrolled. The N in the study was 117.

The study was limited to boys selected from the student bodies of each of the schools on the basis of degree of deafness, age of onset of hearing loss, chronological age, length of attendance in a residential school for the deaf, and intelligence. Each school had a relatively large percentage of Mexican-Americans enrolled and the student bodies appeared to be closely related socially and economically.

Hypotheses

This study was made to determine if vocational guidance or vocational evaluations followed by counseling could bring about a change in the occupational aspirations of deaf high school boys. Three groups were selected: one from the Colorado School for the Deaf

and the Blind, the second from the Arizona School for the Deaf and the Blind, and the third from the California School for the Deaf.

The hypotheses of this study were so designed as to fit the construct of the null hypothesis. It was assumed that there were no significant differences between the mean scores of the groups involved as determined by statistical methods. The hypotheses were:

1. There will be no significant differences in the pre- and post-test aspirations between the Colorado group and the California group resulting from offering vocational guidance to the former group.

2. There will be no significant differences in the pre- and post-test aspirations between the Arizona group and the California group as a result of giving vocational evaluations and individual counseling to the former group.

3. There will be no significant differences in the pre- and post-test vocational aspirations between the Arizona group and the Colorado group as a result of giving vocational evaluations and individual counseling to the former group and vocational guidance to the latter group.

4. There will be no significant correlations between the levels of vocational aspirations expressed by the subjects in this study and the interests as measured by the Minnesota Vocational Interest Inventory.

5. There will be no significant correlations between the levels of vocational aspirations of the subjects and the occupational levels of their parents.

6. There will be no significant correlations between the levels of vocational aspirations of the subjects and the socio-economic status of their families.

7. There will be no significant correlations between the levels of vocational aspirations of the subjects and the levels of occupations suggested by their parents.

8. There will be no significant correlations between the levels of vocational aspirations of the subjects and the levels of occupations suggested by their teachers.

Definitions of Terms Used

Technical terms used in this study were not used in the usual frame of reference so definitions were included to prevent any misinterpretations. Definitions were taken from standard sources of reference.

Severe Deafness

A sensory-neural hearing loss of 70 decibels or more as averaged for the frequencies 500, 1000, and 2000 cycles per second. This loss to have been present since birth or before the development of speech.

The Conference Committee on Nomenclature (1938) recommended the following classification:

The deaf: are those in whom the sense of hearing is non-functional for ordinary purposes of life. This general group is made up of two distinct subgroups based on the time of onset of the hearing loss.

The congenitally deaf: are those who were born deaf.

The adventitiously deaf: are those who were born with a normal sense of hearing but in whom the sense of hearing became non-functional later through illness or accident.

The hard of hearing: are those in whom the sense of hearing, although defective, is functional with or without amplification. (Committee on Nomenclature, 1938, p. 3)

Age at Onset of Hearing Loss

Davis (1960) stated, "The important points on the time-of-onset dimension for the profoundly deaf are the age range from three to five years and the time when adulthood is reached. As we have said, children who are deaf before the age of three are not likely to retain normal patterns of speech and language." (Davis, 1960, p. 415)

Vocational Aspirations

Theories of occupational choice or vocational aspirations have been elaborated by a number of investigators. (Holland, 1966; Roe, 1957; Tiedeman, 1961; Super, 1953; Blau, Gustad, Jessor, Parnes, and Wilcock, 1956) Holland (1966) defined occupational choice:

Essentially, the present theory assumes that at the time of vocational choice the person is a product of the interaction of his particular heredity with a variety of cultural and personal forces including peers, parents and significant adults, his social class, American culture, and the physical environment. Out of this experience the person develops a hierarchy of habitual or preferred methods of dealing with environmental tasks. From an ecological standpoint, these habitual methods are associated with different kinds of physical and social environments, and with differential patterns of abilities. The person making a vocational choice in a sense 'searches' for situations which satisfy his hierarchy of adjustive orientations. (Holland, 1966, pp. 127-8)

Current writings emphasize that occupational choice is a process rather than an event. Certain influences on the course of this process

have been studied. Nelson (1939) concluded that occupational aspirations of students were related to parents' socio-economic status. Krippner (1963) contended that occupational aspirations were related to the parents' vocational level. Jensen and Kirchner (1945), Davidson and Anderson (1937), and Bendix, et al (1954) all tended to confirm this assumption when comparing sons' full-time occupations after leaving school with their fathers' vocations. All of the above studies tended to confirm the positive influence of the socio-economic status and vocational levels of the parents on the vocational aspirations of the sons.

Occupational information has been found to influence the vocational aspirations of students. (Cuony, 1954, Recktenwald, 1946, Hoppock, 1957) The influence of age on occupational aspirations has been investigated by Galler (1951), Miller (1964), Garfield (1943), and Lockwood (1958). There seemed to be agreement that older students generally made better vocational decisions.

Most researchers credited parents and teachers as being major factors in determining the occupational choices of children. (Ryden, 1951, Stivers, 1959, Youmans, 1956, Lipsett, 1962) Bailyn (1959), found sex differences that indicated the boys' occupational preferences were much determined by their parents' position in society, whereas social characteristics did not affect the choices of girls.

In summary, investigators tended to agree that occupational aspirations were the result of a process rather than an event. This process was influenced by the socio-economic status and occupational

level of the parents, by the age and sex of the student, by occupational information received by the student, and by the advice of parents and teachers.

Summary

Although the literature revealed an increasing amount of research on the problem of career aspirations as related to realism in the population with normal hearing, this research was concerned primarily with vocational aspirations found in selected groups of deaf boys.

Schools for the deaf selected for carrying out this research had administrations agreeable to participating in the study. The hypothesis was: There will be no significant differences in the vocational aspirations between the groups as a result of offering vocational guidance to the boys in one school, vocational evaluations followed by individual counseling at the second, while no formal guidance or counseling was given the third group.

Information was gathered and/or tests administered to substantiate age, degree of hearing loss, age of onset of loss, intelligence, socio-economic status of the families, and levels of occupational aspirations of the subjects. Vocational interests were also measured by means of the Minnesota Vocational Interest Inventory.

The second chapter contains the review of literature pertinent to this study. Chapter three presents the method of procedure; chapter four outlines the results of this study; and chapter five presents the summary and conclusions.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This chapter presents a review of the literature relating to career aspirations. Occupational choices of the child with normal hearing has been a topic of considerable research; however, very little has been written about the occupational aspirations of deaf children.

The review was organized to include the following subtopics:

- History of vocational education in schools for the deaf
- Placement and occupational problems of deaf adults
- Theory of vocational choice
- Realism in vocational choice
- Vocational choice and occupational information
- Interests and vocational choice
- Socio-economic status and vocational choice
- Age and vocational choice
- Sex and vocational choice
- Parental and teacher influences on vocational choice

This review was confined to those studies which seemed pertinent to this investigation.

History of Vocational Education

In Schools for the Deaf

Vocational education has had a long history in schools for the deaf. Trade training frequently originated along with the formation

of academic classes. Many of the early schools stressed vocations that were allied with plant maintenance and student welfare.

The Advisory Committee on the Education of the Deaf (1965) reported:

Most vocational education and training programs for deaf students are to be found in the public residential schools for the deaf. The early and continuous history of most such schools has been characterized by strong vocational objectives. Yet the volume of critical literature in the journals and conferences of educators of the deaf is eloquent testimony to the fact that there is widespread dissatisfaction with the status and quality of the vocational program at present. This is not to suggest that the quality of vocational programs has deteriorated, but rather that increasing complexity of our world of work has left the field of vocational education lagging, and not alone in programs for the deaf.

Requirements that formerly could be met by secondary or even elementary school offerings are decreasing. Vocational training and education requirements that require post-secondary school offerings are increasing. The familiar boon and bane of our society--automation--is complicating the problem of vocational education of the deaf perhaps more than that of the hearing, since the necessity of learning more to achieve a satisfactory occupational status places more of a burden on those whose difficulties with language make all learning more troublesome. (Advisory Committee on the Education of the Deaf, 1965, p. 19-20)

Boatner, Stuckless, and Moores (1964) quoted from a report made by F. D. Clarks in 1886:

The high honor of establishing the first schools in the country where any persistent attempt was made to teach trades, belongs to the institution for the deaf. But, though we began first, I hardly think we are keeping abreast of those who started later in the race. (p. 10)

Boatner, et al (1964) further reported:

Vocational education has been of central interest to educators of the deaf since the inception of formal education of the deaf in America in the nineteenth century. A healthy dissatisfaction with vocational programs in schools for the deaf

has existed since that time as evidenced by literally hundreds of articles on the subject which have appeared in the American Annals of the Deaf and other publications. The Annals began reporting vocations taught in American Schools for the Deaf in 1875. In that year, a total of 14 trades were being taught. The Annals reported that as of October, 1963, 36 vocations were being taught in 67 residential schools for the deaf. (p. 11)

These authors further reported:

"In summary, it appears that the extent of utilization of training in vocational education programs in schools for the deaf by the employed deaf is relatively low except for a few selected trades. The school for the deaf in offering a limited range of vocational educational experiences can no longer expect to train most of its students for the occupations in which they will by choice or expediency be engaged." (p. 15-16)

From the above, it was apparent that the educational needs of the deaf students were not being met by the programs existing in schools for the deaf.

Placement and Occupational Problems of the Adult Deaf

The term "underemployment" has come into general use in reference to the occupational problems of the deaf. This was defined as "the tendency to be employed in the lower level occupations and to be denied promotions to higher levels." (Workshop on Identification of Researchable Vocational Rehabilitation Problems of the Deaf, 1960, p. 354)

Williams (1964) has been a sharp critic of do-nothing policies dealing with the underemployment of the deaf. He stated, "They have gotten by as sharply underemployed albeit sometimes well paid people". (Williams, 1964, p. 71)

In an extensive study recently made in the New England states,

Boatner (1964) found:

1. A very high proportion of young deaf adults are employed in unskilled or semiskilled occupations.
2. The mean wages received by the young deaf adults are much lower than for hearing.
3. Their unemployment rate is much higher than that of the general population.
4. Very limited vocational education is given in schools for the deaf.
5. Regular trade and technical schools offer little help to the deaf.
6. Few deaf have the aptitude and ability for higher academic education.
7. Many deaf demonstrate aptitudes that could lead to skilled occupations if they could receive the necessary training. (Boatner, 1964, p. 62)

Furfey (1964), for example, found the problem of underemployment to be true of the deaf in Maryland. He found that employers tended to keep the deaf on the same jobs due to the difficulty of communicating with them. This restricted their versatility because instructions were necessary to have the employee vary his techniques.

Williams (1964), on the other hand, found a different attitude at the Lockheed plant. There supervisors were required to learn the sign language. He found that the deaf were actually better in certain occupations where a great deal of noise was present.

Reedy (1964) expressed his concern about the duties of the vocational rehabilitation counselor working with deaf adults. He listed four aspirations of the Vocational Rehabilitation Administration for deaf people to be used as guidelines.

- 1) The first is the need of deaf people to be understood in both the sending and receiving of thoughts and information.

- 2) A second need is that one deaf person be treated as an individual, that he not be stereotyped psychologically, educationally, or vocationally.
- 3) A third goal is that there be no double standards, one for the deaf and one for the hearing population.
- 4) A fourth need relates to the problem of adequate time provided for deaf people to acquire the tools with which they may live up to their highest potentials. (Reedy, 1964, p. 78-79)

Lunde and Bigman (1959) found that the deaf were definitely located in the lower level occupations as compared with the general population. They interviewed 10,101 deaf adults, of whom 7,920 were employed. Table I on page 17 shows the results of this study. The deaf were heavily concentrated in the skilled and semi-skilled occupations.

Theory of Occupational Choice

During the past ten years progress has been made toward a theory of vocational development which is based on early formative influences and connects the adoption of occupational roles to personality organization. Bordin, Nachmann, and Segal (1963) wrote:

There has been a seeming controversy over whether to concentrate on vocational choice or development. Super and Tiedeman and their co-workers emphasize vocational development and orient themselves to the prediction of successive choices, or patterns of choices. Roe and Holland emphasize vocational choice -- that is, the prediction of the occupational role that the individual is fulfilling at a particular point in time. (Bordin, Nachmann, and Segal, 1963, p. 107)

Super (1957) found that three factors seemed to play a part in vocational behavior and selection.

TABLE I
 PERCENTAGE OF DEAF ADULTS IN DIFFERENT OCCUPATIONAL
 LEVELS COMPARED WITH THE GENERAL POPULATION

Occupational Group	Occupation	Percent Deaf	Percent U. S. Population
I	Professional, Technical, Teachers, etc.	3.6	
	Others	3.0	
	Total	6.6	10.6
II	Managers, Farmers, Officials, etc.	2.5	
	Others	0.7	
	Total	3.2	15.5
III	Clerical, Office Machine operators, Sales	1.9	
	Clerks	1.8	
	Others, clerical	1.5	
	Others, sales	2.0	
	Total	7.2	20.7
IV	Craftsmen, Foremen, Printing crafts	14.3	
	Shoemakers	2.2	
	Bakers	2.0	
	Painters	1.9	
	Tool and diemakers	1.9	
	Carpenters	1.8	

TABLE I -- Continued

Occupational Group	Occupation	Percent Deaf	Percent U. S. Population
IV	Inspectors	1.5	
	Machinists	1.5	
	Cabinet makers	1.1	
	Others	7.7	
	Total	35.9	13.4
V	Operatives, Machine operator	7.9	
	Laundry and drycleaning	5.3	
	Assembly line	3.3	
	Dressmakers-Seamstress	3.0	
	Assemblers	1.0	
	Other	14.7	
	Total	35.9	20.1
VI	Service workers, Janitors, Custodians	1.5	
	Other	4.7	
	Total	6.2	11.7
VII	Laborers	2.6	8.0
	Unreported	3.1	

(Origin: Lunde and Bigman, 1959, p. 23)

- 1) Role factors--here children emulate role models, sometimes by design--sometimes unconsciously. Vocations were viewed favorably or unfavorably by the student because of appropriateness to self, A vocational choice is an implementation of a self concept.
- 2) Personal factors -- these involved intelligence, special aptitudes, interests, values, attitudes, and personality.
- 3) Situational factors -- the higher the parental status, the more the adolescent tended toward individualism vs. collectivism. (Super, 1957, p. 46)

Hoppock (1957) formulated a theory of occupational choice based on the premise that occupations are chosen to meet needs. Three points of this theory seemed pertinent to this study:

- 1) Occupational choice improves as we become better able to anticipate how well a prospective occupation will meet our needs. Our capacity thus to anticipate depends upon our knowledge of ourselves, our knowledge of occupations, and our ability to think clearly.
- 2) Information about ourselves affects occupational choice by helping us to recognize what we want, and by helping us to anticipate whether or not we will be successful in collecting what the contemplated occupation offers to us.
- 3) Information about occupations affects occupational choice by helping us to discover the occupations that may meet our needs, and by helping us to anticipate how well satisfied we may hope to be in one occupation as compared with another. (Hoppock, 1957, p. 74)

Hoppock evidently felt that a valid choice of occupation might result from a thorough appraisal of self and knowledge of the requirements of jobs.

Gonyea (1963) wrote that people tend to prefer occupations that they perceive of meeting their needs and to perceive need satisfaction as a potential in the occupation they prefer. He felt that people with similar job perceptions do not choose the same vocations

and employed persons may perceive their jobs differently, in accordance with their needs. This implied a variability with the current assumption of homogeneity of personality traits within groups.

In summarizing the five major research programs on theories of occupational choice, Holland (1964) stated,

Despite the occasional conviction of each of the major research programs that it offers "the only right way", all five appear to have certain common denominators. For instance, although different researchers say it differently, all see vocational behavior as a function of personality, development, and social background. And, although the programmatic reports suggest at times that different research programs have no common goals, all are concerned ultimately with the prediction of vocational choice, occupational membership, and vocational achievement and satisfaction. Finally, all are concerned with increasing our knowledge of vocational behavior, even though each investigator prefers to work in his own way and to focus on special subproblems. (Holland, 1964, p. 276-277)

The outstanding factors in occupational choice would seem to be the desire to satisfy needs, establish goals, and to find opportunities to explore and test these goals.

Realism in Vocational Choice

Realism in vocational choice is not a static process but may vary during the lifetime of an individual. Hoppock (1957) postulated:

There appears to be either explicit or tacit agreement that both occupations and people differ; that the choice of an occupation may help or hinder success and satisfaction; that choices are affected by needs and should be affected also by abilities and by employment opportunities; that some choices are realistic, some fantastic, and some in between; that many persons make several different choices before committing themselves to any one choice; that choices may continue to change throughout the working lifetime of the individual; and that a counselor may sometimes help a person to make better choices than he would make without help. (Hoppock, 1957, p. 108)

Holland (1963-64) found:

...we find less variability in the vocational daydreams of students with realistic and intellectual vocational choices than we do for students with nonscience choices. (Holland, 1963-64, p. 96)

Levine and Safian (1958) wrote:

The matter of interests and drive seems quite vital and is often neglected with the deaf. Frequently they are unable to define any vocational goals or objectives, tend to cling to the usual occupations, accept a counselor's recommendation or in the case of a younger adolescent deaf, 'join the crowd' in whatever they are pursuing. While I am aware of some of the practical aspects of the work world and the fact that many occupations are not available to the deaf because of their verbal and academic limitations, I believe that although some of their objectives may at times be unrealistic, an awareness of these would provide a point of departure or an indication of the thinking of the person, that could be very helpful to the counselor or the psychologist involved in the evaluation program. (Levine and Safian, 1958, p. 360)

In their study of deaf youth, Myklebust, Neyhus, and Mulholland (1962) reported:

The hearing youth acquires much of his knowledge regarding occupations from his parents; this is difficult for the deaf youth to do. The counselor must spend hours providing information regarding various fields of employment. One study showed not only a lack of occupational information but a restricted range of choices. In many instances it seems that even the level of aspirations needs to be raised. (Myklebust, Neyhus, and Mulholland, 1962, p. 378)

The deaf child, deprived of ease of communicating with his parents and peers, has difficulty selecting any occupation which is realistic for him. It is felt that the significance of specialized formal education first reduces the family's influence on careers but later enhances it again. (Blau, Gustad, Jessor, Parnes, and Wilcock, 1956)

Two views of the vocational training offered in schools for the deaf emerge from a survey of the literature. The first holds that the schools should attempt to develop in the child a rather realistic orientation to the world of work and develop his social skills rather than emphasize specific training in vocations. The more traditional view states that deaf students should be prepared as completely as possible before they leave school to master those skills that will assure a steady income. (Lerman, 1965)

The realism of vocational choices had been evaluated by comparing the percentage of students selecting a certain field of work with the percentage of the general population employed in that field as shown by census data. (Super, 1942; Bedford, 1938; Lunde and Bigman, 1959)

Super (1942) studied the attitudes of a group of employed youths who had normal hearing. He found a wide discrepancy between their desired level of work and the level on which they were actually employed. His study is reported in Table II, page 23.

Bedford (1938) developed ratios between job choices and the availability of such jobs on a local, state, and national basis. A small ratio indicated an undersupply while a large one indicated an oversupply. Table III, summarizing Bedford's findings, is found on page 24.

As part of their survey of occupational conditions among the deaf, Lunde and Bigman (1959) compared the percentage of deaf employees

TABLE II
 COMPARISON OF ACTUAL AND PREFERRED OCCUPATIONS
 OF UNSELECTED, HEARING, EMPLOYED YOUTH

Field	Percent desiring	Percent employed
Professional-Technical	38.3	7.5
Managerial	9.1	4.1
Office-Sales	18.5	27.1
Skilled	18.2	4.3
Semi-skilled	6.3	24.9
Unskilled	2.5	14.6
Domestic-Personal	6.9	11.4
Relief project	0.2	5.9
Other		0.2

(Adapted from: Super, 1942, p. 15)

TABLE III
 RATIO BETWEEN JOB CHOICES OF A SELECTED GROUP OF SECONDARY SCHOOL
 STUDENTS IN CALIFORNIA AND THE AVAILABILITY OF SUCH JOBS
 ON A NATIONAL, STATE, AND LOCAL BASIS

Job Choices	United States	California	Local
Agriculture	.47	.63	.27
Mining	.08	.10	.28
Manufacturing	.60	.64	1.06
Transportation	.27	.27	.25
Trade	.72	.52	.54
Public Service	.68	.48	.88
Professional Services	8.17	—	5.34
Domestic and Personal Service	.06	.04	.30
Clerical Occupations	.91	.76	2.72

(Adapted from: Bedford, 1938, p. 27)

found at various occupational levels as compared with the percentage found among the general population in the United States. Their results are reported in Table IV, found on page 26.

A number of investigators have tried to determine the realism of vocational choices by comparing the levels of intelligence with the levels of the chosen occupations. Lockwood (1958) found that the factor of intelligence seemed to be directly related to the level of a student's realism of vocational preference. He found that the higher the student's intelligence level, the higher his realism index, the lower the intelligence level, the lower the realism score seemed to be.

Milliken (1962) measured the intelligence of a number of high school seniors using the Army General Classification Test. He assumed that seniors scoring less than 110 on the AGCT would be more realistic in their goals if they selected occupations that did not require a college education. From his survey, it appeared that students generally were realistic in their stated occupational interests when these were related to their test abilities.

Studies have been made of the relationship between the child's occupational choice, the parent's choice of occupation for the child, and the parent's occupation. (Krippner, 1963; Hanson, 1965)

Krippner (1963) surveyed 351 seventh and eighth graders in Chicago and found a positive relationship between the child's occupational choice, the parent's desire for the child, and the parent's occupational level. (Krippner, 1963, p. 590)

TABLE IV
 THE PERCENTAGE OF DEAF MEN AND WOMEN FOUND BY LUNDE AND BIGMAN TO BE
 IN EACH OCCUPATIONAL GROUP COMPARED WITH THE PERCENTAGE OF THE
 TOTAL UNITED STATES POPULATION IN EACH GROUP

Occupational group	Respondents			U.S. Population		
	Total	Male	Female	Total	Male	Female
I Professional, technical, etc.	6.6%	6.0%	8.6%	10.6%	9.7%	12.4%
II Managers, officials, etc.	3.2	4.0	0.6	15.5	20.2	5.4
III Clerical, sales, etc.	7.2	3.7	18.0	20.7	12.6	37.7
IV Craftsman, foreman, etc.	35.9	45.0	7.9	13.4	19.3	1.0
V Operatives, etc.	35.2	45.0	51.9	20.1	21.3	17.5
VI Service workers	6.2	5.6	8.0	11.7	6.4	23.1
VII Laborers	2.6	3.3	0.6	8.0	10.5	2.9
Not reported	3.1	2.6	4.6			

(Adapted from: Lunde and Bigman, 1959, p. 21)

Hanson (1965) surveyed 142 ninth grade girls and found the following:

Pupils' preferences were significantly higher than the fathers' vocations.

Pupils' preferences were significantly higher than the mothers' vocations.

The fathers' suggested vocations were significantly higher than their own vocations.

The mothers' suggested vocations were significantly higher than the fathers' vocations.

There was no significant difference between the fathers' and mothers' vocations when both were employed.

Fathers' and mothers' suggestions were not significantly different from the daughters' preferences. (Hanson, 1965, p. 264)

One method of determining realism of vocational choice used in this study was based on a comparison of the parent's occupational level and the level of the occupation in which the student expressed an interest.

Vocational Choice and Occupational Information

Surveys have shown that the majority of the deaf are employed in the lower level occupations. This underemployment has been of concern to educators of the deaf and rehabilitation counselors who work with the hearing handicapped. Greater exposure to occupational information while still in school might lead to selection of occupations more suitable to the abilities of the deaf. However, studies have revealed that few schools for the deaf include occupational information in their courses of study.

Kennedy (1955) found that the majority of schools for the deaf in this country did not have guidance programs. His survey of 260

residential, denominational and private, and day classes for the deaf revealed:

...of the 78 residential schools, 25 reported a guidance program of some kind, which was divided as follows: 13 had formal programs under the direction of counselors who devoted full time to them; 9 had informal programs by which I mean programs directed by a group or by a person who taught in the classroom and devoted extra time to guidance; 3 had programs under the direction of counselors from the Vocational Rehabilitation Division. Of the denominational and private schools which replied, 6 had programs: 3 formal, 2 informal, and 1 with a Vocational Rehabilitation counselor. A majority of the day classes reported guidance programs, but they usually pointed out that it was not something special provided for the deaf and hard of hearing but rather was part of the regular school system into which the aurally handicapped were integrated. (Kennedy, 1955, p. 41)

A number of authors have indicated the need for occupational information classes in schools for the deaf. (Dillon, 1964; Stuckless, 1965; Myklebust, Neyhus, and Mulholland, 1962; Shaffer, 1965)

Stuckless (1965) reported after his survey of the New England schools for the deaf that "relatively few deaf students have the benefit of vocational guidance and counseling in schools for the deaf". (Stuckless, 1965, p. 193)

Blish (1963) summarized the guidance program at the Clarke School for the Deaf as follows:

Early in the senior year, students are given the differential aptitude tests, a series of tests which determine their aptitudes in verbal, numerical, abstract, and mechanical reasoning, comprehension of space relations, and language principles, and clerical speed and accuracy. These tests are followed by the Stanford Achievement Tests, given annually to all students, which give an indication of the grade level at which the student is working. Scores are also obtained with the Wechsler Intelligence Scale for Children of the Wechsler Adult Intelligence Scale.

After the testing is completed, each senior participated in an interview with the guidance counselor and a representative from the Vocational Rehabilitation Commission, which assumes responsibility for vocational and educational placement and training after the student leaves our school. At this interview, the test results, the student's classroom record, and his degree of success in the various prevocational classes are considered, and tentative recommendations are formulated.

The recommendations are presented to the parents during a conference with the guidance counselor. (Blish, 1963, p. 1007)

Dillon (1964) stated, "Lack of proper counseling can cause many failures that cannot be attributed to lack of skill". Counseling cannot have maximum effectiveness until we have knowledge of what the child aspires to become and then guide him into fields of work compatible with his abilities. (Dillon, 1964, p. 84)

The paucity of information about guidance programs was indicative of the neglect of this area in schools for the deaf. Some work has been done with the adult deaf. Shaffer (1965) reported the biggest problem in working with the adult deaf centered around the social and emotional problems of the client. He found that abstract ideas of tact, politeness, patience, and sacrifice were difficult to teach without words. He felt the deaf needed three times as much counseling and guidance as the most severely disabled clients. (Shaffer, 1965, p. 12)

Dawis, (1959), found that personal history items such as age, sex, marital status, number of dependents, education and occupation are related to the work history patterns and employment success of physically handicapped persons.

Phillips (1962) found that the deaf do not meet the fourfold objectives for vocational guidance as outlined by the National Vocational Guidance Association. These are: 1) select an occupation, 2) train for it, 3) enter that field of work, and 4) advance on the job. He felt the deaf select an occupation because they were trained for it in school or they have someone in a position of influence who could help them get a job. Sometimes the fact that other deaf were employed by the firm influenced the deaf person in deciding on that type of work. All of this, he stated, showed that the deaf person was devoid of any real basis for job selection. An enlarged view is needed before they can make an intelligent choice.

A number of studies have shown the value of occupational information classes as used with hearing children. Cuony (1954) taught a course in Job Finding and Job Orientation to an experimental group of 35 high school seniors in Geneva, New York. One year after graduation, he compared them with an equated control group from the same class of the same school. He found that the students who had had the course were better satisfied with their jobs than those who had not had the course. The combined annual earnings of the experimental group exceeded that of the control group by \$7,719; the course cost \$1,542.

A number of studies have shown the value of classes on occupational information in public schools. Recktenwald's (1946) study of attitudes before and after vocational information classes revealed:

The educational significance of this finding cannot be underestimated. The study of information about occupations is an educational experience. This investigation strongly suggests

that gaining more information about liked occupations enables the learner to see disliked but related occupations in a new light, to the end that such aversions may become modified. Clearly, this suggests the desirability, if not the necessity, of including in the literature of occupational information brief data concerning occupations related to the vocation under consideration, a sometimes neglected aspect of vocational analysis. (Recktenwald, 1946, p. 223)

Hoppock (1957) stressed the importance of giving students occupational information.

One cannot choose what one does not know, and many occupations are unknown to us. One may stumble into an appropriate occupation by sheer luck, but the wise choice of an occupation requires accurate information about what occupations are available, what they require, and what they offer. (Hoppock, 1957, p. 4)

Bateman and Remmers (1939) studied the attitudes of high school freshmen toward occupations of their choice before and after studying a career book about that occupation. They found that the study of career books could produce a significant change in the student's attitude toward an occupation. There was an increase in the spread of measures for the group indicating a breakdown of group stereotypes and the development of individualistic attitudes.

Myer (1947) surveyed the graduates of high schools in the Washington, D. C. area and found them to be unrealistic in their goals. Fifty per cent of the girls and fifty five per cent of the boys planned to go on to college while only 10 per cent of the workers in the Washington area were employed in professional fields.

Nick (1942) found greater realism in the thinking of the youth in the eleventh and twelfth grades following the inclusion of occupational information in their curriculum. Gonyea (1962) found that a

majority of clients changed their vocational plans from pre- to post counseling, and the greater number of these changes were in the direction of greater appropriateness.

Lerman (1965) stated that little appeared in the literature on the deaf that related to the design of studies of vocational adjustment of the deaf. He felt the literature on the adjustment of the normally-hearing population would yield information related to the development of theoretical models and research tools, techniques, and design.

Paulson (1960) concluded that occupational information can enrich a pupil's general experience and arouse his awareness of the world around him.

The value of occupational guidance and counseling has been clearly demonstrated but few schools for the deaf included it in their programs.

Interests and Vocational Choice

A number of studies have been made of the relationship between interests, abilities, and vocational choice. However, only one study of this relationship has been made with deaf subjects. In this study, Geist (1962) developed a picture interest inventory for use with the deaf.

The interest profiles of the deaf males seem to be quite similar to the profiles of analogous hearing groups. Interests of the deaf do not seem to be different than those of the hearing in similar occupations. (Geist, 1962, p. 55)

Kerr and Willis (1966) investigated the relationship between interests and abilities of a group of students with normal hearing.

Of the 140 correlations reported only one was above 0.30 and in no case were they high enough to give evidence of predictive validity. This study can serve as experimental evidence which supports the view that interest does not necessarily indicate ability in a particular occupation or vocational area. (Kerr and Willis, 1966, p. 199)

Fryer (1927) studied the possibility of predicting abilities from interests.

The facts are quite clear regarding the probability of the relationship of interests and abilities. Interest expressions --vocational and educational--are of no significant value as a criteria of abilities. (Fryer, 1927, p. 223)

Berdie (1962) felt that a person's ability was not an important factor in determining his interest although a relationship can be found between these two factors.

Kopp and Tussing (1947) studied the relationship between the Kuder Preference Record and the vocational choices as expressed on a questionnaire. They found a correlation of 0.50 for girls and 0.59 for boys between the results of the two measures.

Motto (1959) used the Kuder Preference Record in an attempt to predict success in different programs in a vocational school. From this study, he concluded:

1. None of the Kuder Preference Record scales significantly differentiated successful from unsuccessful vocational school trainees enrolled in 10 different programs of training. These results suggest that the Kuder pattern of high Scientific and low Persuasive and Literary scales do not differentiate individuals who successfully complete a vocational training program from those who enter but fail to complete such training.

2. Vocational school trainees tend to produce a Kuder profile which is characterized by a flatness and an absence of scores which fall beyond the highest and lowest quartiles. (Motto, 1959, p. 676)

From the studies, it was evident that the use of interest inventories was questionable in assessing vocational abilities or occupational choice. Tyler (1964) summarized the value of interest tests, "...one of the most important generalizations to be drawn from several decades of research is that interest tests measure the direction rather than the strength of a person's interests". (Tyler, 1964, p. 186)

Socio-Economic Status and Vocational Choice

The question of the influence of socio-economic status upon the vocational aspirations of students has been studied by a number of investigators. Some of these studies confirmed the relationship between socio-economic status and vocational choice while others indicated that there was no relationship.

Levine and Safian (1958) alluded to this in pointing out that no one has assumed the responsibility of occupational guidance for most deaf students. Myklebust (1962) was concerned about the lack of occupational guidance for deaf students. He felt this was not accomplished in the home as for normal hearing children because it was difficult for the parents to communicate with their deaf children.

Troop (1962) stressed the importance of parental interest among those hearing handicapped persons who established realistic vocational goals.

Speer and Jasker (1949) studied the occupational goals of 107 clients. Of these, eighty five chose occupational goals coded at higher levels than their fathers' occupations, twenty chose goals at the same level, and two chose goals below the fathers' occupations. Bradley (1943) in a study of high school and college students also found that students frequently chose an occupation that was higher on the socio-economic scale than the father's occupation.

Nagel (1964) investigated the occupational preferences of junior high school boys. He found a positive correlation between the boys' preferences and the occupations of the parents. The boys and the parents rated the following values highest: "Opportunity to do really interesting work, opportunity to be helpful to others, and opportunity to work with people." (Nagel, 1964, p. 3229)

Simmons, (1962) discovered that there was a high degree of agreement between fourth grade boys and adults as to the prestige of occupations. This study also revealed that there was a tendency for occupations ranked high in prestige to also be ranked high in interest.

Stivers (1959) found that girls well motivated for college were higher in social class than those not so motivated. Both Urell (1960) and Stubbins (1950) reported that youth from different socio-economic backgrounds had significant differences in vocational aspirations. Krippner (1963) found the same to be true. He also discovered that the father's occupational level was important. It was related to the wife's job level, to the children's occupational preferences, and the vocation he would like his son to enter.

Youmans (1956) wrote regarding twelfth grade boys:

The responses of the twelfth grade boys of Michigan reveal a strong tendency for them to expect a job in the same occupational level as their fathers. The boys tend to aspire to jobs they do not actually expect to achieve. (Youmans, 1956, p. 262)

Carp (1949) investigated the realism of occupational choices of high school boys and found:

Expectations seem quite realistic, with 29 per cent of the boys expecting to follow occupations at the same level as those of their fathers; 24.9 per cent with occupational expectations above that level; and 15.7 per cent with expectations below it. The tables show little discrepancy between 'desired' and 'expected' occupational levels...these boys may dream, but they are also influenced by reality. (Carp, 1949, p. 93)

Galler (1951) felt that social class was at least as important a factor in children's choices of occupations as chronological age. He stated that social class influenced children's choices and the reasons for their choices. Nelson's (1939) study disclosed that boys chose the vocations of their fathers more often than can be accounted for on the basis of "chance". The degree of relationship between the fathers' occupations and the students' vocational choices is small but positive and significant.

Sewell, Hall, and Strauss (1957) in a carefully controlled study in Wisconsin found that education and occupational aspirations are influenced by the values specific to different social status positions. In this study intelligence and sex were the controlled items.

Parental socio-economic level was included as one of the situational factors in Super's (1953) design of career patterns. Super and

Overstreet (1960) concluded that a boy from a low socio-economic background was wise not to select an occupation above the level of his family since his parents would not be able to afford the cost of education and training necessary for higher level jobs.

Lockwood (1958) felt the following conclusions were justified as a result of his study of 508 high school seniors in Maryland:

- 1) An extremely high level of realism of vocational preference, as rated by judges, exists among senior high school students.
- 2) A contrast may be drawn between the realistic student who chooses a just-about-right vocation and the realistic student who chooses a vocation below his ability. The latter group can be thought of as undershooting or underaspiring in their vocational preferences. The phenomenon of undershooting can be viewed as another kind of unrealism in vocation preference, an unrealism due to the student's aiming below his apparent vocational potential. Some consider this phenomenon as representing a 'waste' of manpower. In any event a relatively large percentage (37 per cent) of these students has been judged capable of achieving vocational success in higher level vocations than the ones selected.
- 3) The Realism Index Scale and the judging procedure developed and used in our study present an objective method of reaching a decision concerning the degree of realism shown by an individual student in his vocational preference.
- 4) As indicated in this study, a student's realism of vocational preference is apparently uninfluenced by and unrelated to the socio-economic-cultural-prestige factors represented by residential district, race, sex, schools attended, parental occupational level, and the number of other children in the family.
- 5) In general, it appears that realism of vocational preference is an individual rather than a group phenomenon. Social class, extra-individual, and immediate external environmental factors cannot safely be assumed to influence a student's level of vocational realism. (Lockwood, 1958, p. 103)

Other investigators also felt that the influence of socioeconomic status was negative in regard to occupational choice.

Stephenson (1955) discovered in his study of ninth graders that:

Occupational aspirations and plans reflect neither occupational position of the father nor occupational needs of the community.

Marked differences between aspirations and plans were found--the latter approximating the father's occupational position.

There is a relatively close relationship between student's occupational plans and the father's occupational group.

There is little relationship between aspirations and father's occupational group--all students have relatively high occupational aspirations. (Stephenson, 1955, p. 34)

A study by Anthony (1964) revealed a significant difference between the level of pupils' chosen occupations and those of the fathers on an occupational status scale. The students aspired to higher level occupations. Davis, Hagan, and Strouf (1962) investigated the occupational choices of twelve year olds. They discovered that the more mature choices seem to correlate positively with intelligence and the feminine sex. They correlated inversely with reading retardation, but not with race or socio-economic environment. In summarizing previous research, Ryan (1953) decided that family influence is not particularly important in establishing occupational goals. Auten (1951) concluded that home influences probably did not play a great part in determining the selection of an occupation.

Age and Vocational Choice

The research that has been done on the relationship of chronological age to vocational choice has been inconclusive.

Thompson (1966) found that the responses of high school students as freshmen and later as sophomores supported the belief that the characteristics of a vocation that were important to students may be internalized relatively early in life. He wrote, "Freshmen students were very definite in what was important to them in a vocation, and in their sophomore year over three-fourths still rated the importance of these occupational values just as they had a year previously. (Thompson, 1966, p. 853). Trow, (1941), surveyed the occupational choices of eighth, tenth, and twelfth graders and found for almost half of them no discrepancy between what they would probably do and what they would like to do. He concluded that children on the whole are realistic in their vocational outlook and generally satisfied with their occupational possibilities.

Galler (1951), as cited previously, noted that chronological age is important in occupational choice. An investigation of the rate and degree of vocational interest maturity of adolescent boys was made by Miller (1964). He found a significant difference between thirteen and eighteen year olds in vocational interest. The boys became more mature and made positive gains each year. Roeber and Garfield (1943) agreed with this finding. Their study indicated that vocational choice became more realistic from the beginning secondary school years to the upper secondary school grades.

Another survey, made by Gribbons and Lohnes (1965), revealed that there is early maturation of some vocational self concepts. In

this study they tested a group of eighth graders; this same group was retested as tenth and twelfth graders. They found, "None expressed an interest in occupations on the lowest two levels. There is a problem of whether a youngster in this age group is able to admit to a low occupational aspiration or interest, even if it is realistic for him." (Gribbons and Lohnes, 1965, p. 247) Bradley (1943) found from his survey of the literature that an individual's vocational choice may change with age. In a study cited above, Lockwood (1958) indicated that students at higher grade levels generally made better vocational decisions.

In justifying their recommendation that occupational information is needed in junior and senior high schools, Matteson and Orton (1963) noted that many observers felt the vocational outlook of such students was immature. Their study concluded that there was considerable immaturity in the vocational thinking and imagery of these students. They stated that confusion, stereotyped outlooks and aspirations, and infantile fantasy were found. Carp's (1949) study of high school boys' occupational choice revealed little relationship between the level of their desired or expected vocations and their age. As a result of their study, Schmidt and Rothney (1954) were convinced that there was an instability of vocational preferences expressed from year to year during the high school careers of the students surveyed. In a study conducted among veterans, Stubbins (1948) found considerable unrealism in their vocational choices.

Lunde and Bigman (1959) found age was also important from another standpoint for the deaf adult. The age of onset of deafness seemed to have bearing on their occupational choice. They wrote that the following statements were pertinent:

1. A higher proportion of professionals and nonfarm owners and managers than of persons at other occupational levels became deaf at the age of 6 or later.
2. If we exclude both the farmers and the other owners and managers, there is an increasing proportion of persons born deaf as we descend the occupational ladder.
3. A greater proportion of farmers were born deaf than of any other occupational group. (Lunde and Bigman, 1959, p. 31-32)

Sex and Occupational Choice

Relatively few studies have been made of the relationship between sex and occupational choice. Thompson (1966) reported that there were differences between what girls and boys thought was important in occupation; however, little difference was found between the group means of the students when freshmen and a year later when sophomores. He wrote, "While there were some significant differences between boys and girls when considered as groups in the importance placed upon certain values, there was no significant difference between how the boys, as a group, responded as freshmen and as sophomores. The same was true for the girls." (Thompson, 1966, p. 853) Davies, Hagan, and Strouf (1962) stated that the feminine sex seemed to make more mature choices of occupations. Lehman and Witty (1936) made a study of children age eight and one half to eighteen and one half to discover

their vocational attitudes. They found that the attitudes of the boys seemed to change oftener than did those of the girls.

Simmons (1962) reported a high degree of agreement between fourth grade boys with adults as to prestige of occupations. The same level of agreement did not develop among girls until the eighth grade.

Lunde and Bigman (1959) also tabulated the differences in occupational grouping of deaf men and women. They summarized their findings as follows:

The occupational distributions of deaf men and of deaf women are quite dissimilar; moreover, they do not follow those of the hearing population at all points. It will be simplest to observe the differences in occupation by considering each occupational group in turn.

Professional, technical and similar workers:

They comprise relatively small proportions of either sex, but a somewhat larger percentage of women than of men in both the deaf and the total population.

Managers, officials and proprietors:

Virtually no deaf women are found in this category (0.6%); the proportion of deaf men, though small (4.0%), is six or seven times as great. 20.2% of the general population is employed at this level.

Clerical, sales, and similar workers:

Higher proportions of women than men are found at this level, among both the deaf and the general population. But while this is the largest occupational group among the female population as a whole (37.7%), it is a poor second (18.0%) among deaf women. Similarly, while a substantial proportion of all men are employed in clerical and sales positions (12.6%), very few deaf men are (3.7%).

Craftsmen, foremen, and similar skilled workers:

Among both the deaf and the hearing, skilled workers at this level are predominantly men. As we saw above, a far higher

proportion of the deaf, both men and women, are employed at this level than of hearing people.

Deaf men	45.0%
Hearing men	19.3%
Deaf women	7.9%
Hearing women	1.0%

Operative and similar semi-skilled workers:

Over half of the employed deaf women surveyed (51.7%) fell into this category, as well as a significant but smaller percentage of the deaf men (29.8%). This differs markedly from the pattern among the general population, where the proportion of operatives was slightly higher for men than for women (21.3% and 17.5%, respectively).

Service workers, including household employees:

The proportions of both men and women among the deaf employed in service jobs are fairly low (5.6% of the men and 8.0% of the women). Among the total population, by contrast, almost a fourth of the women (23.1%) are service workers of various kinds, including employees in private households.

Laborers:

As among the total population, so among the deaf, a higher percentage of men than of women reported themselves employed as laborers. (Lunde and Bigman, 1959, pp. 21-22)

The discrepancies between the actual occupations of the deaf, by sex, is apparent from the above. This seemed to be the result of varying choices, whether these be voluntary or resulting from the necessities of employment.

Parental and Teacher Influences on

Occupational Choice

Most researchers credited the home as being the major factor in determining the occupational choices of children. The school usually is thought of as the second most important factor in such decisions. Because of inadequate communication, it seemed probable that the

school might replace the home as the most important factor in occupational choice as far as the deaf child was concerned.

Levine and Safian (1958) indicated that while many occupations are not available to the deaf because of verbal limitations, there still is a tendency for the deaf to be unrealistic in their appraisal of the world of work. Troop (1962) found that the hearing handicapped persons who made the most realistic vocational choices had parents who were very interested in them. He also stated that the hearing handicapped person who made good choices had made good personal and social adjustment to the handicap and the environment. Myklebust (1962) pointed out that the deaf youth were cut off from gaining occupational knowledge from their parents. Levine (1960) reported the problem faced by many deaf pupils:

Where parents lack the ability for intelligent management, the school is obliged to assume a large measure of the parent role. There are numbers of deaf persons who feel closer to school personnel than to their own families. However, no matter how superior the school, it cannot supplant a parent's interest, nor is it equipped to supply the variety of experiences and opportunities a pupil needs to develop into a socially assured individual. (Levine, 1960, p. 45)

Gennetti (1963) discussed the effect of education at a school for the deaf on later vocational adjustment. He stressed the critical influence of the school and home on the development of each child. Orientation to potential job opportunities and discussion of realistic vocational choices by the parents and teachers would help the child make better use of the curriculum.

Far more information is available from studies made with youth with normal hearing. Beeson and Tope (1928) reported, "By far the strongest influence in the case of boys and girls both is that of the parents". (Beeson and Tope, 1928, p. 119)

Among students with normal hearing, Ryden (1951) found that eighty nine per cent of those included in his study considered their parents as their chief vocational consultants. Super (1942) decried the influence of parents and schools who fostered the tendency among students to aim high because they wanted to see them "do well".

Stivers (1959) reported that the socializing agencies: home, school, and community, had an influence on the desire of students to go to college.

Youmans (1956) wrote:

Outside the home probably the most important institution for socializing young people is the school..., it is expected that the school will change youth's occupational expectations. (Youmans, 1956, p. 265)

Beeson and Tope (1928) felt that the teacher's influence as a first factor is very slight. Lipsett (1962) reported on the power of teacher influence:

Teachers also exert an influence on the vocational choices of their students. The tendency for the faculty to reward and encourage students who meet faculty expectations is felt in the formal process of guidance and in informal faculty-student contacts. (Lipsett, 1962, p. 435)

In a comprehensive study of teacher influences on the occupational preferences of high school students, Day (1966) found that six per cent of the students modeled a teacher as their vocational

preference. He further analyzed his findings:

Forty four per cent of the students were influenced in their vocational plans by their teachers. Fifty five per cent of the boys were influenced, and 31 per cent of the girls. The teachers influenced college-bound students in 60 per cent of the cases, trade school training students in 34 per cent of the cases, and the no formal training group in 20 per cent of the cases. (Day, 1966, p. 218)

Summary

It appears that research on occupational aspirations has been concentrated on students with normal hearing. Very few studies have been made utilizing subjects who were acoustically handicapped. In this area, the major concern of most investigators has been the "underemployment" of the deaf. The research to date has been concerned with identifying the extent of this underutilization but no studies have been undertaken to determine the cause for the concentration of deaf employees in the lower level occupations.

The review of the literature of studies made with deaf children showed disagreements regarding interests and vocational choice, socio-economic status and occupational choice, age and vocational choice, and parent and teacher influences on occupations choice.

In conclusion, a review of the literature indicated the following:

1. There was some disagreement as to the value of interest inventories in determining suitable occupational choices.
2. There was some disagreement about whether there was a definite relationship between socio-economic level and vocational aspirations.

3. It appeared that the students offered vocational guidance tended to be more realistic in their selection of occupational goals.

4. There was general agreement that the home and parents were the most important factor in vocational determination for hearing children. This issue was not so clear-cut for the deaf child.

CHAPTER III

METHOD OF PROCEDURE

Introduction

The purpose of this chapter is to present the methodology and organization of this study. A description of the three schools from which the subjects were selected is presented. The methods of collecting data are described along with justification for their use. A description of the statistical procedures applied and utilized and rationale for their use is also included.

Sample Selection

The intent of this study was to determine if occupational information could bring about the selection of more realistic vocational goals by deaf children.

For purposes of this study, one hundred and seventeen severely deafened students were chosen from three residential schools for the deaf. The twenty-one students from the Arizona School for the Deaf and the Blind and the thirty-four from the Colorado School for the Deaf and the Blind represented the experimental groups. The sixty-two students from the California School for the Deaf, Riverside, represented the control group.

The selected schools, located in the southwestern part of the United States, had student bodies that were quite similar, with a representative number of Mexican-Americans. The educational philosophies of the three schools were similar.

The primary classes were taught by the oral method utilizing speech, speechreading and written language. This method was followed for approximately the first six years of the school program.

At the intermediate levels a combined approach was introduced. In this, speech and speechreading were continued with the addition of manual communication. Use of the latter was for the benefit of those students who had not progressed satisfactorily through the exclusive use of oral communication.

Selection of subjects was based on sex, age, hearing loss, age of onset of loss, intelligence, and years of attendance in a residential school for the deaf. All students meeting these criteria comparably were included. The homogeneity of the groups was determined by use of the analysis of variance and Bartlett's test of homogeneity.

The pupils included in this study were given a pretest questionnaire to determine their vocational aspirations. The group from the Colorado School for the Deaf and the Blind then attended a series of occupational guidance classes. The students included in this study from the Arizona School for the Deaf and the Blind were evaluated individually at the Rehabilitation Center at the University

of Arizona. Following this, the findings of the Rehabilitation Center were discussed at a conference at the School for the Deaf and the Blind. The recommendations of this conference were communicated to the student concerned in an individual counseling session.

For this study, the occupational aspirations as expressed in the pre- and post-test questionnaire were compared. These answers were also compared with the interest profiles from the Minnesota Vocational Interest Inventory. Recommendations made by parents and teachers regarding vocational choices were tabulated and compared with the expressed interests of the students.

Subjects were chosen from the high school populations of the three schools in terms of the following criteria: (1) a severe sensory-neural hearing loss: averaging 70 db. or more for the frequencies 500, 1000, and 2000 cycles per second, since birth or before the development of speech; (2) fifteen years of age or older as of September 1, 1965; (3) male students only from the high school departments; (4) intelligence test scores of 80 or better as measured by the WISC or the WAIS; (5) attendance in a residential school for the deaf for the two years preceding this study; (6) no secondary involvements such as a sensory-neural problem, a psychological disturbance, or a physical handicap severe enough to contribute a hindrance to this study.

Hearing losses as shown by pure tone audiometric testing were required to be greater than 70 decibels in the middle three frequencies (500, 1000, 2000).

Newby (1958) stated:

The speech frequencies are 500, 1000, and 2000 cycles per second. They are designated as speech frequencies because many studies have shown that there is a high correlation between the average loss at these three frequencies and the loss for speech as measured directly on a speech audiometer. The loss for speech in each ear can thus be predicted by adding the losses at each of these frequencies and dividing the sum by three. (Newby, 1958, p. 100)

Individuals whose hearing losses are greater than 70 decibels in these three frequencies are for all practical purposes deaf as defined in this study. The committee on nomenclature of the Conference of Executives of American Schools for the Deaf (1938) stated, "With this degree of hearing loss, the individual is unable to comprehend aural communication". (Committee on Nomenclature, 1938, p. 3)

The limitation of age of onset of hearing loss was set at 3.0 years of age in an effort to eliminate those children who sustained their loss of hearing after they had learned speech or verbal communication. The educational problems of the child with early onset of deafness are representative of the majority of children enrolled in schools for the deaf.

The boys included in this study were fifteen years of age or older as of September 1, 1965. The system of grade levels used in public schools is not applicable in schools for the deaf. Usually three additional years of education are required for the deaf child to complete school due to his language handicap. Because of this delay, the high school course of study generally is not begun in a school for the deaf until the student is fifteen years old. Therefore

the age fifteen was selected as being typical of deaf, beginning high school students.

This study was designed to gather information about the vocational aspirations of deaf boys with normal intelligence. The subjects were tested with the Wechsler Intelligence Scale for Children or the Wechsler Adult Intelligence Scale. Only students with an I.Q. of 80 or better were included. This corresponded with the classification table developed by Wechsler (1958).

Subjects were selected who had attended a residential school for the deaf for the two years immediately preceding this study. Students who attended some other type of school might not be typical of the child who had been living away from home for a length of time.

The final selection of subjects resulted in three groups: one with sixty-two students, a second with thirty-four, and a third with twenty-one students. The age range was from fifteen years to twenty years and ten months. The intelligence test scores ranged from 80 to 139 as measured by the WISC or the WAIS. All subjects met the 70 db. average hearing loss criteria and had incurred their hearing losses before learning speech. There were no serious secondary involvements among the students selected.

Description and Use of Instruments

Wechsler Intelligence Scale for Children and Wechsler Adult

Intelligence Scale: The performance scales of the Wechsler Intelligence Scale for Children (WISC) and the Wechsler Adult Intelligence Scale

(WAIS) have been widely used to measure the intellectual capacity of deaf children. Both of these tests have also been used in individual testing of children with normal hearing. Guertin (1959) wrote in *Buros' Fifth Mental Measurements Yearbook*:

The WAIS is a clear improvement over the earlier well-received Wechsler scales. For the time being, at least, the WAIS stands alone with very little competition. It can be expected to take its place as a paragon of intelligence tests and will serve as a criterion of validity for nearly all newly proposed measures of intelligence. (Guertin, 1959, p. 551)

Lavos (1962) investigated the use of the WISC with twelve year old pupils in residential schools for the deaf.

Group means for the WISC quotient or subtest scaled scores did not deviate from theoretical expectations except for a slight elevation in Object Assembly which was statistically significant. (Lavos, 1962, p. 552)

In suggesting appropriate tests for use with the deaf, Levine (1960) stated:

Children who present learning difficulties are ordinarily tested with the WISC when they are 15 or below in age. Other children are tested with the WAIS when they are 16 or older. In each case all the subtests are given with the exception of the digit span. The analysis of each of the test results is based on subtest and subscale scatter. In addition, qualitative analyses of the subject's responses are resorted to very frequently. (Levine, 1960, p. 227)

The use of the performance portions of the WISC and the WAIS was justified by Myklebust (1963), "Usually the tests used are of the nonverbal type because of the language limitation of those having profound deafness from early life." (Myklebust, 1963, p. 155)

The individual test scores of the students included in this study have been listed in Appendix D.

Socio-Economic Scale: The Socio-Economic Scale used in this study was adapted from Hollingshead (1949), Centers (1949), and Warner and Abegglen (1955).

A duplicate of the Socio-Economic Scale, together with the ratings of the subjects, has been included in Appendix A. The scale was constructed in 1961 as part of a study of ability grouping by Jeffs (1962). In his study of occupational aspirations of mentally retarded boys, Ryan (1965) used this scale and found a correlation of 0.74 among three independent raters, the self ratings of the subjects, and himself.

In the present study, each student was interviewed individually by a person skilled in communicating with the deaf. Each item on the Socio-Economic Scale was carefully explained and the student was asked to check the item most closely corresponding to his family.

Hearing Loss: Hearing loss was tested individually in quiet surroundings using audiometers that had been calibrated to American Standards Association specifications and following standard audiometric procedures. Pure-tone thresholds were determined by air and bone conduction from 250 cycles per second through 8000 cycles per second. Pure-tone air conduction averages were computed for the frequencies 500, 1000, and 2000 cycles per second.

Level of Occupation: Roe's (1956) six level classification system was selected since it seemed particularly suited for this study. Hamrick (1966) stated regarding the Roe system:

"...the system distinguished between six occupational levels on the basis of degree of responsibility, capacity, and skill. Levels 1 and 2 include professional and managerial jobs. Level 1 jobs involve more authority, responsibility, and education than those in Level 2. Level 3 is composed of semi-professional jobs and small businesses that involve little responsibility for others and that usually require a high school or technical school education. Levels 4, 5, and 6 are skilled, semi-skilled, and unskilled jobs, respectively. These three classifications generally correspond with their counterparts in the DOT system except when level of responsibility is a factor.

"It utilizes Dictionary of Occupational Titles codes for making some classifications. (Roe, p. 150) Therefore, many of the DOT codes used by rehabilitation counselors to code client's jobs after rehabilitation can be easily converted to Roe levels.

"It has been used successfully by Garrett (1961) for predicting occupational placement." (Hamrick, 1966, pp. 83-4)

Roe's classification system is found in Table V, pages 56-57.

Minnesota Vocational Interest Inventory (MVII): The MVII was developed by Kenneth E. Clark and his students working at the University of Minnesota between 1946 and 1961. Campbell (1966) wrote regarding this test:

The MVII grew out of Clark's experiences as a research psychologist for the Navy during World War II. He was concerned with the haphazardness of the assignment of recruits to skilled trades schools within the Navy; many times the assignments were made simply by asking the recruits to list their choice.

For item format, the MVII has triads of statements, much like the Kuder where the individual is required to choose one liked best and one liked least. One of the primary reasons for

TABLE V

ROE'S CLASSIFICATION OF OCCUPATIONS BY LEVEL OF FUNCTION

-
1. **PROFESSIONAL AND MANAGERIAL**
 Independent responsibility. This Level includes not only the innovators and creators, but also the top managerial and administrative people, as well as those professional persons who have independent responsibility in important respects. For occupations at this level there is generally no higher authority, except the social group. Several criteria are suggested:
 - a. Important, independent, and varied responsibilities.
 - b. Policy-making.
 - c. Education: When high-level education is relevant (it is not required in the creative arts, for example, or a necessity for dictators, or even for our own high government officials) it is at the doctoral level or the equivalent.
 2. **PROFESSIONAL AND MANAGERIAL**
 The distinction between this Level and Level 1 is primarily one of degree. Genuine autonomy may be present but with narrower or less significant responsibilities than in Level 1. Suggested criteria are:
 - a. Medium-level responsibilities, for self and others, both with regard to importance and variety.
 - b. Policy interpretation.
 - c. Education at or above the bachelor level, but below the doctorate or its equivalent.
 3. **SEMI-PROFESSIONAL AND SMALL BUSINESS**
 The criteria suggested here are:
 - a. Low-level responsibility for others.
 - b. Application of policy, or determination for self only (as in managing a small business).
 - c. Education, high school plus technical school or the equivalent.
 4. **SKILLED**
 This and the following levels are classical subdivisions. Skilled occupations require apprenticeship or other special training or experience.
 5. **SEMI-SKILLED**
 These occupations require some training and experience but markedly less than the occupations in Level 4. In addition, there is much less autonomy and initiative permitted in these occupations.

TABLE V -- Continued

6. UNSKILLED

These occupations require no special training or education and not much more ability than is needed to follow simple directions and to engage in simple repetitive actions. At this Level, Group differentiation depends primarily upon the occupation setting.

Classification into Levels 5 through 6 presents some special difficulties. When personal responsibility and the skill required for a job are not at approximately the same level, the occupation is classified at the level of responsibility, by the degree of personal initiative and judgment allowed and required. Many occupational designations, as farmer, include persons working at extremely varied levels of skill and responsibility, but there is no terminology indicating these differences clearly. The farmer who is, in fact, an individual entrepreneur, belongs in Level 3; other individual farmers would belong in 4; farm tenants and sharecroppers belong in 5; farm hands go in 6.

Where there is no question of level of responsibility, occupations are classified into Levels 4 through 6 largely in accord with the DOT classifications; DOT codes 4- and 5- go into Level 4; codes 6- and 7- in Level 5; and codes 8- and 9- in Level 6.

(Roe, Anne, The Psychology of Occupations (New York: John Wiley & Sons, 1956) pp. 149 - 152)

choosing this format was to avoid the influence of individual response style, that is, the tendency for some people to be 'likers', 'others', 'dislikers'.

Two types of scales have been developed for the MVII. The first are occupational scales, developed analogously to the scales of the Strong Vocational Interest Blank (SVIB).

The second type of scales that have been developed for the MVII are called Homogeneous scales--for simplicity, on the profile, they are termed Area Scales. These scales were built by putting together items that correlated highly with each other, strictly an empirical approach with no subjective judgment exercised in item selection. (Campbell, 1966, p. 854-856)

Clark (1961) professed the belief that the vocabulary level of the original test was too high. In the 1965 revision, the inventory was rewritten and the vocabulary level lowered. In addition, the test was reduced from 200 triads to 158. Clark (1961) emphasized, "Interest measures should provide data on the direction for an individual to take, as against the level. What the counselor needs to know is the way in which the individual differs from his peer group and how these differences relate to his probable final vocational objective". (Clark, 1961, p. 117-118)

For this study, the MVII was presented to thirty-four students from the Colorado School for the Deaf and the Blind at one time. The same procedure was followed with the group of twenty-one pupils at the Arizona School for the Deaf and the Blind. The sixty-two students in the group of the California School for the Deaf, Riverside, were divided into two sections because of the number of students involved. The test was administered to them in two sessions, with one session

immediately following the other. A skilled interpreter was used in every instance to explain the meaning of all items in each triad.

The Questionnaire: The questionnaire was developed from a study of questionnaires and multiple-choice lists used by other investigators working with children with normal hearing. Because of the language understanding difficulty of the deaf child, a simplified questionnaire was decided on.

The occupations of the parents were included in the initial questionnaire as a cross check on the Socio-Economic Scale rating indicated by the student. This information was also studied in relation to the vocational choices expressed by the student. Items included in the questionnaire were selected after a study of those used by other investigators.

The Occupational Aspiration Scale developed by Haller (1961) was designed to elicit responses of realistic and idealistic levels of occupational aspirations. Time dimension periods of occupational aspiration were also measured by this instrument. The two time-dimension responses are those of short-range and long-range. Questions designed to measure these four dimensions were included in the questionnaire.

Pine (1964-65) asked the following questions to establish reality choices and occupational day dreams:

Of course, most students have some day dreams about what they would like to be or do when they are adults. What would you most like to be or do if you had the ability and opportunity?

Naturally there can be a big difference between anybody's dream and what he seriously expects to do. When you are an adult, let us say around 35 or 50, what kind of work do you really expect to do? (Pine, 1964-65, p. 108)

Lurie, Goldfein, and Baxt (1960) used the following questions in their study:

The kind of work I expect to do for a living when I am finished with school is _____.

My parents and relatives have told me that the kind of work I should plan to do is _____.
(Lurie, Goldfein, and Baxt, 1960, p. 23)

Powell and Bloom (1962) used a questionnaire to investigate the planned and preferred vocational choices of high school students. This information was gathered by use of the following questions:

What occupation do you really expect to enter?

What occupation would you like to enter assuming that you have financial resources, ability and freedom of choice?
(Powell and Bloom, 1962, p. 128)

For this study, the questions relating to "realistic" occupational goals corresponded to the planned or expected goals as used by Powell and Bloom. The "idealistic" vocational goals expressed what the boys would like to do if they had absolute freedom of choice and were not hampered by their loss of hearing.

The questionnaire developed for use in this study was based on the material used in the above surveys by Pine (1964-65), Lurie, Goldfein, Baxt (1960), and Powell and Bloom (1962). The questions were simplified to prevent confusion on the part of the deaf subjects whose language understanding is not equal to that of hearing students

of comparable age. Form 1 and Form 2 of the questionnaire are included in Appendices B and C.

Questions were devised to measure the students' immediate and long-range vocational aspirations, both in terms of realistic and idealistic goals. Information regarding parent and teacher recommendations was also included. The questionnaires were given individually or in small groups of four or fewer students to make sure each understood the questions. A person skilled in communicating with the deaf was available to explain any questions that were not understood.

The entire questionnaire was administered to all the students included in this study early in the 1965-66 school year. A shortened form of the questionnaire containing only the questions regarding realistic and idealistic, immediate and long-range goals was given in the middle of May, 1966.

The Modified TOWER: The TOWER test which stands for Testing, Orientation, and Work Evaluation in Rehabilitation, consists of complete assembly of tests in thirteen occupational areas. (Rosenberg and Usdane, 1963, p. 149)

The twenty-one students included in this study from the Arizona School for the Deaf and the Blind were evaluated individually at the Rehabilitation Center of the University of Arizona. This evaluation was done by means of a modified TOWER approach. The TOWER test was developed by the Institute for the Crippled and Disabled, New York, New York.

The tests at the Rehabilitation Center included:

Business Mathematics
 Business Spelling
 Business Abbreviations
 Money Handling
 Telephone Directory
 Cross Checking
 Use of Ruler
 Workshop Assembly
 Ortho-rater Eye Test
 Screw Sorting
 Post Office Test
 Lettering Test
 B. B. Test
 Payroll Test
 Bolt and Nut Assembly
 Crawford Small Parts Dexterity Test
 O'Connor Finger Dexterity Test
 Bennett Hand-Tool Dexterity Test
 Purdue Pegboard
 Minnesota Rate of Manipulation

Neff (1966) wrote regarding the work-sample approach of which the TOWER is an example:

The virtues of the work-sample approach are its strong reality orientation, its close simulation of actual work demands, and the unparalleled opportunity it affords to observe actual work behavior in a reasonably controlled situation...The work-sample approach has also run into some very tangled problems of validation. What is it we are trying to predict and what criteria exist against which to check our predictions? Are we predicting actual job performance or are we predicting the ability to learn something in a training course? (Neff, 1966, p. 686)

The TOWER system was advocated for use with the deaf by Pimental (1963).

It would seem logical that any objective vocational interest or aptitude testing instrument applicable for the deaf would also have to be based on performance testing rather than written tests, such as the Kuder or Strong tests.

The TOWER, 1959, method of vocational evaluation appears to meet this performance criteria fully, and has proven to be

an effective vocational testing instrument for the deaf in the limited use to which it has been subjected. Unfortunately, it does not readily adapt itself to clinical use in the sense that it can be administered in an hour or so in an office setting. The evaluation must be conducted in a workshop setting and requires a period of one to three weeks to accomplish. (Pimental, 1963, p. 1024-1025)

Rosenberg and Usdane (1963) made a five year study of the effectiveness of the TOWER system. Their conclusions were, "There appears to be a close agreement between the TOWER system's recommendations and the training and placement of the 534 severely handicapped individuals referred for vocational evaluation to the Institute for the Crippled and Disabled in New York City." (Rosenberg and Usdane, 1963, p. 152)

The students from the Arizona School for the Deaf and the Blind were given a three week evaluation at the Rehabilitation Center. Following this, a conference was held at the school. Present at this conference were the superintendent, principal, dean of students, vocational supervising teacher, the Department of Vocational Rehabilitation representative, academic teachers who knew the student, vocational teachers, and representatives of the Rehabilitation Center. Recommendations for future vocational training and placement were made during this conference and transmitted to the individual boy by the Department of Vocational Rehabilitation representative.

Occupational Information: The group at the Colorado School for the Deaf and the Blind were given group guidance sessions once a week for a 45 minute period during the second semester of the 1965-66 school year. These lessons were planned by the staff counselor along

with the representative of the Department of Vocational Rehabilitation office. The dean of students, a skilled interpreter, assisted in presenting the lessons.

The staff counselor presented the lessons and made arrangements for tours. Lessons were based on the syllabus developed by Ryan (1965) for use with mentally retarded youth. The limited vocabulary load of this material made it very suitable for use with deaf students. Plans for method of presenting lessons were discussed in a meeting of the staff counselor, the vocational rehabilitation counselor, and the dean of students. Actual presentation was made by the staff counselor with the dean of students assisting in interpreting when necessary.

During the course, seven visits were made to different industrial plants in Colorado Springs, Denver, and Pueblo. Filmstrips, movies, and lectures were used to give knowledge of various fields of work. Instruction and practice in filling out application forms was also included. Role playing was utilized to demonstrate certain techniques of applying for a job and proper conduct during an interview.

The subjects covered and a list of plants visited is included in Appendix E.

ANALYSIS OF DATA

Selection Criteria: The data for the selection criteria of age and intelligence were subjected to statistical analysis to determine the homogeneity of the three groups. Because the students from

the three schools represented independent groups, the variances for each of the selection criteria were first analyzed using the F test as described by Garrett (1958). This was done to determine the significance of the difference in variances among the three groups on each of the selection criteria. Following the application of the F test, the data were analyzed using Barlett's Test of Homogeneity (Edwards, 1960, p. 127) to determine normality of distribution. It was decided at the onset of this investigation that differences in variances or means would have to meet the .05 level of confidence to be considered significant.

Independent Variables: The three groups used in this study have been described previously. The independent variables applied to the Colorado School for the Deaf and the Blind group were a series of discussions and field trips to various manufacturing concerns to develop a more realistic appraisal of occupational choices among the students. The independent variables applied to the group from the Arizona School for the Deaf and the Blind were vocational evaluation and individual counseling. The group from the California School for the Deaf, Riverside, served as the control group and received neither occupational information nor vocational evaluations.

Dependent Variable: The dependent variable of vocational aspirations was analyzed by utilizing the t test. Analyses of the effects of vocational guidance or of vocational evaluations and individual counseling were made. The relationships of the vocational

aspirations to parent occupational level, socio-economic status of the family, teacher and parent recommendations were also determined by means of the t test. Comparisons of the boys' occupational aspirations with the number of males employed throughout the United States and the number of employed deaf men were made by means of the chi square procedure.

SUMMARY

The vocational aspirations of deaf boys in the high school departments of three residential schools for the deaf was the basis for this study. The boys selected for the study were of normal intelligence, severely deafened, had incurred their hearing loss before learning speech, and were fifteen years of age or older as of September 1, 1965.

A questionnaire, determining the vocational aspirations of the boys, was administered early in the 1965-66 school year to all the students included in this study. A shortened version of the questionnaire was given in the middle of May, 1966. The socio-economic status of each family was determined by use of Jeff's Socio-Economic Scale. Intelligence quotients were obtained from WISC or WAIS scores.

Variables in the study included: (1) pre- and post-test vocational aspirations, (2) parental advice regarding occupational choice, (3) teacher advice regarding occupational choice, (4) profiles of interests obtained from the MVII, (5) parent occupational

level, (6) family socio-economic level. A null hypothesis was proposed in each case when a variable was compared with career aspirations.

The analysis of variance, the t test, and chi square were used in order to deal with the variables in the statistical design.

CHAPTER IV

RESULTS

Introduction

Analysis of variance, Bartlett's Test of Homogeneity, the t test, correlation, and chi square were used in the statistical analysis of the data gathered for this study. The statistical approach used in each instance was the one determined to be most suitable for the analysis of the data.

The following sections of this paper report the findings of the research in connection with this study. The hypotheses repeated and the findings are related to each hypothesis.

The first two sections of this chapter deal with the initial matching of the three groups: the California School for the Deaf, Riverside; the Arizona School for the Deaf and the Blind; and the Colorado School for the Deaf and the Blind. The next eight sections present the findings related to the hypotheses. The last two sections present a discussion of the relationship of the findings of this study to what is known of the occupations of the general population of the United States and of the employment levels of deaf adults.

Selection Criteria

Boys included in this study were selected on the basis of age, intelligence, hearing loss, age of onset of loss, and years spent in a

residential school. The factors were determined through audiometric tests, intelligence tests, and perusal of school records. Subjects not meeting these criteria were eliminated from the study. All boys in the three schools meeting these criteria were included, no further selection was employed.

The selection criteria of chronological age and intelligence were analyzed to determine the homogeneity of the groups from the three schools. As much homogeneity as possible was desired on these criteria in order to limit the number of variables to which any differences found might be attributed.

Ages and intelligence test scores were studied by means of analysis of variance and Bartlett's Test of Homogeneity. Intelligence tests scores were derived from the Wechsler Intelligence Scale for Children or the Wechsler Adult Intelligence Scale. Table VI presents a summary of the results of the analysis of ages and intelligence test scores.

Examination of Table VI revealed that the three groups of deaf boys from different educational environments were homogeneous as far as the selection criteria were concerned. At the .05 level of confidence, no significant differences were found between the variances of the three groups for age or intelligence scores.

Analysis of the data regarding age and intelligence scores by means of Bartlett's Test of Homogeneity revealed no significant differences at the .05 level of confidence. It was therefore assumed

Table VI. Comparisons of the Ages and Intelligence Scores of the Arizona, Colorado, and California Groups by Means of Analysis of Variance and Bartlett's Test of Homogeneity

Analysis of Variance							
	AGE				INTELLIGENCE TEST SCORES		
	N	X	\bar{X}	ΣX^2	X	\bar{X}	ΣX^2
Arizona	21	4418	210.38	935,830	2196	104.571	233,108
Colorado	34	7004	208.653	1,455,182	3563	104.794	377,151
California	62	12994	209.58	2,737,986	6739	108.693	744,211
	F - 1.65043 (NS)				F - 1.3927 (NS)		

Bartlett's Test of Homogeneity						
	AGE			INTELLIGENCE TEST SCORES		
	df	$\sum \frac{x^2}{k}$	S_k^2	$\sum \frac{x^2}{k}$	S_k^2	
Arizona	20	6367	318.35	3469.15	173.467	
Colorado	33	12358	374.484	3769.6	114.23	
California	61	14695	240.901	11725.18	189.115	70
	χ^2 - 2.248 (NS)			χ^2 - 3.862 (NS)		

that there were no significant differences in the ages or intelligence scores of the three groups of boys selected for this study.

Comparisons of Socio-Economic Levels

The socio-economic level of each group was not considered in the initial selection of each group. However, this information was collected during the progress of the study by means of Jeff's Socio-Economic Index. To determine if the groups were matched in this variable, the data was also analyzed by means of analysis of variance and Bartlett's Test of Homogeneity.

The results of this statistical study are reported in Table VII. Analysis of the data revealed no significant differences among the groups in terms of their socio-economic levels. This finding tended to substantiate the supposition that the students from the three schools were similar in terms of social and economic backgrounds.

Comparisons of Colorado and California Groups

Hypothesis 1 stated there would be no significant differences in the pre- and post-test aspirations between the Colorado group and the California group resulting from offering vocational guidance to the former group. Table VIII summarizes the findings related to this hypothesis. Significant differences were found in six of the seven pre-test means when analyzed by the t test. Long-range, idealistic and total idealistic aspiration differences were significant at the .05 level of confidence. Short-range, realistic; long-range, realistic; total realistic; and total occupational aspirations were significant

Table VII. Comparison of the Socio-Economic Levels of the Colorado, Arizona, and California Groups by Means of Analysis of the Variance and Bartlett's Test of Homogeneity

Analysis of Variance				
	N	X	\bar{X}	ΣX^2
Arizona	21	66	3.1428	228
Colorado	34	113	3.3235	395
California	62	205	3.3064	709
F - 2.5294 (NS)				
Bartlett's Test of Homogeneity				
	df	χ^2	S	k
Arizona	20	20.5714	1.02857	
Colorado	33	19.4412	.58913	
California	61	31.1774	.51110	
χ^2 - 1.85818 (NS)				

Table VIII. A Comparison of Pre- and Post-Test Vocational Aspiration Means
Between the Colorado Group and the California Group Using t Tests

	N	<u>Short-Range Realistic</u>		<u>Long-Range Realistic</u>		<u>Short-Range Idealistic</u>		<u>Long-Range Idealistic</u>		<u>Total Occupational Aspiration</u>	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Colo. School	34	4.32	4.23	4.18	4.21	3.94	4.53	3.90	3.79	4.08	4.23
Calif. School	62	3.55	3.44	3.28	3.41	3.42	3.30	3.15	3.23	3.33	3.34
Difference (<u>t</u>)		(3.33)*(3.24)*		(3.31)*(3.17)*		(1.89)	(5.41)*	(2.56)*(2.08)*		(3.16)*(5.54)*	
		<u>Total Realistic</u>				<u>Total Idealistic</u>					
		Pre	Post			Pre	Post				
Colo. School		4.23	4.29			3.93	4.17				
Calif. School		3.37	3.40			3.30	3.29				
Difference (<u>t</u>)		(3.34)*(4.17)*				(2.33)*(4.21)*					

* Indicates significance at the .05 level of confidence or better.

at the .01 level of confidence. It was noted that no other significant differences were found in pre-test means in other comparisons during this study.

Analysis of post-test means showed significant differences in all seven areas. In three instances, short-range, realistic; long-range, realistic; and long-range, idealistic there was no change in the level of confidence from the pre-test. The following changes were noted from pre- to post-test scores: short-range, idealistic from not significant to .001 level of confidence; total realistic and total occupational aspiration from .01 to .001 level of confidence; and total idealistic from .05 to .001 level of confidence. In all of these last four areas, the Colorado group was discovered to have lowered the level of their aspirations from pre- to post-test. The greatest changes were noticed in the short-range, idealistic; and total, idealistic means with changes of $\downarrow .59$ and $\downarrow .24$ noted. This might indicate that the vocational guidance given the Colorado group had most effect on the idealistic aspirations. Guidance may have resulted in the realization of lack of congruence between the original idealistic occupational goals and their vocational aptitudes with the students developing an awareness of occupations for which they could not qualify. The level of occupational aspirations may therefore have been lowered to a more attainable level on the post-test.

Very little difference was noted in the pre- and post-test means of the California group. Without exposure to vocational

guidance, it may be inferred that the California students were content to remain with their original occupational aspirations.

Significant differences in total occupational aspirations and total realistic and idealistic levels of occupational choice between the Colorado and California groups were discovered; therefore Hypothesis 1 must be rejected.

Comparisons of Arizona and California Groups

Hypothesis 2 stated there would be no significant differences in vocational aspirations between the Arizona group and the California group as a result of giving vocational evaluations and individual counseling to the former group. The results related to this hypothesis are reported in Table IX.

No significant differences were discovered in any of the pre-test occupational aspirations between the Arizona and the California groups. A study of post-test aspirations revealed no significant differences in the short-range, realistic; long-range, realistic; and total realistic areas. In three of the other four areas, short-range, idealistic; long-range, idealistic; and total occupational aspirations, the differences were significant at the .05 level of confidence. A significant difference at the .01 level of confidence was discovered for the total idealistic occupational aspirations. In the four areas where significant differences were found, it was noted that the Arizona group showed post-test aspirations at a lower level than their pre-test scores. A study revealed that three of the four significant

Table IX. A Comparison of Pre- and Post-Test Vocational Aspirations Means Between the Arizona Group and the California Group Using t Tests

N	<u>Short-Range Realistic</u>		<u>Long-Range Realistic</u>		<u>Short-Range Idealistic</u>		<u>Long-Range Idealistic</u>		<u>Total Occupational Aspiration</u>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Ariz. School 21	4.00	3.72	3.68	3.86	3.85	4.10	3.79	4.05	3.86	3.94
Calif. School 62	3.55	3.44	3.28	3.41	3.42	3.30	3.15	3.23	3.33	3.34
Difference (<u>t</u>)	(1.41)	(.92)	(1.09)	(1.40)	(1.30)	(2.56)*	(1.78)	(2.58)*	(1.83)	(2.36)*

	<u>Total Realistic</u>		<u>Total Idealistic</u>	
	Pre	Post	Pre	Post
Ariz. School	3.91	3.81	3.81	4.08
Calif. School	3.37	3.40	3.30	3.29
Difference (<u>t</u>)	(1.67)	(1.45)	(1.60)	(2.87)*

* Indicates significance at the .05 level of confidence or better.

differences occurred in idealistic aspirations. This finding might indicate that idealistic goals were more subject to external influence than realistic goals.

The external influences for the Arizona group consisted of an individual vocational evaluation for each student at the Rehabilitation Center of the University of Arizona, followed by a conference at the Arizona School for the Deaf and the Blind. At this time a meeting of knowledgeable persons was held to discuss each individual student. The persons attending the conference were: the superintendent of the Arizona School for the Deaf and the Blind, the principal, the vocational coordinator, the specialist in rehabilitation of the deaf from the local Vocational Rehabilitation office, representatives from the Rehabilitation Center at the University of Arizona, several vocational and academic teachers, the student director, and the school nurse.

Recommendations regarding the vocational future of each student were developed during the conferences. These recommendations were passed on to the student by the rehabilitation counselor for the deaf. These findings may indicate that receiving recommendations regarding future occupations may have developed greater conservatism in the idealistic vocational aspirations of the subjects. Lower scores on post-test idealistic occupational goals and total occupational aspirations may be indicative of the effectiveness of this type of counseling.

Significant differences in total occupational aspirations; short-range, idealistic; long-range, idealistic; and total idealistic

levels were discovered between the Arizona and California groups; therefore Hypothesis 2 must be rejected.

Comparisons of Colorado and Arizona Groups

Hypothesis 3 stated there would be no significant differences in the pre- and post-test vocational aspirations between the Arizona group and the Colorado group as a result of giving vocational evaluations and individual counseling to the former group and vocational guidance to the latter. A summary of the results obtained relating to this hypothesis is contained in Table X.

No significant differences were found in any of the pre- and post-test occupational aspirations. Three scores, all related to realistic vocational choice, approached the .05 level of confidence. This approach to significance of certain scores may indicate that movement toward selection of more realistic vocational goals may have resulted from the vocational guidance given the Colorado group, or from the individual counseling given the Arizona group.

Significant differences in the occupational aspirations between the Arizona and Colorado groups were not discovered; therefore, Hypothesis 3 must be accepted.

Vocational Aspirations and Minnesota Vocational

Interest Inventory Comparisons

Hypothesis 4 stated there would be no significant correlations between the levels of vocational aspirations expressed by the subjects in this study and their interests as measured by the Minnesota

Table X. A Comparison of Pre- and Post-Test Vocational Aspiration Means
Between the Colorado Group and the Arizona Group Using t Tests

	N	<u>Short-Range Realistic</u>		<u>Long-Range Realistic</u>		<u>Short-Range Idealistic</u>		<u>Long-Range Idealistic</u>		<u>Total Occupational Aspiration</u>	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Colo. School	34	4.32	4.23	4.18	4.21	3.94	4.53	3.90	3.79	4.08	4.23
Ariz. School	21	4.00	3.72	3.68	3.86	3.85	4.10	3.79	4.05	3.86	3.94
Difference (<u>t</u>)		(.99)	(1.54)	(1.13)	(1.08)	(.24)	(1.27)	(.27)	(.69)	(.64)	(1.54)

	<u>Total Realistic</u>		<u>Total Idealistic</u>	
	Pre	Post	Pre	Post
Colo. School	4.23	4.29	3.93	4.17
Ariz. School	3.91	3.81	3.81	4.08
Difference (<u>t</u>)	(.87)	(1.61)	(.32)	(.29)

Vocational Interest Inventory (MVII). A statistical survey of findings related to this hypothesis is reported in Table XI.

The MVII was given to determine if there would be any significant correlations between expressed aspirations and vocational interests as measured by this interest inventory. Determination of the significance of the correlations was made by means of the procedure described by Garrett (1958, p. 200-203).

Five significant correlations at the .05 level of confidence were found: short-range, idealistic for the Colorado group; short-range, idealistic and long-range, idealistic for the California group; and the short-range, idealistic combined means for the three groups. Four other scores approached the .05 level of confidence: long-range, realistic for the Arizona group; short-range, realistic for the California group; and the long-range, realistic and long-range, idealistic for the combined means of the three groups.

With only five or 16 per cent of the thirty two correlations significant at the .05 level or better, it appeared that the MVII was not a valid measure of the level of the occupational aspirations of the boys included in this study.

An F ratio test was made on the findings of this comparison. (See Appendix F) A significant score of 4.78 was found. Therefore, Hypothesis 4 was accepted and it was assumed that true differences existed between the vocational aspirations of the subjects and their occupational levels as measured by the MVII.

Table XI. Correlations Between the Pre- and Post-Test Vocational Aspiration Means with the Minnesota Vocational Interest Inventory Means of the Colorado Group, the Arizona Group, and the California Group

	N	MVII	Short-Range Realistic		Long-Range Realistic		Short-Range Idealistic		Long-Range Idealistic	
			Pre	Post	Pre	Post	Pre	Post	Pre	Post
Colo. School	34	4.47	4.32	4.23	4.18	4.21	3.94	4.53	3.90	3.79
Correlation			-.15	.06	-.07	-.01	-.14	-.35*	-.10	.13
Ariz. School	21	4.57	4.00	3.72	3.68	3.86	3.85	4.10	3.79	4.05
Correlation			.00	-.16	.39	-.02	.13	.12	.22	-.05
Calif. School	62	4.50	3.55	3.44	3.28	3.41	3.42	3.30	3.15	3.23
Correlation			.23	.29*	-.06	-.01	.48*	.01	.29*	.06
Combined M's for all 3 schools	117	4.50	3.86	3.70	3.60	3.72	3.65	3.81	3.45	3.54
Correlation			.06	.10	.07	.15	.21*	.05	.18	.07

* Indicates significance at the .05 level of confidence or better.

Occupational Aspirations and Parental Occupational
Levels Comparisons

Hypothesis 5 stated there would be no significant correlations between the levels of vocational aspirations of the subjects and the parental occupational levels. Table XII contains an overview of data collected relating to Hypothesis 5.

Sixteen correlations, significant at the .05 level of confidence or better, were discovered between the vocational aspirations of the subjects and the occupational levels of their parents. The Arizona group displayed the greatest number of significant correlations with seven of the eight correlations being significant. A total of sixteen of the thirty two correlations were significant at the .05 level of confidence; five additional correlations approached significance. The latter were: short-range, realistic; and long-range, realistic for the Colorado group; the long-range, idealistic for the Arizona group; the short-range, realistic for the California group; and the long-range, idealistic mean for the combined three groups.

The California and Colorado groups did not evidence the same number of significant correlations as found for the Arizona group. From this it appeared that the boys in the Arizona group tended to select occupations corresponding to the level of occupation of their parents.

An F ratio of 1.92 was found which was not significant. (See Appendix F) Therefore, Hypothesis 5 was rejected and it was assumed that no true differences existed between the parents'

Table XII. Correlations Between the Pre- and Post-Test Vocational Aspiration Means, with the Parental Occupational Level Means of the Colorado Group, the Arizona Group, and the California Group

	N	Parent Occupational Level	Short-Range Realistic		Long-Range Realistic		Short-Range Idealistic		Long-Range Idealistic	
			Pre	Post	Pre	Post	Pre	Post	Pre	Post
Colo. School	34	4.65	4.32	4.23	4.18	4.21	3.94	4.53	3.90	3.79
Correlation			.07	.29	-.01	.30	.04	.43*	-.21	.09
Ariz. School	21	4.29	4.00	3.72	3.64	3.86	3.85	4.10	3.79	4.05
Correlation			.60*	.53*	.56*	.50*	.46*	.64*	.39	.46*
Calif. School	62	4.24	3.55	3.44	3.28	3.41	3.42	3.30	3.15	3.23
Correlation			.08	.19	.27*	.10	.01	.25*	.10	.14
Combined M's for all 3 schools	117	4.37	3.86	3.70	3.60	3.27	3.65	3.81	3.45	3.54
Correlation w/P.O.			.28*	.31*	.34*	.25*	.14	.41*	.17	.21*

* Indicates significance at the .05 level of confidence or better.

occupational levels and the vocational aspirations of the subjects.

Occupational Aspirations and Family

Socio-Economic Status Comparisons

Hypothesis 6 stated there would be no significant correlations between the vocational aspirations of the subjects and the socio-economic status of their families. Tabulations of the product-moment correlations between the occupational aspirations of the three groups of boys considered in this study and the socio-economic status of their families are contained in Table XIII. The findings revealed that sixteen of the thirty two correlations were significant at the .05 level of confidence or better.

While none of the correlations for the Colorado group were significant, it was interesting to note that five of the eight were negative. One of the negative correlations, the long-range, realistic pre-test score, approached significance. The Arizona group showed the most significant correlations with seven of the eight being so classified. Only the long-range, idealistic pre-test aspirations of this group did not show a significant correlation. Three of the correlations for the California group were significant.

It was noted that the significant correlations for the Arizona group paralleled the significant correlations found in the comparison of this group's occupational aspirations and the occupational levels of their parents. This would seem to indicate a positive relationship between the parents' level of occupation, their socio-economic status,

Table XIII. Correlation Between the Pre- and Post-Test Vocational Aspiration Means with the Socio-Economic Index Means of the Colorado Group, the Arizona Group, and the California Group

	N	Socio- Economic Level	Short-Range Realistic		Long-Range Realistic		Short-Range Idealistic		Long-Range Idealistic	
			Pre	Post	Pre	Post	Pre	Post	Pre	Post
Colo. School	34	3.32	4.32	4.23	4.18	4.21	3.94	4.53	3.90	3.79
Correlation			-.17	-.07	-.31	.14	-.25	.17	-.27	.19
Ariz. School	21	3.19	4.00	3.72	3.64	3.46	3.85	4.10	3.79	4.05
Correlation			.61*	.44*	.72*	.52*	.54*	.68*	.35	.60
Calif. School	62	3.31	3.55	3.44	3.28	3.41	3.42	3.30	3.15	3.23
Correlation			.13	.26*	.26*	.29*	.13	.16	.20	.12
Combined M's for all 3 schools	117	3.29	3.86	3.70	3.60	3.72	3.65	3.81	3.45	3.54
Correlation			.23*	.22*	.32*	.29*	.10	.29*	.16	.24*

* Indicates significance at the .05 level of confidence or better.

and the occupational aspirations of the subjects in the Arizona group.

An F ratio test was made with a resulting score of 1.73. (See Appendix F) This score was not significant so Hypothesis 6 was rejected. It was assumed that no true differences existed between the vocational aspirations of the subjects and the socio-economic levels of their families.

Comparisons Between Vocational Aspirations
and Occupations Suggested by Parents

Hypothesis 7 stated there would be no significant correlations between the levels of vocational aspirations of the subjects and the levels of occupations suggested by their parents. Table XIV presents an overview of the findings related to this hypothesis. Responses from the subjects on this item were incomplete. Many of the subjects indicated they had not discussed their future occupations with their parents or the parents felt this was a decision to be made by the boy without their counsel. Eighteen or fifty three per cent of the Colorado group answered this item, eleven or fifty two per cent of the Arizona group, and thirty eight or sixty one per cent of the California group responded, for a total of sixty seven or fifty seven per cent of the combined groups.

All of the correlations, with the exception of three for the Colorado group, were significant at the .05 level of confidence or better. Among the three non-significant correlations for the Colorado group, one approached significance at the .05 level.

Table XIV. Correlations Between the Pre- and Post-Test Aspiration Means With the Level of Occupation Suggested by Parents of the Colorado Group, the Arizona Group, and the California Group

	N	Parent Occupational Suggestion	Short-Range Realistic		Long-Range Realistic		Short-Range Idealistic		Long-Range Idealistic	
			Pre	Post	Pre	Post	Pre	Post	Pre	Post
Colo. School	34	4.18	4.32	4.23	4.18	4.21	3.94	4.53	3.90	3.79
Correlation			.62*	.22	.40*	.51*	.39*	.33	-.09	.45*
Ariz. School	21	3.82	4.00	3.72	3.64	3.86	3.85	4.10	3.79	4.05
Correlation			.82*	.91*	.88*	.81*	.78*	.87*	.71*	.78*
Calif. School	62	2.87	3.55	3.44	3.28	3.41	3.42	3.30	3.15	3.23
Correlation			.58*	.54*	.63*	.44*	.55*	.50*	.51*	.34*
Combined M's for all 3 schools	117	3.36	3.86	3.70	3.60	3.72	3.65	3.81	3.45	3.54
Correlation			.63*	.53*	.67*	.57*	.58*	.63*	.58*	.36*

* Indicates significance at the .05 level of confidence or better.

Twenty seven of the twenty nine significant correlations were at the .01 level of confidence or better. This large number of significant correlations seemed to indicate that parents of deaf boys have some influence on the occupational choices of their children. This finding tended to refute Myklebust's (1962) contention that deaf youth found it difficult to acquire knowledge of occupations from their parents. The relatively low percentage (56 per cent) answering this question would indicate that not many parents availed themselves of the opportunity to discuss occupational goals with their sons. The fact that a large number of significant correlations were found among the subjects answering this question would indicate that parents have considerable influence on the occupational aspirations of their children.

A score of 2.40 was obtained from an F ratio test. (See Appendix F) This score was not significant; therefore, Hypothesis 7 was rejected. It was assumed that no true differences existed between the vocational aspirations of the subjects and the vocations suggested by their parents.

Comparisons Between Vocational Aspirations
and Occupations Suggested by Teachers

Hypothesis 8 stated there would be no significant correlations between the levels of vocational aspirations of the subjects and the levels of occupations suggested by their teachers. A summary of the findings related to this hypothesis are contained in Table XV.

Table XV. Correlations Between the Pre- and Post-Test Aspiration Means with the Level of Occupation Suggested by Teachers of the Colorado Group, the Arizona Group, and the California Group

	N	Teacher Occupational Suggestion	Short-Range Realistic		Long-Range Realistic		Short-Range Idealistic		Long-Range Idealistic	
			Pre	Post	Pre	Post	Pre	Post	Pre	Post
Colo. School	34	3.82	4.32	4.23	4.18	4.21	3.94	3.52	3.90	3.79
Correlation			.80*	.43*	.92*	.80*	.97*	.31	1.00*	.39*
Ariz. School	21	4.11	4.00	3.72	3.64	3.86	3.85	4.10	3.79	4.05
Correlation			.32	.41	.32	.34	.49*	.26	.34	.17
Calif. School	62	3.14	3.55	3.44	3.28	3.41	3.42	3.30	3.15	3.23
Correlation			.47*	.29*	.45*	.37*	.48*	.53*	.40*	.50*
Combined M's for all 3 schools	117	3.69	3.86	3.70	3.60	3.72	3.65	3.81	3.45	3.54
Correlation			.50*	.35*	.53*	.43*	.55*	.49*	.51*	.42*

* Indicates significance at the .05 level of confidence or better.

A minority of the subjects answered this item; only six or eighteen per cent of the Colorado group, eight or thirty eight per cent of the Arizona group, and twenty seven of forty four per cent of the California group responded. This constituted a total of forty one or thirty five per cent of the three groups stating that their teachers had discussed occupational goals with them.

Significant correlations at the .05 level of confidence or better were found for seven of the eight Colorado group comparisons. Six of these correlations were at the .01 level or better. The one score that was not significant was relatively high and approached significance.

For the Arizona group, only one score was found to be significant at the .05 level or better. The California group was found to have significant correlations in all eight comparisons; seven of the eight were at the .01 level or better.

Teacher suggestions appeared to have some influence on the level of the occupational aspirations for the Colorado and California groups, however the influence of teacher advice did not appear to be significant for the Arizona group. The paucity of responses was attributed by the subjects to a lack of discussion of occupational goals with their teachers. In view of the significant correlations obtained when such counseling is offered by teachers, it would seem that this type of guidance should be encouraged.

An F ratio of 3.06 was obtained which was not significant. (See Appendix F) Therefore, Hypothesis 8 was rejected and it was

assumed that no true differences existed between the vocational aspirations of the subjects and the occupations suggested by their teachers.

Comparisons of the Occupational Aspirations

With Occupations of Males in the

United States

Data related to comparisons of the levels of occupational aspirations of boys included in this study with the level of occupations of employed males throughout the United States are contained in Table XVI. The data is presented in terms of percentages of responses in each Occupational Group. A chi square analysis of the data revealed a probability level of far less than .01. Therefore the differences were assumed to be significant.

A study of the data revealed that the greatest differences between percentages occurred in Occupational Groups I and IV. In Occupational Group I, 29.8 per cent of the deaf boys expressed an aspiration while only 12.9 per cent of the employed males in the United States were working at this level. The discrepancy was even greater in Occupational Group IV; 42.8 per cent of the aspirations of the deaf boys were at this level compared with 20.0 per cent of all the men in the United States actually employed at this level. On the other five Occupational Groups, the percentage of occupational aspirations expressed by the deaf students were less than the percentages of men employed at these levels.

Table XVI. Comparison of the Percentage of Occupational Aspirations of the Arizona, Colorado, and California Groups with the Percentage of Males in the United States Employed in Each Occupational Group

Occupational Group	I	II	III	IV	V	VI	VII
Percentage of Occupational Aspirations of Deaf Boys	29.8	4.3	6.1	42.8	10.4	6.4	0.2
Percentage of Males Employed*	12.9	17.3	12.9	20.0	30.3	7.3	2.3

$$\chi^2 = 76.58$$

$$P < .05$$

* Data from U. S. Department of Labor, Employment and Earnings, 13:18, December, 1966.

Four occupations accounted for more than half of the choices made by deaf students in Occupational Group I: teacher, 27.5 per cent; draftsman, 20.4 per cent; artist, 11.8 per cent; and scientist, 7.5 per cent. The unusual interest in teaching might be due to the influence of teachers on the occupational goals of the students. The desire to emulate the deaf teachers found in most residential schools might also influence the occupational aspirations of the deaf youth.

Occupational Group IV consisted of skilled laborers. The large number of aspirations expressed by deaf boys that were classified as belonging to Occupational Group IV might be due to the emphasis of the vocational training programs in schools for the deaf on training for entry into skilled occupations. The vocational areas frequently taught in schools for the deaf that fall into Occupational Group IV were: printing, baking, cabinet making, shoe repair, and furniture upholstery.

Occupational Aspirations Compared with Lunde and Bigman's Findings

Lunde and Bigman's (1959) survey of the adult deaf revealed that the majority of the deaf were employed in the skilled and semi-skilled Occupational Groups. A comparison of the occupational aspirations stated by the students in this study and the percentage of deaf adults employed at each Occupational Group level is summarized in Table XVII. Analysis of this data was made through use of chi square. This analysis revealed the differences had a probability of far less than .01.

Table XVII. Comparison of the Percentage of Occupations Aspirations of the Arizona, Colorado, and California Groups with the Percentages of Deaf Adults Employed in Each Occupational Group

Occupational Group	I	II	III	IV	V	VI	VII
Percentage of Occupational Aspirations of Deaf Boys	29.8	4.3	6.1	42.8	10.4	6.4	0.2
Percentage of Deaf Adults Employed*	6.0	4.0	3.7	45.0	29.8	5.6	3.3

$$\chi^2 = 111.96$$

$$P < .05$$

* Data from Anders S. Lunde and Stanley K. Bigman, Occupational Conditions Among the Deaf, (Washington: Gallaudet College, 1959), p. 21.

A review of the data showed that the greatest difference between the Lunde and Bigman findings and the occupational aspirations stated by the boys in this study was found in Occupational Group I: Professional and Technical. The percentage (29.8) of students aspiring to Occupational Group I far exceeded the percentage (6.0) of deaf adults actually employed in occupations classified in Group I.

The other large difference in percentages was found in Occupational Group V: Operatives and Similar Workers. Aspirations classified in Occupational Group V were selected by 10.4 per cent of the boys compared with 29.8 per cent of the deaf adults employed at this level. It was also noted that the percentages of aspirations of the deaf boys classified in Occupational Groups II and III exceeded the percentages of deaf adults employed at these levels.

The large percentage of deaf students aspiring to Occupational Group I positions would seem to discount the possibility that underemployment of the deaf was due to underaspiration of deaf students. It might be that lack of employment opportunities at the higher Occupational Groups or inability to obtain the training necessary for such positions hindered the deaf person in this desire to obtain employment at these higher levels.

It was noted that the greatest percentage (45 per cent) of deaf adults were employed in Occupational Group IV. Among the deaf boys, the largest percentage of aspirations (42.8) was also concentrated at this level. The percentages of occupational aspirations stated by

the students falling into Occupational Groups V and VII were less than the percentages of deaf adults found to be working at these levels. A slightly larger percentage of the aspirations of deaf boys was found in Occupational Group VI than the percentage of deaf adults employed at this level.

It appeared that the occupational aspirations of the deaf boys were not appropriate or realistic in view of the high percentage (29.8) aspiring to Group I positions. This figure compared with the 6.0 per cent of the deaf adults occupied at the Group I level and with 12.9 per cent of the employed males in the United States at this level.

CHAPTER V
SUMMARY AND CONCLUSIONS

Summary

The primary purposes of this study were: (1) to discover the occupational aspirations of deaf high school boys, and (2) to determine what influences led to the selection of their vocational goals. The sample, made up of 117 deaf high school boys of normal intelligence, was drawn from three residential schools for the deaf: one in Riverside, California, another in Tucson, Arizona, and the third in Colorado Springs, Colorado.

Subjects were selected on the basis of their age, intelligence, hearing loss, date of onset of loss, and length of attendance in a residential school. Sixty two boys from the California School for the Deaf, Riverside, were included in this study along with twenty one boys from the Arizona School for the Deaf and the Blind and thirty four from the Colorado School for the Deaf and the Blind.

Certain instruments and devices were used for the measurements necessary for this study. These were:

1. The socio-economic index used to establish a socio-economic rating for each subject.
2. The Wechsler Intelligence Scale for Children or the Wechsler Adult Intelligence Scale used to measure mental ability.

3. An audiometer used to determine amount of hearing loss.
4. The Minnesota Vocational Interest Inventory used to measure the vocational interests of the subjects.
5. The Occupational Aspirations Questionnaire used to gather information regarding the boys' occupational goals, and parent and teacher recommendations regarding occupational choices. The questionnaire yielded information about short-range, long-range, idealistic and realistic goals.

Each student was pre-tested with the WISC or the WAIS, and had a standard audiometric test administered. School records were studied for information regarding the age of onset of hearing loss and length of attendance in a residential school for the deaf. The socio-economic index was used with the subjects meeting the above criteria in order to establish a socio-economic weight for each individual. Each subject was also pre-tested with the Occupational Aspirations Questionnaire and the MVII. A post-test Occupational Aspirations Questionnaire consisting of items relating to short-range and long-range vocational aspirations was also administered to each subject.

Several variables were applied to two of the groups in the interim between the pre- and post-test. The Arizona group was given an evaluation at the Rehabilitation Center of the University of Arizona followed by a conference of interested persons at the Arizona School for the Deaf and the Blind. The recommendations of this group were then transmitted to each individual student in a conference with the local vocational rehabilitation representative.

A series of vocational guidance classes and industrial tours were scheduled for the Colorado group. The California group served as

the control group and received neither an evaluation or occupational information.

The analysis of variance and Bartlett's test of homogeneity were used to ascertain the initial matching of the groups in terms of age, intelligence, and socio-economic status. The t test, product-moment correlation, and the chi square were used to evaluate the data collected.

No significant differences were found between the groups on the criteria of age, intelligence, or socio-economic status through the use of analysis of variance and Bartlett's Test.

Colorado and California Groups

Hypothesis 1 stated that there would be no significant differences in the pre- and post-test aspirations between the Colorado group and the California group resulting from offering vocational guidance to the former group. The following results were obtained:

1. No significant differences were found on the pre- and post-test levels of occupational aspirations between the Colorado group and the California group in the short-range, realistic; long-range, realistic; and long-range, idealistic areas.

2. A significant difference (.001 level) was discovered in the short-range, idealistic level of occupational aspirations between the Colorado and California groups.

3. A change from a significant difference level of .01 to .001 was discovered in the total occupational aspirations area between the Colorado and California groups.

4. A change from a significant difference level of .01 to .001 was also discovered in the total realistic area between the Colorado and California groups.

5. A change from a significant difference level of .05 to .001 was discovered in the total idealistic level of occupational aspirations between the Colorado and California groups.

6. The greatest change for the Colorado group was noted in the idealistic area which might indicate that this level was most influenced by the vocational guidance received by this group.

Arizona and California Groups

Hypothesis 2 stated there would be no significant differences in vocational aspirations between the Arizona group and the California group as a result of giving vocational evaluations and individual counseling to the former group. The following results were obtained:

1. No significant differences were discovered in the short-range, realistic; long-range, realistic; and total realistic levels of occupational aspirations between the Arizona and California groups.

2. A significant difference (.05 level) was obtained on the short-range, idealistic level of occupational aspirations between the Arizona and California groups.

3. A significant difference (.05 level) on the long-range, idealistic level of occupational aspirations between the Arizona and California groups was discovered.

4. A significant difference (.05 level) in the total occupational aspirations was discovered between the Arizona and California groups.

5. A significant difference (.01 level) in total idealistic occupational aspirations between the Arizona and California groups was discovered.

6. The greatest change for the Arizona group was noted in the idealistic area. This might indicate that the vocational evaluations followed by individual conferences had most influence on the idealistic aspirations of this group.

Arizona and Colorado Groups

Hypothesis 3 stated there would be no significant differences in the pre- and post-test vocational aspirations between the Arizona and the Colorado groups as a result of giving vocational evaluations and individual counseling to the former group and vocational guidance to the latter. The following result was obtained:

1. No significant differences were found at any level of occupational aspirations between the Arizona and the Colorado groups.

Occupational Aspirations and the Minnesota

Vocational Interest Inventory

Hypothesis 4 stated there would be no significant correlations between the levels of vocational aspirations expressed by the subjects in this study and their interests as measured by the Minnesota Vocational Interest Inventory. The following results were

obtained:

1. Out of the thirty two correlations only the following were found significant:

a. Colorado

1) Post-test short-range, idealistic (.05 level)

b. California

1) Post-test short-range, realistic (.05 level)

2) Pre-test short-range, idealistic (.01 level)

3) Pre-test long-range, idealistic (.05 level)

c. Combined means

1) Pre-test short-range, idealistic (.05 level)

2. With only five significant correlations among the thirty two possible, the implication was that the MVII was not a valid measure of the levels of occupational aspirations expressed by the deaf boys in this study.

Occupational Aspirations and Parents' Occupational Levels

Hypothesis 5 stated there would be no significant correlations between the levels of vocational aspirations of the subjects and the parents' occupational levels. The following results were obtained:

1. Sixteen of the thirty two correlations were found to be significant (.05 level or better).

2. The significant correlations were concentrated in the Arizona group comparisons (seven out of eight) and in the combined means comparisons (six out of eight).

3. The level of parental occupation appeared to have had some bearing on the level of occupational aspirations indicated by the students from the Arizona school included in this study.

4. The level of parental occupation might have had some influence on the level of occupational aspirations of the Colorado and California groups in view of the number of significant correlations found among the combined means comparisons.

Occupational Aspirations and Socio-Economic Status

Hypothesis 6 stated there would be no significant correlations between the levels of vocational aspirations of the subjects and the socio-economic status of their families. The following results were obtained:

1. Sixteen of the thirty two correlations were found to be significant (.05 or better).

2. The significant correlations were concentrated in the Arizona group comparisons (seven out of eight) and in the combined means comparisons (six out of eight).

3. Among the California group comparisons, three out of eight were found to be significant at the .05 level or better.

4. The level of the socio-economic status of the families appeared to have had some influence on the level of occupational choices indicated by the students from the Arizona group.

5. The level of the socio-economic status of the families might have had some influence on the occupational choices of the

Colorado and California boys in view of the number of significant correlations found among the combined means comparisons.

Occupational Aspirations and Occupations

Suggested by Parents

Hypothesis 7 stated there would be no significant correlations between the vocational aspirations of the subjects and the levels of occupations suggested by their parents. The following results were obtained:

1. Fifty seven percent of all the students in this study stated they had consulted with or had been advised by their parents regarding future vocational goals.
2. Twenty nine of the thirty two correlations were significant at the .05 level or better. The exceptions were found among the correlations for the Colorado group.
3. Twenty seven of the correlations were at the .01 level or better.
4. It appeared that where parents had attempted to communicate with the deaf boys included in this study, considerable influence had been exerted on the levels of occupational aspirations expressed by the boys.

Occupational Aspirations and Occupations

Suggested by Teachers

Hypothesis 8 stated there would be no significant correlations between the vocational aspirations of the boys and the

levels of occupations suggested by their teachers. The following results were obtained:

1. Thirty five percent of the students included in this study stated they had consulted with or had been advised by their teachers regarding vocational goals.

2. Seven of the correlations for the Colorado group were significant at the .01 level or better.

3. Only one correlation for the Arizona group was significant (.05 level).

4. All eight correlations for the California group were significant (.01 level or better).

5. All eight correlations for the combined means were significant (.01 level or better).

6. Occupations suggested by the teachers appeared to have had some influence on the levels of occupations selected by the students.

Comparisons of the Occupational Aspirations and Occupations of Males in the United States

A chi square comparison of the occupational aspirations expressed by the deaf boys included in this study with the occupations of all employed males in the United States revealed the following:

1. There was a significant difference between the percentages of the boys' occupational aspirations at each level compared with the percentages of males throughout the United States employed in the seven Occupational Groups.

2. The percentages of occupational aspirations of the deaf boys classified in Groups I and IV far exceeded the percentages of United States males employed in those groups.

3. Teaching constituted 27.5 percent of the occupational aspirations of the boys classified in Occupational Group I.

4. The vocations taught in a school for the deaf might encourage aspirations classified in the Occupational Group IV occupations.

Occupational Aspirations Compared with
Lunde and Bigman's Findings

A chi square comparison of the occupational aspirations expressed by the deaf boys included in this study with the occupations of employed deaf males as reported by Lunde and Bigman revealed the following:

1. There was a significant difference between the percentages of occupational aspirations expressed by the boys and the percentages of deaf males employed in the seven Occupational Groups.

2. The percentage of occupational aspirations expressed by the boys classified in Occupational Group I far exceeded the percentage of deaf men employed in that group.

3. There seemed to be agreement between the percentage of the boys' occupational aspirations classified in Occupational Group IV and the percentage of deaf males employed in occupations listed in that group.

4. The large percentage of occupational aspirations in Occupational Group I tended to refute the premise that underemployment of the deaf was a result of underaspiration on the part of the deaf student.

5. The vocational aspirations of deaf boys included in this study did not seem realistic in view of the great percentage aspiring to Occupational Group I positions compared with a smaller percentage of United States males actually employed at this level and the even smaller percentage of deaf men with positions classified in this occupational group.

General Conclusions

1. Vocational guidance for deaf high school boys tended to have more influence on the idealistic level aspirations than on the realistic level occupational goals.

2. Vocational evaluations followed by individual counseling for deaf high school boys tended to have more influence on the idealistic level of occupational aspirations than on the realistic level goals.

3. The MVII did not appear to be a valid measure of the level of occupational aspirations expressed by deaf high school boys.

4. Parental occupational levels tended to influence the levels of occupational aspirations of deaf high school boys.

5. The socio-economic status of the families tended to influence the levels of occupational aspirations stated by deaf high school boys.

6. Parental suggestions regarding vocations for the boys tended to influence the levels of occupational choices of deaf high school students.

7. Teacher suggestions regarding suitable vocations tended to influence the levels of occupational choices of deaf high school boys.

8. The percentages of aspirations of deaf boys in each occupational group tended to be significantly different from the percentages of employed males in each group throughout the United States.

9. The percentages of aspirations of deaf boys in each occupational group tended to be significantly different from the percentages of deaf males employed in each group.

10. It appeared that deaf boys tended to overaspire in view of the large percentages expressing occupational aspirations classified in the higher occupational groups.

11. A large percentage of the vocational aspirations expressed by the deaf subjects in this study were for higher level occupations. In view of this, it would not appear that the underemployment of deaf adults stemmed from comparable underaspirations on the part of deaf high school students.

Recommendations

Certain recommendations for further study seem appropriate and have been included here.

1. Certain revisions of the high school programs for deaf students to include more occupational information may be indicated.

The communication handicap of the deaf may require long term vocational guidance and occupational information courses in order for the students to develop more realistic occupational goals. A study regarding the length and content of such courses would be valuable.

2. This study may have indicated the usefulness of adapting and improving vocational evaluation techniques for use with deaf students. A study in depth of the validity of vocational evaluations as used with the deaf might be instigated. Necessary modifications of vocational evaluation techniques and standardization of the modifications for use with the deaf might be developed.

3. An investigation might be undertaken into the influence of vocations taught in schools for the deaf upon the vocational aspirations of deaf students. The large percentage of deaf adults employed in the skilled labor class and the large percentage of deaf students aspiring to skilled occupations may be the result of the types of vocational education offered in schools for the deaf.

4. There would appear to be a need to develop greater parent participation in the selection of occupational goals by deaf students. The high correlation between parent aspirations for the youth and the expressed aspirations of the student would indicate that more effective use should be made of parental counseling.

5. A study regarding methods of establishing better communication between parents and their deaf children may be indicated. There was evidence that parents had considerable influence on the occupational aspirations of their children but relatively few offered advice.

This failure to advise their children might be due to lack of ability to communicate with them.

6. There appeared to be a need to assess the influence of teachers on the selection of occupational goals by deaf students. A study might be made of the extent of this influence and the advisability of including vocational guidance and counseling in the teacher training program.

7. Follow-up studies might be undertaken to determine the relationship between occupational aspirations of deaf students and their future job placement. Information regarding occupations after graduation and their relation to occupational aspirations would be helpful to school counselors.

8. There may be a need for a comprehensive study of the cause of underemployment of deaf adults. An in depth survey of the factors that led to job selection by the deaf adults might yield information regarding the reasons for accepting employment at a lower level than their innate capabilities.

9. Follow-up research could be undertaken to determine the reasons for overaspiration on the part of many deaf students. Methods and techniques for developing more realistic occupational goals among deaf students need to be implemented.

APPENDIX A

SOCIO-ECONOMIC INDEX

Name

Date

It is not necessary that every item under a description fit the family, however be sure that most of them describe the family. Circle the appropriate answer.

- A. This family earns more money than it can spend; college does not mean much to them; they belong to the "best" or most exclusive clubs; they often live in very large houses with large yards; they frequently have servants; they usually drive "big" cars (Cadillac, Lincoln, etc.).
- B. This family has professional jobs (such as doctors and lawyers); they usually go to college and graduate; they are usually very active in clubs and organizations; they frequently live in large houses they own; they frequently have two cars.
- C. This family works for wages and salaries; they may own small businesses or farms; they usually spend most of the money they make; they sometimes use a college education as a means of getting them into social clubs and similar organizations; they frequently drive a relatively new car (not more than 4 or 5 years old); this is the typical "American" family.
- D. This family usually doesn't have much money; they work hard; the children usually do not go to college; they often live in rather small homes (3 or 4 rooms) which they may not own but rent; they often drive "older" cars (more than 4 or 5 years old).
- E. The job the father of this family has usually doesn't pay much money; the father frequently changes jobs; they usually drive a "real old" car (maybe 8 or more years old) or if they drive a newer car, they have trouble paying for it; they are often "in hock".

(Adapted from Jeffs, 1962)

APPENDIX B

VOCATIONAL ASPIRATIONS QUESTIONNAIRE -- FORM I

Date _____

Name _____ Birthdate _____

Address _____

Father's Name _____ Occupation _____

Mother's Name _____ Occupation _____

- 1) The kind of work I expect to do when I finish school is _____.
- 2) The kind of work I would like to do when I finish school is _____.
- 3) The kind of work I expect to do ten years from now is _____.
- 4) The kind of work I would like to do ten years from now is _____.
- 5) My parents have told me that the kind of work I should plan to do is _____.
- 6) My teachers think the kind of work I should do is _____.

APPENDIX C

VOCATIONAL ASPIRATIONS QUESTIONNAIRE -- FORM II

Date _____

Name _____

- 1) The kind of work I expect to do when I finish school
is _____.
- 2) The kind of work I would like to do when I finish school
is _____.
- 3) The kind of work I expect to do ten years from now is
_____.
- 4) The kind of work I would like to do ten years from now is
_____.

APPENDIX D

Ages, Intelligence Quotients, Ages at Onset
of Hearing Loss, and Number of Years
in a Residential School of Subjects

Colorado School for the Deaf and the Blind

Subject	Age (in months)	I.Q.	Age at onset of hearing loss	Years in a residential school
KA	186	102	Birth	8
JA	222	101	Birth	7
LA	185	119	Birth	4
DB	215	122	1 year	6
LB	214	110	Birth	14
JD	207	111	10 mos.	7
JF	191	104	Birth	3
RF	191	99	6 mos.	8
RG	247	104	Birth	11
DG	189	108	Birth	4
WG	241	100	Birth	8
SJ	192	102	1 1/2 years	4
DJ	183	95	Birth	5
WK	223	123	Birth	4
VL	195	108	Birth	3
GM	204	116	Birth	4
BM	195	116	2 years	7
KM	193	103	Birth	4
TM	199	96	3 years	11
DM	180	87	5 1/2 mos.	7

Subject	Age (in months)	I.Q.	Age at onset of hearing loss	Years in a residential school
LO	186	107	Birth	10
ER	211	119	Birth	12
HR	216	84	Birth	3
JR	226	122	6 mos.	6
VS	215	102	1 year	10
ES	193	87	Birth	10
RS	250	86	Birth	5
HS	197	120	Birth	7
RS	234	105	2 years	7
CS	183	100	20 mos.	4
RS	223	93	Birth	7
DS	188	102	Birth	11
WV	211	103	Birth	6
DW	219	107	2 years	3

Arizona School for the Deaf and the Blind

JB	212	87	28 mos.	12
HB	187	108	6 mos.	5
RB	214	101	Birth	12
KC	188	108	Birth	11
RC	226	123	16 mos.	6
RD	200	108	1 year	12
CD	203	101	Birth	10
RH	236	111	18 mos.	4
JH	243	120	Birth	16

Subject	Age (in months)	I.Q.	Age at onset of hearing loss	Years in a residential school
PH	192	89	Birth	11
JK	200	108	14 mos.	11
RL	195	101	Birth	11
EM	209	115	Birth	13
DM	229	112	Birth	11
EO	232	87	3 years	4
PO	200	82	2 years	8
MO	209	114	5 mos.	10
DS	201	80	8 mos.	7
RS	219	101	22 mos.	14
BS	238	115	Birth	15
JY	185	125	4 1/2 mos.	6

California School for the Deaf

GA	223	99	Birth	8
JB	223	113	Birth	11
HB	212	94	Birth	12
MB	229	109	Birth	6
RB	185	114	Birth	10
HB	236	103	Birth	7
BB	181	114	4 mos.	8
DB	218	130	1 year	8
MC	227	116	Birth	10
DC	207	112	Birth	12
EC	223	113	Birth	12

Subject	Age (in months)	I.Q.	Age at onset of hearing loss	Years in a residential school
RC	218	128	Birth	6
EC	184	97	1 1/2 years	4
KC	196	85	Birth	4
JD	231	120	Birth	6
OD	215	102	Birth	4
BE	191	107	1 year	3
KG	218	116	Birth	13
MG	210	104	2 1/2 years	12
RG	215	107	Birth	6
DG	215	107	Birth	6
WG	180	103	2 years	3
MG	198	100	Birth	4
TG	212	120	Birth	3
TH	229	123	Birth	9
RH	195	120	Birth	11
FJ	216	114	Birth	4
RK	205	113	Birth	4
JL	224	128	Birth	13
TL	221	96	Birth	6
JL	234	99	Birth	3
GL	189	97	Birth	3
LM	196	115	Birth	11
DM	198	124	Birth	9
MM	226	107	Birth	8
JM	223	96	Birth	11

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APPENDIX E

Colorado School for the Deaf and the Blind

Vocational Guidance ProgramTopics

The Motor Mechanic
The Construction Worker
The Electronics Technician
The Metal Worker
The Interview
Job Accidents
Stocker in a Supermarket
Your World and Money
What Good is School
What are the Job Families
What is a Job
What do you Like to Do
Who Are You
Auto Industry
Electrical Workers
Bakers
Machinists
Freight Workers
Dry Cleaning
Upholstery
Social Security
Employment Security
Workmen's Compensation

Role Playing

How to Apply for a Job

Tours

Hewlett-Packard Electronics Company
Sampsonite Company
Kistler Printing Company
Denver Equipment Company
Bowman Small Motors Company
Colorado Fuel and Iron
Goodwill Industries

Individual Counseling

Miss Margaret Power, Staff Counselor

APPENDIX F

Comparison of MVII Scores with Occupational Aspirations of
Subjects by Means of Analysis of Variance

	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Between	2	1.168	0.584	4.78 (Sig)
Within	24	3.537	1.972	
Total	26	4.705		

Comparison of Parents' Occupational Levels with Occupational
Aspirations by Means of Analysis of Variance

	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Between	2	2.380	1.190	1.92 (NS)
Within	24	4.330	1.804	
Total	26	6.710		

Comparison of Socio-Economic Levels of the Families with the
Occupational Aspirations of the Subjects by Means of Analysis of
Variance

	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Between	2	1.099	0.549	1.73 (NS)
Within	24	2.278	0.949	
Total	26	3.777		

Comparison by Means of Analysis of Variance of the Subjects'

Occupational Aspirations and Occupations Suggested by Parents

	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Between	2	0.717	0.359	2.40 (NS)
Within	24	3.583	0.149	
Total	26	4.300		

Comparison by Means of Analysis of Variance of the Subjects'

Occupational Aspirations and Occupations Suggested by Teachers

	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
Between	2	0.669	0.334	3.06 (NS)
Within	24	2.625	0.109	
Total	26	3.294		

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