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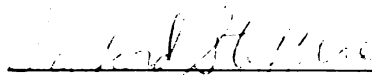
IDENTIFICATION AS A PROCESS IN THE CHOICE OF AN
OCCUPATION: A STUDY OF THE SIGNIFICANT ADULTS
OF CHEMISTS AND PERSONNEL WORKERS

presented by

Robert Louis Brizee

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IDENTIFICATION AS A PROCESS
IN THE CHOICE OF AN OCCUPATION:
A STUDY OF THE SIGNIFICANT ADULTS
OF CHEMISTS AND PERSONNEL WORKERS

By

Robert Louis Brizee

AN ABSTRACT

Submitted to the School for Advanced Graduate Studies of
Michigan State University of Agriculture and
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Department of Administrative and Educational Services

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Approved _____

Robert L. Brizee

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The purpose of this research was to determine whether or not scientists differ from social service workers in selected work values, and to determine whether or not the scientists have identified with adults who are perceived by them to hold certain work values which are different from the work values which are perceived by social service workers to be held by adults with whom they have identified.

Thirty-seven doctoral candidates in chemistry and thirty-five doctoral candidates in student personnel work at Michigan State University were the subjects. An interview schedule was employed with each subject.

Each subject was asked to select one adult whom he respected, to whom he felt close, and who was nearest to being the type of total person he wished to be. Likewise, each was asked to rank eleven work values in terms of their importance to himself, and to rank the values as he perceived the adult he had chosen would rank them.

Over one-half of the adults with whom the groups had identified were high school teachers or college professors.

Over one-third of the adults were in the occupational field of the subjects, either chemistry or personnel work.

It was hypothesized that the scientists would consider the following values of more importance than social service workers: an opportunity to continually discover and understand why certain happenings take place in the world, an opportunity to share one's ideas and knowledge with other persons, and an opportunity to do something which will ultimately benefit mankind.

The adults with whom scientists had identified were hypothesized to have been perceived by scientists as considering the above three values of importance.

The social service workers were hypothesized to consider the following three values of more importance than scientists: an opportunity to continually discover new things about oneself, an opportunity for close relationships with others, and an opportunity to directly help another person.

The social service workers were hypothesized to perceive the adults with whom they have identified as also considering the above three values of importance.

As hypothesized, the scientists valued an opportunity to continually discover and understand why certain happenings take place in the world more than social service workers. Conversely, social service workers placed greater emphasis than scientists upon an opportunity for close relationships

with others and an opportunity to directly help another person.

The unexpected findings were that scientists value an opportunity to do the work one is really good at and enjoys more than social service workers, while the latter group values an opportunity to do something which will ultimately benefit mankind more than scientists.

While differences were expected in terms of the manner in which the two groups may wish to benefit others, it appeared rather that the social service workers are concerned with aiding others in a direct personal manner and in an ultimate impersonal manner, while scientists consider both ways of benefiting others of less importance than several other values. There was support given to the concept that scientists are less oriented toward people than social service workers.

The adults with whom the social service workers identified were perceived to value an opportunity for close relationships with others more than the adults with whom scientists identified. The adults were perceived by both groups as valuing an opportunity to share knowledge and to directly help another person. The concept that the members of the two occupational groups had identified with adults seen to have different complexes of values was not supported.

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A THESIS

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Michigan State University of Agriculture and
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CHAPTER 1

THE PROBLEM

The background of the problem. The choice of an occupation is being viewed today more as one aspect of the total socialization process than as a distinct problem facing an adolescent. Socialization is the basic process by which an infant is transformed into a human being who shares the major values, ideals, and behavior patterns of a society and who is able to function satisfactorily in that society.

Increasingly it is being realized that an occupation chosen by a person is an expression of that person's self. The choice is a later phase of the earlier socialization process and is related to the earlier phase. A person would seem to say, "I am this kind of individual with these values and attitudes; therefore, this type of work will allow me to express my individual qualities".

If one feels a need within himself to serve others, this need may be expressed in a limited number of occupations. Likewise, if one values learning and the understanding of the world, this value will find expression in the choice of an occupation.

The parents of a person are the primary representatives of the society to that person, so that their part in his

socialization is of great importance. However, as the person enters into spheres beyond the home, other adults also bring their influence to bear on the person's socialization.

Since an occupation is usually chosen during adolescence or early adulthood, other adults may have influence upon the socialization of the person into the world of work.

A more specific process by which a person becomes socialized is through the incorporation into himself of the values, attitudes and behavior patterns of his parents and other adults who are significant to him. This mechanism has been called the process of identification in the field of psychology in which it originated.

The identification process has been analyzed by the writer into the following elements: (1) the younger person making the identification, (2) the more mature person with whom the identification is made, (3) the degree of identification, that is, the extent to which the younger person becomes similar to the more mature person in terms of values, attitudes, or behavior patterns, (4) the types of identification made by the younger person with the more mature person, that is, the particular values or behavior patterns of the more mature person which were desired by the younger person, and (5) the conditions which influence the degree to which the younger person identifies with the more mature person.

This present research employed the process of identification, which has been utilized primarily to describe the development of personality, as a factor in the choice of an occupation. Persons in two occupations were compared in

terms of the identifications they have made with adults who have been significant to them. Since these two groups had chosen different careers, it seemed appropriate to ask if they had also had different types of adults as models, ideals or at least adults whom they respected. It was not supposed that the adults would differ in all respects. The one aspect in which differences were sought was the meaning that work holds for them, their work values.

From the total possible factors which may affect the occupational choice of a person, the process of identification was chosen for emphasis in this research. It appeared to be one of the significant processes within the total socialization process.

The basic problem. The basic problem was to determine whether or not subjects studying to enter two different occupations differ in selected work values, and to determine whether or not these two groups of subjects have identified with significant adults who are perceived to hold different work values. The two occupational groups, who represent the fields of science and social service, are chemists and student personnel workers.

The general problem and the important terms will be defined before the specific hypotheses are stated. The reason that this problem was chosen and the thinking that others have done about this problem will be described in Chapter 2.

The problem cannot be completely described until certain terms are defined, but, generally, several questions are asked. Do chemists and personnel workers differ in their work values? Have chemists and personnel workers identified with different types of significant adults, that is, adults perceived to be different in their work values? Have chemists and personnel workers had different experiences in the closeness felt toward their fathers and the significant adults with whom they have identified? Do certain conditions influence the degree of identification of chemists and personnel workers with their fathers and significant adults?

The work values of chemists and personnel workers. The selected work values in which differences were sought between chemists and personnel workers are those of desiring a close relationship with people and desiring the opportunity for aiding people. There is evidence to suggest that chemists would value the understanding and discovery of happenings in the world above the value of relating with and aiding people. An attempt was made to determine if chemists gain their primary satisfactions in factors other than people, while personnel workers gain their satisfactions through people.

Their identification with significant adults. The identification of chemists and personnel workers with significant adults was analyzed to gain clues as to how these work

values may have developed in these subjects. The analysis does not necessarily imply that the identification caused the subjects to develop these values, but only that a relationship does or does not exist in work values of the subjects and the adults with whom they identified.

The problem was to determine whether or not chemists have identified with adults who themselves are seen to value understanding and discovery over relating to people. Likewise, it was questioned whether or not personnel workers have identified with adults who are seen to place great emphasis upon relating with people and aiding them.

The identification with their fathers. The identification of these subjects with their fathers was also analyzed, but not specifically to determine if the work values of fathers of chemists differ from the work values of fathers of personnel workers. It was not hypothesized that fathers of chemists value understanding and discovery more than relating with and aiding people as was suggested for the significant adults of the subjects.

It was hypothesized, however, that the more the subjects identified with their fathers, the less they identified with significant adults. Stated in the opposite, but perhaps more meaningful manner, those who found it more difficult to identify with their fathers would identify more strongly with another adult at a later time.

There are several reasons why differences were not hypothesized between the fathers of the two groups. First, the fathers are frequently engaged in non-professional work in which neither the value of understanding nor relating with people can gain expression. Second, it was the writer's impression that fathers often do not encourage their sons to identify with their values related to work. Often they are in occupations which they accept rather than with which they are satisfied. Many would have gained more education and entered different occupations if this had been possible.

Again, it appeared to the writer that fathers frequently appear to instil in their sons the value of education as a means of entering a higher occupation than their own. They appear to say to their sons, "I would have gone further if I had had the opportunity, but I have accepted my present occupation. Go as far in education as you are able, find other adults who are more highly educated whom you can imitate. Take from me the desire for an education, and gain from them other more limited values."

The closeness experienced with significant adults and parents.

The relationship between members of the two occupational groups and their parents and significant adults was analyzed to determine if personnel workers have experienced closer relationships than chemists. The basic problem was to determine if persons who are hypothesized to value close

relationships with people have actually experienced closer relations with significant persons in their lives. Again, there appears to be some insight to be gained about the development of values although only a relationship is sought.

The conditions which may influence identification. It was not expected that the identification of each of these subjects with his father and significant adult would result in a complete agreement between the work values of that subject and those persons. It was rather expected that the similarity in work values would vary. The presence of certain conditions was hypothesized to facilitate the identification of the subject with the adults, thus increasing the similarity in work values. The decrease or absence of such conditions was expected to inhibit identification and consequently decrease the similarity in work values.

These conditions include the type of relationship experienced between the subjects and their fathers or adults, the desire on the part of the subjects to be like the adults in certain qualities, and certain characteristics of the adults.

Before elaborating the problem further by stating the hypotheses more specifically, it is necessary to define three terms which are essential elements of the problem.

DEFINITION OF TERMS

Significant adults. A person in becoming an adult has contact with numerous adults, but each one does not have the same

significance to the person. It was necessary to make some distinctions among the adults with whom the chemists and personnel workers have had contact, because time permitted the extensive analysis of the identification of the subject with only one adult.

To select several adults known by the subject, the criteria of the subject's closeness to the adult and the respect for the adult were employed. The following question was asked:

. . . I would like to know about adults you were acquainted with when you were in high school and college as an undergraduate. I would like you to think of adults you knew when you were deciding upon your career. Could you name for me several adults you knew whom you respected and to whom you felt close?

To select one adult from those mentioned, this question was asked: "Which one would come closest to being the kind of total person you wish to be in terms of his general field of work, his personal life, his character and his personality?"

A significant adult is one whom the subject respected, one to whom he felt close, and one who was the nearest to being the type of person the subject would wish to imitate.

Identification. Identification is a process by which a younger person incorporates within himself certain qualities of a more mature person. As employed in this research, the process of identification was seen by the writer to be composed of the five elements discussed earlier.

The first is the younger person who is making the identification. In this research, these persons were the chemists and personnel workers recalling their experiences during high school and college.

The second is the more mature person with whom the identification is made. These persons were (1) the father of each chemist and personnel worker, and (2) a significant adult chosen by each chemist and personnel worker.

The third element is the degree of identification, that is, the similarity in certain qualities of the younger person making the identification and the more mature person. The degree of identification of a chemist with his father was the similarity in the work values of the chemist and his perception of his father's work values. The degree of identification of a chemist with his significant adult was the similarity of work values of the chemist and his perception of the work values of his significant adult.

The degree of identification of a personnel worker with his father and with his significant adult was determined in the same manner as illustrated with the chemists. The particular work values will be described upon completion of the definition of identification.

The fourth element is the type of identification attempted by the younger person with the more mature person, that is, the particular values or behavior patterns of the more mature person which were desired by the younger person. Two types of identification have been isolated here.

The first is the desire on the part of the chemist or personnel worker to do the type of work that his father and significant adult are doing. The second is the desire on his part to be like his father and significant adult in personal qualities.

The operational definition of the first type was simply to ask if each chemist or personnel worker wanted to do the type of work his father and significant adult were doing. The second type is described by the following question:

I want to know to what extent you wanted to be like your father as a person. Which of these statements come closest to describing that?

- (1) I wanted to be like my father as a person.
- (2) I wanted to be like him, except for one or two qualities he had.
- (3) I wanted to have most, but not all qualities he had.
- (4) I wanted to have a few, but not all qualities he had.
- (5) I did not want to be like him as a person, except for one or two qualities he had.
- (6) I did not want to be like my father as a person.

To make this question applicable to significant adults, the word "him" was substituted for "my father" and one more alternative was added to the six given above. The seventh alternative was:

- (7) I did not know him as a person well enough to know if I wanted qualities he had.

One type of identification is, then, the desire to do the work of another. The second type is the desire to have some degree of the personal qualities of another. It is evident that there are a number of combinations within the two types.

Finally, the fifth element of identification is the conditions which influence the degree of identification. In this research the conditions which were considered to influence identification of a chemist or personnel worker with his father were the extent to which the son desired to be like his father as a person, the extent of agreement of the son with his parents as to whether or not he should follow in his father's occupation, the satisfaction of the father and mother with the father's occupation, the changes or lack of changes in occupations by the father during the son's high school career, and the degree of affection that the son perceived to exist between him and his father.

The conditions thought to influence the degree of identification between a chemist or personnel worker and his significant adult were the degree of the personal qualities of the adult which were desired by the person, the desire or lack of desire to enter the occupation of the adult, the degree of closeness that the subject felt toward his adult, and the types of contacts the person experienced with his adult.

Work values. Work has meaning to each person who is engaged in it. To one person it may mean an opportunity to have a close relationship with others; to another it may mean a

chance to make his own decisions; and to a third it may mean a way of gaining the respect of others.

In this research, a major task was to determine whether or not chemists and personnel workers differ in the importance they place upon certain work values. A second task was to learn the perceptions that these two groups have of the work values of their fathers and their significant adults.

Each father and significant adult of a subject was not interviewed regarding his work values, but only the subject's perception of their work values was analyzed. There were both practical and theoretical reasons for this approach.

Practically, it was impossible to interview the fathers and significant adults of subjects, because many were deceased or widely scattered geographically. Theoretically, it is known that one individual reacts to another person on the basis of his perception of that person. There may be little or a great discrepancy between the actual qualities of that person and the qualities which another individual perceived that person to possess.

An assumption made here is that the subjects have identified with the work values which they believed their fathers and significant adults possessed. It was assumed that they have acted in accordance with their perceptions of these persons. To ask, "What were the actual work values of the fathers and significant adults?" is to pose an important but different question which is not considered here.

Each subject was presented eleven statements, each representing a work value. The subject was requested to rank the work values from the most to the least important to him. Then, each subject was asked to rank the eleven work values from most to least important as he judged (1) his father would rank them and (2) his significant adult would rank them.

The eleven work values presented to each subject were as follows:

- (1) An opportunity to make one's own decisions and carry them out.
- (2) An opportunity to see that one has directly helped another person.
- (3) An opportunity to do work which is respected and considered important by other persons.
- (4) An opportunity to earn a better living than one's parents.
- (5) An opportunity to continually discover new things about one's own self.
- (6) An opportunity for a close relationship with other persons.
- (7) An opportunity to do the work one is really good at and enjoys.
- (8) An opportunity to share one's ideas and knowledge with other persons.
- (9) An opportunity to continually discover and understand why certain happenings take place in the world.
- (10) An opportunity to do something which will ultimately benefit mankind.
- (11) An opportunity to feel that one has security in his work.

THE SUBJECTS

The subjects were male doctoral candidates in Chemistry and in Administrative and Educational Services (Counseling and Guidance) at Michigan State University. There were

thirty-seven chemists and thirty-five personnel workers. All subjects who met a certain set of criteria were included in the sample. The criteria are elaborated in Chapter 3.

Each subject was interviewed by the writer. Each interview required approximately ninety minutes to complete and was guided by a prepared interview schedule.

THE HYPOTHESES

The general hypotheses are listed, then the more specific statements of the hypotheses are given.

1. Personnel workers differ from chemists in the importance given to six selected work values.

Personnel workers will significantly more often rank the following work values in the upper three of the eleven values:

- (a) An opportunity to see that one has directly helped another person.
- (b) An opportunity for a close relationship with other persons.
- (c) An opportunity to continually discover new things about one's own self.

Chemists will significantly more often rank the following work values in the upper three of the eleven values:

- (a) An opportunity to do something that will ultimately benefit mankind.
- (b) An opportunity to share one's ideas and knowledge with other persons.
- (c) An opportunity to continually discover and understand why certain happenings take place in the world.

2. Personnel workers differ from chemists in the importance that they perceive that their significant adults would give to six selected work values.

Personnel workers will significantly more often than chemists perceive their significant adults as ranking the following values in the upper three of the eleven values:

- (a) An opportunity to see that one has directly helped another person.
- (b) An opportunity for a close relationship with other persons.
- (c) An opportunity to continually discover new things about one's own self.

Chemists will significantly more often than personnel workers perceive their significant adults as ranking the following values in the upper three of the eleven values:

- (a) An opportunity to do something that will ultimately benefit mankind.
- (b) An opportunity to share one's ideas and knowledge with other persons.
- (c) An opportunity to continually discover and understand why certain happenings take place in the world.

3. Personnel workers have more frequently than chemists felt that their relationship with their significant adults was as close as or closer than their relationship with other friends.

When asked the degree of closeness they have felt toward their significant adults, personnel workers will more frequently have felt closer to this adult than to any other adult, as close to him as to their parents, and as close to him as to other friends.

4. Personnel workers have experienced more intimate contacts with their significant adults than chemists have experienced with their significant adults.

Personnel workers have more frequently had informal discussions, with their significant adults, discussed their future plans with the adults, and visited in the homes of the adults.

5. Personnel workers have more frequently desired a higher proportion of the personal qualities of their significant adults than chemists have desired of their significant adults.

Personnel workers, more frequently than chemists, have wanted to be like their significant adults as a total person; as a person, except for one or two qualities; and to have most, but not all, qualities he had.

6. Personnel workers differ from chemists in the frequency that the personal qualities desired in their significant adults relate to "understanding, acceptance, and concern for other persons."

When asked which qualities that the significant adult possessed which the subject wanted for himself, personnel workers will relate more frequently qualities which deal with the relationship with people, such as "concern for others, warmth, kindness, understanding, acceptance, compassion, and permissiveness."

Chemists will more frequently respond with qualities related to intellect and scholarship, such as "competence, professional excellence, brilliance, knowledge, and desire for learning."

7. Personnel workers have perceived themselves as having had more affection with their fathers and mothers than chemists have perceived with their fathers and mothers.

When asked, "Compared with your friends and their fathers, do you feel you and your father felt more, about the same, or less affection for one another?" personnel workers will more frequently than chemists respond that they shared more affection than friends. When asked a similar question regarding their mother, the personnel workers will more frequently than chemists respond that they shared more affection with their mother than their friends did with their mothers.

8. A positive relationship exists between the degree of identification of a son with his father and the degree of identification predicted between the two persons by means of a combination of conditions.

When all subjects are ranked on the basis of the conditions listed below from those theorized to have the highest degree of identification with their fathers to those predicted to have the lowest degree of identification with their fathers and the same subjects are ranked on the basis of the actual similarity in work values from those with the highest similarity to those with the lowest similarity, a positive significant correlation will be found between the two rankings.

The conditions are as follows:

- (1) the extent to which the son desired to be like his father as a person,
- (2) the extent of agreement between the son and his mother and father regarding whether or not the son should enter the father's occupation,
- (3) the son's perception of the satisfaction of his father and mother with his father's occupation,
- (4) the changes or lack of changes in occupation by the father during the son's high school career,
- (5) the son's perception of the degree of affection shared between him and his father.

9. The more favorable the conditions are for the son to identify with the father, the less the son will identify with his significant adult.

When all subjects are ranked on the basis of the conditions listed above from the highest to lowest predicted identification with the father and the same subjects are ranked on the basis of the actual similarity in work values between the subject and his significant adult from lowest to highest in similarity, a positive significant correlation will be found between the two rankings.

10. A positive relationship exists between the degree of identification of a subject with his significant adult and the degree of identification predicted between the two persons by means of a combination of conditions.

In a manner similar to that stated in hypothesis eight describing the identification of the son with his father, two rankings are correlated: (1) the predicted degree of identification, and (2) the actual degree of identification. A positive significant correlation will be found between the two rankings.

The conditions are as follows:

- (1) the extent to which the subject desired to be like his significant adult as a person,
- (2) the desire or lack of desire of the subject to follow in his significant adult's occupation,
- (3) the degree of closeness that the subject felt toward his significant adult,
- (4) the type of contacts that the subject experienced with his significant adult.

Organization of the dissertation. The basic problem and the hypotheses have been presented in Chapter 1. In Chapter 2 the literature from which the problem and hypotheses were

derived is reviewed. The exploratory study and techniques employed here are described in Chapter 3.

The results which do not pertain to specific hypotheses, but add to the understanding of the backgrounds of the subjects are presented in Chapter 4. The results of hypotheses one and two, pertaining to the work values of the subjects and their significant adults, are listed in Chapter 5. The adequacy of hypotheses three through seven, which relate to the closeness of the relationships which the subjects have experienced with adults, is discussed in Chapter 6.

The results of the testing of the final three hypotheses, which pertain to the conditions predicted to influence identification, are presented in Chapter 7. The summary, conclusions and implications are discussed in Chapter 8.

CHAPTER 2

A REVIEW OF THE LITERATURE

Introduction. In Chapter 1 the problem was defined and the hypotheses stated. Chapter 2 explains how the major problem and the more specific hypotheses were derived. The concept of identification is reviewed and the operational definition is compared with other definitions. The previous research on work values is described and it is shown how the values are viewed as one element of the process of identification. The eleven work values employed and their similarity to the values developed by earlier writers is reviewed.

Finally, there is an explanation of the research and thinking which has led the writer to (1) expect differences between the work values of chemists and personnel workers, (2) expect that these two groups may have experienced differences in their closeness with people, and (3) predict that certain conditions influence the process of identification between two persons.

THE CONCEPT OF IDENTIFICATION

The concept of identification was developed by Sigmund Freud. He described it as the mechanism by which one acquires a super-ego, the ideals and values of one's personality. Briefly, parents follow the dictates of their super-egos in the rearing of their children; thus, the children develop a super-ego similar to their parents'. The parents earlier acquired their super-egos from their parents. Through this process of the children's identifying with their parents' super-egos, the traditions of a society are carried from generation to generation.¹

Using the basic description developed by Freud, several writers have attempted to define identification more explicitly. Hall briefly defines identification as the

incorporation of the qualities of an external object, usually those of another person, into one's personality. A person who successfully identified with another person will resemble that person.²

Segal defines identification as

an unconscious process through which the child learns to deal with the external world by taking over, as a part of the self, those attitudes, values, and behaviors of the parents necessary for the maintenance of the child's integrity.³

¹Sigmund Freud, New Introductory Lectures on Psychoanalysis. (New York: W. W. Norton Company, 1933), pp. 94-96.

²Calvin S. Hall, A Primer of Freudian Psychology. (Cleveland: The World Publishing Company, 1954), p. 24.

³Stanley J. Segal, "The Role of Personality Factors in Vocational Choice: A Study of Accountants and Creative Writers," Unpublished Ph.D. dissertation, University of Michigan, 1954, p. 24.

This definition appears similar to Hall's with the exception that identification is considered an unconscious process here.

After reviewing the Freudian literature on identification, Stoke attempts the following summary of its meaning.

From the wealth of context in which the term is used it is usually implied that a child gives its emotional allegiance to one of its parents and attempts to duplicate in its own life the ideas, attitudes and behavior of the parent with whom it is identifying.⁴

The three definitions stress the common process of a younger person's incorporating the attitudes, values, or behaviors of a parent or other adult. Stoke adds to this that emotional bonds between the adult and younger person may be prerequisite to this process, while Segal considers the process to be unconscious to the participants.

Hall has also distinguished several types of identification, based on the motivation of the person making the identification. These types are not in themselves important here, but his description of how a person may identify with only certain qualities of a person is important.

It should be emphasized that goal-oriented identifications are usually with individual qualities of another person and not necessarily with the whole person. A boy may identify with his father's strength and not with his interests in reading and golf, because it is strength that the son considers important and not the father's recreational activities.⁵

⁴Stuart M. Stoke, "An Inquiry into the Concept of Identification," The Journal of Genetic Psychology, LXXVI (1950), p. 163.

⁵Hall, op. cit., p. 76.

At the same time, Hall states that the identification may tend to generalize to include other qualities or the total person of the father.

Identification applied to occupational choice. Several writers have considered the identification of a boy with his father or another adult to be an important element in the boy's choice of an occupation. These writers have, then, extended the importance of identification from the development of personality to the process of selecting an occupation.

Super states the following proposition:

Identification with a parent or parent substitute is related to the development of adequate roles, their consistent and harmonious interrelationship, and their interpretation in terms of vocational plans and eventualities.⁶

Mowrer describes the identification of a boy with his father and Super goes further in showing that identifications take place between the boy and other adults in his life. Mowrer illustrates the ideal type of identification of the son with the father.

In the ideal family constellation, a little boy finds it very natural and highly rewarding to model himself in his father's image. The father is gratified to see this re-creation of his own qualities, attitudes and masculinity, and the mother, loving the father, finds such a course of development acceptable in her son. Tentative explorations, conscious and unconscious, in the direction of being "like mother" quickly convince the boy that this is not his proper or approved destiny; and he speedily reverts to his identification with father.⁷

⁶Donald E. Super, et al, Vocational Development: A Framework for Research (New York: Teachers College, Columbia University, 1957), p. 92.

⁷David H. Mowrer, Learning Theory and Personality Dynamics (New York: Harper & Bros., 1951), p. 596.

Super shows that identification is first made with the father; then, school, work, and hobbies give opportunity for the finding of new adults with whom identification may be attempted.

Parents are typically the first role models: the father for a boy, the mother for a girl. . . the girls' role model is primarily a sex model, while the boy's begins as a sex model and develops into a differentiated occupational model. Vocationally related roles are thus practiced in childhood play and fantasy as well as in later school and free-time work and activities. Positions as team members, school officers, participants in clubs and similar activities, and as part-time employees carry with them role expectations with which the boy or girl must deal. All positions provide new opportunities for identification and the finding of role models.⁸

Stoke describes, in a very meaningful discussion of identification, the important part that adults other than parents may play in the identification process. In this respect, he and Super appear to emphasize similar points.

The previous discussion has dealt only with identifications which are made with parents. Certainly this type of identification is usually the most important in the formation of personality. But it would be a mistake to suppose that no other identifications take place.

Studies indicate that as a child's circle of acquaintances increases, he changes the person he wants to be from a parent to some other known person in the environment, then perhaps to some glamorous individual in the news, and in later adolescence to some composite image which is a synthesis of what he most admires.

Children who had little opportunity to form a satisfactory identification with a parent will sometimes make a strong one with a teacher, Scout leader, or some other suitable individual. . . .The influence

⁸ Super, op.cit., p. 46.

which is possible in the identifications of children of school age is often so great, that we should take much more seriously than we do the personality criteria for school teachers.⁹

While Mowrer and Stoke stressed the formation of the total personality by means of the process of identification, Bordin, Super, and Carter emphasize the importance of the process for occupational choice. Bordin stresses that dynamically the relationship between a father's occupation and the son's interest type is related to the degree of identification of the son with the father.¹⁰ Super emphasizes several times the hypothesis that identification with adult role models is related to the choice of an occupation by a young man.¹¹

Carter, in developing a theory of vocational choice, which appears similar to Super's theorizing, proposes that a young man identifies with a person or group; consequently, he becomes interested in the occupational field of that group.

. . .the individual derives satisfaction from the identification of himself with some respected group; by this method he seizes some sort of status. This identification leads to an interest in restricted activities and experiences; to the extent that this is true, the person learns about the vocation and the vocational group.¹²

⁹Stoke, op. cit., pp. 180-81.

¹⁰Edward S. Bordin, "A Theory of Vocational Interests as Dynamic Phenomena," Educational and Psychological Measurements, III (Spring 1943), p. 60.

¹¹Super, op. cit., pp. 46, 91, 94.

¹²Harold D. Carter, "The Development of Vocational Attitudes," Journal of Consulting Psychology, IV (September-October 1940), p. 186.

Identification with adults, such as teachers, business men, neighbors, and ministers appears to be of more importance when a young man has not been able to identify strongly with his father because of the personal qualities of the father, because of certain difficulties in the relationship between the father and son, or because the father is in a lower occupational level than that to which the son is aspiring.^{13,14}

Summary of the meaning of identification. To summarize what has been learned about the concept of identification the following generalizations are drawn. Identification is a process, which although not adequately described, appears to be composed of the following elements: (1) the younger person who is making the identification, (2) the more mature person with whom the identification is made, (3) the degree of identification, that is, the similarity between the two persons, (4) the type of identification attempted by the younger person with the more mature person, that is, the specific values, qualities, or behavior patterns of the more mature person which were desired by the younger person, and (5) the conditions which influence the process of identification.

The person making the identification is usually a child or younger person. The persons mentioned most often as those with whom identification is attempted are parents, although certainly other adults are identified with as the

¹³ Donald E. Super, The Psychology of Careers (New York: Harper & Bros., 1957), p. 243.

¹⁴ Stoke, op. cit., p. 181.

younger person has contact with adults outside the home. Adults, other than parents, are the persons mentioned most often by writers who emphasize the part that identification has in the process of occupational choice.

The degree of identification is the extent of change which occurs in the younger person. Specifically, he becomes similar to the adult in certain characteristics which may include behavior patterns, attitudes, or values.

That there are types of identification is not noted specifically by the authors quoted. Hall alludes to this in stating that a boy may identify only with the quality of "strength" in his father. The writer has developed the distinction between the desire to do what an adult is doing and the desire to be like an adult.

The distinction appeared meaningful enough to be a part of this research, since it deals with the application of identification to the occupational sphere. In this sphere a person may have desired to do the work, enter the profession, of an adult even though he may not have wanted to be like the adult, that is, to have his personal qualities.

The conditions which influence the degree of identification between two persons have been described briefly and will be explained more thoroughly later in this chapter. The affection shared by the two persons is thought to be significant. Another is the attitude of other influential persons toward the younger person's identifying with a particular adult; thus, the feelings of the mother toward the father are

assumed to be influential in determining the degree to which the son will identify with the father. In occupational terms, it is the writer's opinion that the attitude of the mother toward the father's occupation will influence to some degree the identification that the son will make with the father's work.

The five elements described above, then, appear to be the major aspects of the process of identification that may be gleaned from the literature.

Empirical studies of identification. Segal has studied the process of identification of two groups of college students, accountants and creative writers. He employed the Rorschach and a Vocational Autobiography as techniques. Using formal scoring categories on the Rorschach, he found that the accountants made a more "rigid, fearful identification" while the creative writers sought "for completion of multiple identifications." Also, by means of the Autobiography, he found that the accountants referred more frequently to significant adults as important in the determination of a vocational goal. This group was more aware than the creative writers of models for their behavior.¹⁵

The research by Segal shows differences in types of identification and in the frequency that adults were important in the choice of a career. He concludes, however, with the following statement:

¹⁵Segal, op. cit., p. 95.

. . . it would appear that these measures only scratch the surface of a phenomenon that is multi-dimensional and complex. The importance of these findings seem to be more as an indication of a starting point for more exhaustive research into the role of identification process in vocational choice.¹⁶

This present research does, it appears, tap a different dimension of the identification process. Here the content of identification is analyzed, that is, the work values in which the two persons involved are similar. This differs from Segal's approach.

Becker and Carper studied the identification of three groups of graduate students with their future occupations. Although the study was published in two different journals, it is presented here as one study.¹⁷

Twenty-two mechanical engineers, eleven philosophers, and eighteen physiologists were the subjects of the research. In interviews lasting one and one-half to two hours, the subjects were queried regarding the identification they had made with their occupations and how this identification had developed.

Several mechanisms were found by which the subjects developed an identification with their professions. These mechanisms were affiliation with peers in informal student groups, sponsorship by a faculty member, and the investment of time and money in their studies.

¹⁶ Ibid., p. 96.

¹⁷ Howard S. Becker and James Carper, "The Elements of Identification with an Occupation," American Sociological Review, XXI (June, 1956), p. 341. Howard S. Becker and James Carper, "The Development of Identification with an Occupation," American Journal of Sociology, LXI (January, 1956), p. 289.

The concept of identification appeared to be employed as synonymous with the commitment or attachment to symbols and ideologies associated with an occupation. Identification with elements of an occupation itself rather than with persons was the focus of the research.

The three groups were compared in their degree of commitment to (1) their occupational titles, (2) the particular tasks and methods of approaching these tasks as being primary objectives and tools of their occupations, (3) specific organizations and positions within the organizations as those in which their work is to be conducted, and (4) the social position of their occupational groups within the larger society.

There were differences found among the three groups in the degree of commitment to these various elements; however the specific findings are in the writer's judgment irrelevant to the research here.

The most relevant aspect is the manner in which the concept of identification was employed. It was used to designate the commitment to elements of an occupation rather than the process of incorporating qualities of another person. The concept is different than most definitions found in the articles reviewed and different than its usage in the present research.

An operational definition of identification. Identification is studied here completely from the perception of the subject, the younger person having made the identification. The

identification of the subject with his father and with a significant adult is analyzed.

The degree of identification of the subject with his father is the extent of similarity in the work values of the subject and his perception of his father's work values. The subject ranks from most to least important to him eleven statements of work values. The subject again ranks the same work values as he perceives his father would rank them. The degree of correlation between the two rankings is considered the degree of identification between the subject and his father.

Similarly, the degree of identification of the subject with his significant adult is the similarity in the subject's work values and his perception of the work values of the significant adult. The subject ranks the eleven work values for himself and ranks the values again as he perceives his significant adult would rank them. Again, the correlation between the two rankings is considered the degree of identification between the subject and his significant adult.

The types of identification are (1) the desire of the subject to do the work in which his father or significant adult is engaged, and (2) the desire of the subject to have a certain degree of the personal qualities possessed by his father or significant adult.

The first type of identification is determined by simply asking the subject whether or not he wished to do

the type of work that his father or significant adult was doing. The second type of identification is translated into the following question: To what extent did you want to be like him as a total person, that is, having the traits and qualities he had?

The definition is similar to those of Hall, Stoke and Segal in that two persons are involved in the process, the person making the identification and the person with whom identification is made. It differs from the definitions slightly in that the two persons are not child and parent, but an adult recalling his identification during adolescence with his father and a significant adult. It would appear to be more similar to the thinking of Super and Carter, who have attempted to apply identification to the adolescent period in which a career is chosen.

The types of identification are more limited and narrow than considered by most writers, that is, identification only in the occupational sphere. This appears more due to the necessity of limiting the scope of a research design rather than an inadequacy in the definition.

Further, the definition includes only those identifications of which the subject is aware, excluding unconscious behavior. This is not to deny that identifications are made without the awareness of the person making the identifications. It is rather that the scope of this study does not include such unconscious material.

THE BASIC REASON FOR STUDYING IDENTIFICATION

The major reason for studying the process of identification is to determine if young men who have chosen different occupations have identified with different types of adults. Have chemists wanted to be like science teachers, physicians, or pharmacists? Have personnel workers wanted to be like ministers or social workers?

There is some information from the fields of medicine and law which is relevant to these questions. It was learned that sixty-eight per cent of students entering the medical school and forty-three per cent of students entering the law school at Cornell University answered the following question in the affirmative: "Can you think of a doctor (lawyer) who in your opinion comes close to being an ideal doctor (lawyer)?"¹⁸

These students had selected a "figure in the profession, a practitioner known personally or one known only by repute as a model to imitate and an ideal with which to compare their own performance."¹⁹ Further, those who decided earliest to enter medicine or law were most likely to have a role model.

Considering only medical students, it was determined that those whose fathers were physicians or who had relatives

¹⁸Wagner Thielens, Jr., "Some Comparisons of Entrants to Medical and Law School," The Student-Physician, ed. Robert K. Merton, George G. Reader and Patricia L. Kendall (Cambridge, Massachusetts: Harvard University Press, 1957), p. 138.

¹⁹Ibid., p. 137.

who were in medicine decided earlier to enter medicine and thereafter were most certain they had made the correct choice.

Some students evidently enjoyed a greater degree of close and sustained contact with physicians than others. The more frequent such contacts, the easier it is to identify with physicians and to form the idea of becoming one. Having relatives (in the immediate or extended family) who are themselves doctors obviously facilitates both contacts and identification, and hence leads to earlier awakening of interest in a medical career.²⁰

Students from lower status families, who had at least one relative who had become a physician decided at an earlier age than other students, except physicians' sons, to become a doctor. The influence that a significant adult may have upon the time a career is chosen and the type of career selected is definitely suggested.

We know, however, that there are physicians who desire primarily to aid other persons, and others who are essentially interested in learning more about the science of medicine. Therefore, an occupation becomes too large a category to be useful and the meaning or value that work has for the particular individual in an occupation becomes a more useful concept by which to view the adults.

The question becomes more specifically: Have chemists identified with adults who have a certain set of values attached to work, a set of values which would differ from those of the adults with whom personnel workers have identified?

²⁰ Natalie Rogoff, "The Decision to Study Medicine," The Student-Physician, Ibid., p. 112.

Is it possible to obtain some clue as to where the values of chemists were developed? Can one, by locating the adults with whom personnel workers identified and by understanding the work values of these adults, postulate about the genesis of the values of the personnel workers?

These questions are consistent with the thinking of Bordin which is essentially that we need to know not only that two groups of persons differ in values or interests but also the events in the past history of these persons which may have caused, or perhaps more realistically, be related to the differences in values. We need, then, a developmental approach along with a static approach.

Bordin expresses it as follows:

It is felt that the relationship between the relatively static personality traits and interest types has been fairly well explored. Deeper insights into the dynamics of interest types should come from the leveling of our research guns at the question of the development of the individual's concept of himself as reflected in his goal-directed strivings and the effects of the barriers he encounters.²¹

With this background, the discussion will move in three directions, although keeping ever present the basic question: From whence do the work values of persons in different occupations originate?

The first direction is the elaboration of how the particular work values were chosen for this study and why one should even expect that persons in two different occupations may differ in these values.

²¹Bordin, op. cit., p. 61.

The second is a series of hypotheses and research results which emphasize that persons choosing different occupations may have had different experiences with parents and other adults with whom they have significant contacts. Again, the underlying question is: Are there certain types of experiences of a subject with people that are related to the development of certain values in that subject?

The third is the theoretical thinking which has been constructed regarding the conditions which appear to be favorable for the identification of one person with a more mature person. This is particularly relevant because it may give insight into the degree to which a son can actually incorporate the work values of his father. It may give clues as to when one might expect the work values of a subject to have been largely incorporated from his father or, in the opposite situation, when his work values may have been developed in direct opposition to his father's values. In the latter situation, one might expect that a significant adult may have played a more important role in the development of the person's work values.

ONE ASPECT OF IDENTIFICATION: WORK VALUES

It is known that work has meaning to the person engaged in it. This meaning is different from the function of work. Several functions of work are to give a person income, a routine of activities, and an association with a group of

fellow workers. Friedmann and Havighurst distinguish these functions from the subjective, phenomenological significance that work has for a given person.²²

It is known further that the same work does not have the same meaning to all persons. It will be shown here that persons at different levels of occupations and in different fields of occupations give different meanings to work. It has also been found that persons within the same field or occupation hold to different meanings of work.

Centers found that persons in the working class consider security to be of prime importance in their work, while middle class persons desire self-expression.

If one may speak of "class" values, then the characteristic middle class value is self-expression and that of the working class is security, for it is in relation to these desires that they differ most.²³

Norton and Kuhlen also isolated differences in work values between blue-collar and white-collar occupations.²⁴ Comparing teachers and factory workers, differences between the two groups were apparent, with status needs, desire to help others, and association with people being lower for factory workers.

²²Eugene A. Friedmann and Robert J. Havighurst, The Meaning of Work and Retirement (Chicago: University of Chicago Press, 1954), p. 5.

²³Richard Centers, The Psychology of Social Classes (Princeton, New Jersey: Princeton University Press, 1949), p. 153.

²⁴Joseph L. Norton and Raymond G. Kuhlen, "The Development of Vocational Preferences as Revealed in Vocational Histories Obtained by Interview," American Psychologist, V (July 1950), p. 276.

Even when only satisfied workers in the lower and higher socioeconomic levels are compared, differences still emerge. Lyman relates that the blue-collar workers emphasize the economic rewards of the work.²⁵

The level of one's occupation is, then,,a major determinant of the meaning or value that work will hold for a person. If one turns to the higher level occupations, it is possible to find evidence that differences in the meaning of work are related to the various fields of work.

It has been the thinking of Darley, Hammond, and Roe regarding the differences between scientists and social service workers which has most influenced the development of this research design.

Darley gives a broad outline of the values which appear to be of most importance to persons in three major fields of work.

There is evidence also that representatives or potential representatives of various families of occupations place high value on different objectives. The power, prestige and status associated with high income are dominant themes for individuals with business contact and verbal-linguistic patterns of interest. Income per se is less valued and an altruistic concern for the welfare of others is more valued in those with social service patterns of interests. Intrinsic satisfactions in work itself and greater concern with empiricism and rational understanding of the work loom large as goals for those with primary interests in the physical science fields, and to some extent for individuals whose primary interests are in the biological science fields.²⁶

²⁵Elizabeth Lyman, "Occupational Differences in the Value Attached to Work," American Journal of Sociology, LXI (1955), p. 138.

²⁶John G. Darley and Theda Hagenah, Vocational Interest Measurement, (Minneapolis: University of Minnesota Press, 1955), p. 132.

By means of an occupational attitude rating scale, Hammond found differences in curricular groups which are similar to the ones described by Darley.²⁷ The need for structure was important for students in engineering, natural sciences, and optometry, whereas, an acceptance need was more prominent for those in social work and social science applications.

Structure implies a technical, "be-right," perfectionist attitude in which one finds security in details, likes definite answers, and is not dependent upon people for major satisfactions.

The acceptance need indicates the importance of helping others and serving a useful purpose in society. These persons see themselves as loving humanity, but often appear to be projecting a need to belong and to be loved. They are dependent upon people for their major satisfactions.

In essence, it is indicated that social service workers are concerned with people, while scientists show much less concern for people and much more for understanding and learning. A difference in the importance that people play in their values is implied.

The writer became aware of relevant work by Rosenberg after the research design was completed.

In a study of 4,585 college students from eleven universities, Rosenberg found results quite similar to those of

²⁷Marjorie Hammond, "Motives Related to Vocational Choice of College Freshmen," Journal of Counseling Psychology, III (Winter 1956), p. 257.

Hammond.²⁸ The students were presented with ten statements of values and asked to rank them as high, moderate, or low in importance to them. Three value complexes were isolated: the people-oriented, the extrinsic reward-oriented, and the self-expression oriented.

The people-oriented value complex was expressed by persons who consider the following two values of high importance: (1) give me an opportunity to work with people rather than things, and (2) give me an opportunity to be helpful to others.

The extrinsic reward-complex was shown by persons valuing the following opportunities: provide me with a chance to earn a good deal of money and give me social status and prestige.

Finally, persons who ranked high the opportunity to be creative and original and the opportunity to use their special abilities or aptitudes were expressing the self-expression complex.²⁹

These three value complexes were related to various curricula much in the same manner that is hypothesized in this present research.

The findings are as follows:

The "people-oriented" value complex. . . is most strongly stressed by students planning to enter social work, medicine, teaching, social science, and personnel work.

²⁸ Morris Rosenberg, Occupations and Values (Glencoe, Illinois: Free Press, 1957), p. 12.

²⁹ Ibid., p. 13.

. . . the occupations which place the least emphasis on "people-oriented" values are natural science, engineering, farming, art, and architecture.³⁰

In ranking eighteen occupations on the basis of the importance placed upon "people-oriented" values, social workers were the highest or most concerned with people, teachers were third, personnel workers were fifth, and natural scientists were eighteenth or lowest.

Students most interested in "self-expression" were entering architecture, art, journalism followed by natural scientists and social scientists. Students in personnel work, social work, and teaching were less concerned with "self-expression" than natural scientists.³¹ Again, there is evidence to support the hypothesis that personnel workers differ from scientists in certain basic values. This difference is further accentuated by Roe's research and theory building.

Roe's thesis appears to be essentially that the orientation of social service workers is toward people, while that of scientists is away from people. In her classification of occupations she discusses the prominent values of the science and service occupations. Regarding the scientists she states:

Intellectual interests and abilities are strongest in this group. . . , and the patterning of verbal and non-verbal interests varies somewhat with the

³⁰Ibid., p. 16

³¹Ibid., p. 17

field of science. . . . For many of this Group the orientation is away from persons. . . but there is reason to think that with some in this group it may be defensive.³²

In contrast, she describes the service occupations:

The outstanding characteristic of this Group is the fact that personal interactions are a predominant interest, and that the character of this interest is succorant and nurturant, or if it has dominating elements they are usually restrained.³³

She mentions frequently, not only in her recent book but also in her research on scientists, that persons in the biological and physical sciences just are not interested in people; social service workers are. Scientists are not anti-social; "they are just not interested in other persons to any great extent. . . ."³⁴

Because of the thinking presented here, two occupations were chosen for analysis in this research and differences were sought between them in values which relate to aiding other persons and having a close relationship with others. Chemists were chosen to represent the field of science and personnel workers were selected to represent the field of social service.

Even though two occupations were selected and the differences sought between them, it was realized that there would be differences within each occupation as well. There

³² Anne Roe, The Psychology of Occupations (New York: John Wiley & Sons, Inc., 1956), p. 317.

³³ Ibid., p. 316.

³⁴ Anne Roe, "A Psychological Study of Eminent Biologists," Psychological Monographs, LXV, No. 331, 1951, p. 217.

is certainly evidence to support the notion that two persons may choose the same field of work for quite different, but wholly acceptable, reasons.

Engineering is viewed as a scientific, materialistic, or social welfare occupation by college freshmen beginning studies in that field.³⁵ Teachers have been differentiated into four basic value types based upon how they view their profession, the meaning that work has to them.³⁶ Physicians appear to function differently depending upon the aspect of their work which has meaning to them.³⁷

Certainly variation in the work values of persons in the same field is to be expected, although it would appear that a pattern of consistency would develop in viewing the field as a whole.

The work values employed here. It is now necessary to turn to the work values employed in this research in order to explain from which sources they were taken and how these particular work values emerge in their final form.

The basic sources were the values developed by Centers and those of Friedmann and Havighurst. Centers developed ten work values, which represent the following areas:

³⁵Daniel D. Raylesberg, "Contribution to a Theory of Vocational Choice," Psychological Service Center Journal, II, (September 1950), p. 198.

³⁶Chandler Washburne, "Involvement as a Basis for Stress Analysis: A Study of High School Teachers," Unpublished Ph.D. dissertation, Michigan State College of Agriculture and Applied Science, 1953.

³⁷Oswald Hall, "Types of Medical Careers," American Journal of Sociology, LV (November 1949), p. 243.

leadership, interesting experience, esteem, power, security, self-expression, profit, fame, social service, and independence.³⁸

The actual statements of the values are as follows:

1. A job where you could be a leader.
2. A very interesting job.
3. A job where you would be looked upon very highly by your fellow men.
4. A job where you could be boss.
5. A job which you were absolutely sure of keeping.
6. A job where you could express your feelings, ideas, talent, or skill.
7. A very highly paid job.
8. A job where you could make a name for yourself or become famous.
9. A job where you could help other people.
10. A job where you could work more or less on your own.³⁹

Friedmann and Havighurst covered many of the same work values but expressed them in broad terms, because they were to be used as guides for an interview rather than specific questions to which subjects respond. Their values encompass the following areas:

1. Provides a good living.
2. Fills the day comfortably, makes time pass quickly, a pleasant routine.
3. a. Brings self-respect.
b. Brings prestige; recognition from others.
4. Provides association with nice people, friendship.
5. a. Provides interesting experiences, purposeful activity.
b. Intrinsic enjoyment, self-expression, creativity.
c. Permits service to others.⁴⁰

It is evident that a number of the same values are included in both listings. The values of leadership, power,

³⁸Centers, op. cit., p. 151.

³⁹Ibid.

⁴⁰Friedmann and Havighurst, op. cit., p. 182.

and independence are elaborated by Centers and not by Friedmann and Havighurst. On the other hand, these authors include routine and associations with others, while Centers does not. It is evident also that Centers presents two aspects of the economic meaning of work--security and profit. In essentials, the two listings of work values are similar.

The work values which were employed in this research include several of the values described above. These are self-expression, independence, security, and recognition from others.

Two of the work values of the writers were expanded. This was done, first, because the subjects were graduate students who are a very limited group and are no doubt very similar in numerous values to begin with, and second, because it has been hypothesized that the subjects differ not in all values, but in values related to their relationship with people and their desire to aid people.

The writer thought that chemists would more probably desire to benefit humanity than to see that one has directly helped another person. Personnel workers would more likely desire a close relationship with people if the theorizing and research results of others are applied here.

Chemists were thought to be more concerned with discovering and understanding why certain happenings take place in the world while, perhaps, personnel workers may be more concerned with discovering new things about their own selves.

The writer expanded the work values relating to people and to intellectual curiosity. The final values chosen were

an interaction of previous thinking by others, the writer's thinking, and the writer's experience in an exploratory study.

In the exploratory study, eighteen work values were developed; then, this number was reduced to eleven when it was determined that some of the eighteen values were not selected frequently as being important to subjects and that eighteen is too large a number to rank easily. The final eleven values selected are as follows:

1. An opportunity to make one's own decisions and carry them out.
2. An opportunity to see that one has directly helped another person.
3. An opportunity to do work which is respected and considered important by other persons.
4. An opportunity to earn a better living than one's parents.
5. An opportunity to continually discover new things about one's own self.
6. An opportunity for a close relationship with other persons.
7. An opportunity to do the work one is really good at and enjoys.
8. An opportunity to share one's ideas and knowledge with other persons.
9. An opportunity to continually discover and understand why certain happenings take place in the world.
10. An opportunity to do something which will ultimately benefit mankind.
11. An opportunity to feel that one has security in his work.

If the writer were interested only in the difference in the work values of members of two occupations, he would ask only that the subjects rank the work values for themselves. This ranking is a very important aspect of the research, but not all of it. It was deemed important to learn at least the subject's perception of the work values held by

two persons significant to him in order to gain some clue about the development of his own work values.

With this same developmental approach in mind, the thinking of Roe, that persons who enter different occupational fields may have had different experiences with parents during their childhood, is examined next.

THE EXPERIENCES OF THE SUBJECTS WITH PEOPLE

Roe states that the quality of the relationship between a child and his parents is related to the field of work the child will ultimately choose when he reaches adolescence and adulthood.⁴¹ This idea appears largely based on the experiences she has had in studying eminent scientists and it is from these experiences that the writer has drawn several hypotheses.

Essentially, Roe has found that research biological and physical scientists have not had close relationships with parents earlier and are now quite uninterested in close relationships with people. Several quotes will illustrate her results.

In many of the parental homes, there is no evidence of great warmth, and the incidence of death, divorce, or serious illness among parents of these men. . . was high, amounting to forty per cent.⁴²

For reasons which are often obscure, the men who become physical and biological scientists early

⁴¹Anne Roe, The Psychology of Occupations, op. cit., p. 320.

⁴²Anne Roe, "A Psychological Study of Eminent Biologists," op. cit., p. 217.

found special interests and special satisfactions away from personal relations. It was easier for them to become immersed in objects, in things, outside of the human realm. They seem to have less often had intensely close relationships with parents or sibs.⁴³

Although there is frequently present an open or covert attitude of derogation of their mothers they almost universally respect their fathers profoundly although they never seem to have been very close to them.⁴⁴

In an article published when the present research was nearing completion, Grigg attempted to test Roe's hypothesis that persons in occupations which are oriented toward people have experienced a more close relationship with parents than persons in careers which are not oriented toward people.⁴⁵

Graduate nurses studying for teaching or supervisory positions were compared with women graduate students in chemistry, physics and mathematics who were aspiring for research positions in terms of their responses to a fifteen item questionnaire devised to tap the early childhood experiences with their parents.

No significant differences were found between the two groups in reference to their early childhood experiences.

Since empirical discrimination between nurses and women associated with science and technology does not occur on the basis of reported early experiences

⁴³Anne Roe, The Making of a Scientist, (New York: Dodd, Mead & Company, Inc., 1953), p. 236.

⁴⁴Anne Roe, "A Psychological Study of Eminent Psychologists and Anthropologists, and a Comparison with Biological and Physical Scientists," Psychological Monographs, LXVII, No. 352, 1953, p. 215.

⁴⁵Austin E. Grigg, "Childhood Experience with Parental Attitudes: A Test of Roe's Hypothesis," Journal of Counseling Psychology, VI (Summer, 1959), p. 153.

with parents, it appears that some variables other than experience of parental reactions during childhood are more pertinent to adult occupational choice.⁴⁶

In a comment accompanying the article, Roe questions whether or not her hypothesis was tested, first, because the questionnaire may not have done justice to the hypothesis and second, because the occupational groups studied may not actually represent different orientations toward people.

The writer asks the same question that Super asked after reviewing Roe's research.

The role of warmth of family relations is brought out by Roe's work and leads to speculations concerning the family backgrounds of those who go into other occupations. If research scientists have lacked a warm family relationship, have social workers enjoyed warmth?⁴⁷

More explicitly stated, four questions emerge in this research. Have chemists perceived that they have shared less affection with their mothers and fathers than personnel workers with their parents? Have chemists had less intimate contacts with their significant adults than personnel workers have experienced with their adults? Have chemists felt less close to their significant adults than personnel workers have felt toward their adults? Do chemists less frequently mention as desirable qualities which their significant adults possess their concern or interest in other people?

⁴⁶Ibid., p. 155.

⁴⁷Donald Super, The Psychology of Careers, op. cit., p. 248.

The underlying problem is to determine if chemists and personnel workers have actually experienced different relations with people. In general terms, the question is whether or not the valuing of relationships with people is related to earlier close relationships with people.

CONDITIONS WHICH INFLUENCE IDENTIFICATION

The final area to be discussed is the description of certain conditions which are hypothesized to influence the degree to which one person may identify with another. Bordin has stressed this area in hypothesizing about the dynamics of the relation between the father's occupation and his son's primary interest type on the Strong Vocational Interest Blank. He states that, "What amounts to an over-all hypothesis would be stated as, the greater the identification with the father, the greater the relationship will be."⁴⁸ This appears similar to the hypothesis here that the more favorable the conditions for identification, the more similar will be the work values of the father and son.

The major contributor to the writer's thinking has been Stoke. He has outlined the conditions which he feels are relevant to the degree that a boy will identify with his father. They will be described; then, it will be shown how these conditions are applied to the adult subjects in this research.

⁴⁸Bordin, op. cit., p. 60.

Stoke outlines ten important conditions as follows:

1. The biological fact of sex and its predisposition to some forms of behavior,
2. The social pressures upon children to identify with their own sex,
3. The degree of affection accorded to the child by the persons with whom identification is attempted,
4. The extent to which the child's needs are gratified by the person with whom identification is attempted,
5. The degree of acquaintance which the identifier has with the identified person,
6. The clarity of the role of the person with whom the identification is attempted,
7. The attitude of influential persons toward the person with whom the identification is attempted,
8. The capacity of the child to be like the person with whom identification is attempted,
9. The temperament of the child in relation to the person with whom identification is attempted,
10. The existence of strong needs on the part of the child which conflict or coincide with the requirements and pattern of the person with whom identification is attempted.⁴⁹

Mowrer reinforces the importance of (7) the attitude of influential persons toward the person with whom identification is attempted when he states that "If there is chronic antagonism between husband and wife, the boy discovers that if he identifies with his father it is at the price of losing his mother's love and approval. . . ."⁵⁰

Bordin appears to be emphasizing (3) the degree of affection accorded the child by the identified person, when he hypothesizes that "The closer the emotional bond between father and son, the greater the relation"⁵¹ between the father's occupation and the son's measured interest type.

⁴⁹Stoke, op. cit., p. 168.

⁵⁰Mowrer, op. cit., p. 169.

⁵¹Bordin, op. cit., p. 60.

The thinking of Stoke and of Mowrer was translated into the scope of this research, that is, identification in the occupational realm. The basic idea that certain conditions influence identification was accepted here and some of the actual conditions mentioned by these writers were applied here.

The following conditions were analyzed to determine if they influence the identification of a subject with his father:

- (1) the extent to which the son desired to be like his father as a person,
- (2) the extent of agreement between the son and his mother and father regarding whether or not the son should enter the father's occupation,
- (3) the son's perception of the satisfaction of his father and mother with his father's occupation,
- (4) the changes or lack of changes in occupation by the father during the son's high school career,
- (5) the son's perception of the degree of affection shared between him and his father.

Each of these conditions was thought to have some influence on the degree to which the subjects are able to accept the work values of their fathers; however, when they are combined together to form a pattern, it was thought that they would be even more meaningful in predicting the degree of similarity between the values of the subject and the values he perceives his father to hold.

Four conditions were analyzed to determine if they influence the identification of the subject with his significant adult. These conditions are as follows:

1. The degree to which the subject desired to be like his significant adult as a person,
2. The desire or lack of desire of the subject to follow in his significant adult's occupation,
3. The degree of closeness that the subject felt toward his significant adult,
4. The type of contacts that the subject experienced with his significant adult.

A summary of the review of the literature. Identification is a process which was seen by the writer to be composed of five elements which have been discussed. The identification of an adolescent with a more mature person has been considered important in the choice of an occupation.

Scientists and service workers are thought to be different in those work values which relate to the closeness to and aiding of other persons. There is both research and theory to suggest that service workers are more oriented toward people.

Scientists and service workers may have experienced differences in the closeness they have felt toward parents and significant adults, if one extends the thinking of Roe.

Finally, several writers note the importance of certain conditions which exist between a younger person and a more mature person in determining the degree to which identification will be made by the younger person.

CHAPTER 3

THE RESEARCH TECHNIQUES EMPLOYED

An exploratory study. An exploratory study was undertaken approximately one year prior to the collection of the actual data. In reviewing this study after it was completed, it was realized that it should more appropriately be termed an exploratory study than a pilot study, since the purpose was to gain general information so that an interview schedule could be developed rather than to extensively test the value of a previously developed schedule. In the beginning stage of the study broad questions were asked about the adults who had been significant to the subjects. In a later stage, an interview schedule was crystallized from the information gained and employed with seven subjects.

Ten chemists and ten personnel workers were subjects for this study. They were selected randomly from lists of male doctoral candidates in the two departments of study. The only criteria for limiting the universe from which this sample was drawn were that the individuals be male candidates for the doctorate in the respective departments who have local addresses.

With the exception of two subjects all respondents were able to select several work values from a larger number of

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

The reason why not for us that we
 are not able to do any work. Just what we
 are not able to do is not determined by our
 own will. It is not that we are not able to
 do it, but that we are not able to do it
 at all. We are not able to do it at all
 because we are not able to do it at all.

[illegible]

work values which would represent those of most importance to them. Fourteen of the subjects were able to record their perceptions of the work values which would be of most importance to their fathers and to adults who have been significant to them, although this was often found to be a more difficult task than to select values for themselves. In the final interview schedule, if a subject experienced difficulty ranking all eleven of the work values he was requested to select only the three most important values.

THE INTERVIEW SCHEDULE

The interview schedule was developed during the exploratory study. It is composed of five major areas: (1) the attitude of the parents toward the subject's following the father's occupation and toward the subject's education, (2) the identification of the subject with his father, (3) the affection shared by the subject with his mother and father, (4) the identification of the subject with a significant adult, and (5) the work values of the subject. The schedule is presented in full in the Appendix.

THE SELECTION OF THE SAMPLE

The subjects were selected to represent two fields of work, science and social service. Chemists and personnel workers were chosen as representatives of the two fields. In the practical sense, there was an adequate number of doctoral level students in each of those departments at

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RECEIVED

... ..

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

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Michigan State University to permit a sample of a size necessary to test the hypotheses which were stated earlier.

Six criteria were employed to select the subjects for this research. The subjects must have been (1) males, (2) born in the United States, (3) candidates for the doctorate in Chemistry or Administrative and Educational Services (Guidance and Counseling), (4) enrolled for classes in Michigan State University in the Winter term of 1959, and (5) living in the Lansing-East Lansing area including Dimondale, Holt, Mason, Okemos, and Potterville, Michigan. Finally, (6) only those subjects whose parents were both living and married to one another at the time the subject completed high school were included in the sample. The sample was selected to represent as adequately as possible the population of male, native born, doctoral candidates in Chemistry and Guidance and Counseling in large state universities who came from unbroken homes.

Only male subjects were chosen because of the vastly different career patterns shown between men and women. It was also decided that the marked differences in cultural backgrounds should be eliminated by choosing only native born subjects.

Because of the investment of time, effort, and finances involved in earning a doctorate, it was assumed that subjects at this level of education would have a higher motivation to continue their particular careers than persons studying at lower educational levels.

Candidates who presently live in localities distant from the University were excluded primarily because of the impracticality in terms of time and finances of interviewing individuals highly scattered geographically.

Since the research was intended to determine the subject's perception of his father's work values and the father's attitude regarding the subject's education and choice of a career, subjects whose fathers were not present in the home until that person completed high school either because of death, divorce, or legal separation were excluded. The completion of high school was chosen as the cutting point, first, because until this time a youth has continued daily contact with his parents which is often discontinued once the youth enters college, and second, because it is usually during high school that a youth is confronted with career decisions, at least the decision of whether or not to enter college and, if so, in which college curriculum to begin his studies.

The exclusion of persons who come from broken homes is simply one delimitation of the research design and does not indicate that studying the choice of careers of these persons is unimportant.

The chemists and personnel workers will now be considered separately. During the Winter term of 1959, there were fifty-one male candidates for the Ph.D. degree in the Michigan State University Department of Chemistry. Of this number, three were foreign-born, five did not have local addresses, and six were separated from their fathers prior to completion of high

school through death, divorce, or legal separation. Therefore, thirty-seven subjects met the requirements for inclusion in this research.

In the Department of Administrative and Educational Services (Guidance and Counseling) there were sixty-two male doctoral candidates enrolled during the Winter 1959 term. Two were foreign-born, seventeen had no local addresses, and eight were fatherless prior to completing high school. Thus, thirty-five subjects were included in this research.

Every subject contacted was willing to participate in the research. The cooperation of all the participants was extremely encouraging to the writer.

The interviewing required a period of approximately three months, during which the writer was carrying out the research on either a half-time or full-time basis. Most interviews lasted approximately one and one-half hours, while a few continued for two hours and several were concluded in less than one hour.

THE STATISTICAL TECHNIQUES EMPLOYED

Two non-parametric statistical techniques were employed in the analysis of the results of the research. They are the Chi-square test for two independent samples and the Kendall Rank Correlation.

Chi-square was employed to determine whether or not differences existed between the chemists and personnel workers in the various characteristics in which differences were

hypothesized. The acceptance or rejection of hypotheses one through seven was determined by Chi-square results. The formula for Chi-square presented by Siegel was utilized because of its adaptability to machine computation and its incorporation of a correction for continuity.⁵²

The Kendall Rank Correlation was employed for testing hypotheses eight through ten. First, the association between the work values of each subject and his father and the association between the work values of each subject and his significant adult were determined by this technique. Second, the association between the degree of identification that subjects were predicted to make with their fathers and the degree of identification the subjects actually made with them, was computed by the Kendall Rank Correlation. The same technique was used to compare the predicted and actual identifications of subjects with significant adults.

The formula presented in Siegel was followed for computing the Kendall Rank Correlation coefficient. The procedure for calculation when ties were present in the rankings was also taken from Siegel.⁵³

Kendall's technique was selected over the Spearman Rank Correlation even with the knowledge that the latter results in higher coefficients. Regardless of the differences in

⁵²Sidney Siegel, Non-parametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Company, 1956), p. 107.

⁵³Ibid., p. 216.

numerical value of the coefficients, the degree of significance will be equivalent. Kendall's coefficient appeared to be less difficult to compute than Spearman's because of the manner in which ties in ranking are treated.

CHAPTER 4

DESCRIPTIVE RESULTS

An introduction to the results of the research. In this chapter descriptive material is presented which pertains to the parents of the subjects, the significant adults of the subjects, and the earlier occupational choices made by the subjects. The findings do not relate to any hypotheses stated earlier. They are descriptive data which add to the total understanding of the subjects.

The analysis is based on a smaller number than represented in the sample selected. While thirty-seven chemists and thirty-five personnel workers constituted the sample, thirty-three from each group were included in the analysis.

The six subjects were removed because they had difficulty in selecting the values that would be of importance to themselves or to their fathers and significant adults. They generally found that their value system could not be represented by such a selection. They could not place the values on a relative scale, but felt that most of the values presented were of equal importance to them.

The number of subjects who could not rank the values and the number who experienced some difficulty in doing the ranking indicated that the task was more difficult than was realized by the writer.

The analysis of significant adults is based on thirty-one subjects from each group. Two subjects from each group found that in their experience there were no significant adults as they were defined in this research.

THE FATHER AND MOTHER

It is important to have an understanding of the family background from which the chemists and personnel workers developed. For this reason the subjects were asked to describe the occupations of their fathers and the education which their fathers had an opportunity to complete. Beyond this, they were asked the degree of satisfaction of their parents with the father's occupation and the parents' attitudes toward the son's entering college. These attitudes were thought to be important in the development of the son's attitude toward his father's occupation and in his arrival at a decision to continue in higher education.

The occupational level of the fathers. The occupations of the fathers of chemists and personnel workers were classified according to level by the U.S. Census system.⁵⁴ The results are shown in Table 1.

⁵⁴United States, Bureau of the Census, 1950 Census of Population, Alphabetical Index of Occupations and Industries, (Revised Edition).

When farm managers are excluded, sixty per cent of the fathers of personnel workers were in the professional, managerial, clerical, or sales occupations, while forty-five per cent of the fathers of chemists were found there. There is a slightly larger number of fathers of chemists found in the skilled, semi-skilled, and unskilled occupations than in the higher level occupations. The percentages are fifty-four and forty-five, respectively. Only twenty-four per cent of fathers of personnel workers were found in the skilled, semi-skilled and unskilled occupations.

TABLE 1.-The Occupational Level of Fathers of Chemists and Personnel Workers

| Occupational Level | Chemists | | Personnel Workers | |
|--------------------------------------|----------|-------|-------------------|------|
| | No. | % | No. | % |
| Professional, Technical and Kindred | 7 | 21.2 | 10 | 30.3 |
| Farmers and Farm Managers | - | -- | 5 | 15.1 |
| Managers, Officials, and Proprietors | | | | |
| Except Farm | 6 | 18.2 | 9 | 27.3 |
| Clerical and Kindred | 1 | 3.0 | 1 | 3.0 |
| Sales Workers | 1 | 3.0 | - | - |
| Craftsmen, Foremen, and Kindred | 4 | 12.1 | 5 | 15.1 |
| Operatives and Kindred | 9 | 27.3 | - | - |
| Private Household Workers | 1 | 3.0 | - | - |
| Service Workers | | | | |
| Except Private Household | 2 | 6.1 | 3 | 9.1 |
| Farm Laborers and Foremen | - | - | - | - |
| Laborers, Except Farm and Mine | 2 | 6.1 | - | - |
| Totals | 33 | 100.0 | 33 | 99.9 |

As the attitudes of parents toward the father's occupation and toward the son's following in the father's occupation were analyzed, it became apparent that there may be definite differences due to the occupational level of

the father. If the father is engaged in a skilled occupation it appeared more likely that he may accept his work rather than feel real satisfaction with it. He may further discourage his son from entering this work and desire him to educate himself for a better career.

Due to this thinking, the responses to a number of the questions asked of the subjects were divided into two categories, the lower level and the higher level occupations. The "white collar" occupations were the professional, managerial, clerical, and sales careers, while the farmers, craftsmen, operatives, private household workers, service workers, farm laborers, and laborers were classified as "blue collar" workers. This further division appeared to make the results of certain questions more meaningful.

The education of the fathers. Table 2 shows the education completed by the fathers. The total distribution of education for the two groups was not strikingly different. An equal proportion in each group attended college or gained education beyond that level. Thirty per cent in each group attended college, while a higher per cent in each group attended eight years or less in school.

The desire of the fathers for further education. The subjects were asked if their fathers would like to have had more education than they had the opportunity to complete. The responses were classified according to the occupational

level of the father. Table 3 shows the percentage of fathers of chemists in white collar and blue collar occupations who desired more education.

TABLE 2.-The Level of Education Completed by Fathers of Chemists and Personnel Workers

| Education Completed | Chemists | | Personnel Workers | |
|------------------------------------|----------|-------|-------------------|------|
| | No. | % | No. | % |
| Graduate or Professional School | 2 | 6.1 | 5 | 15.1 |
| College Graduate | 5 | 15.1 | 1 | 3.0 |
| Attended College | 3 | 9.1 | 4 | 12.1 |
| High School Graduate | 6 | 18.2 | 4 | 12.1 |
| Attended High School (Grades 9-11) | 2 | 6.1 | 7 | 21.2 |
| Attended Eight Years or Less | 15 | 45.4 | 12 | 36.4 |
| Totals | 33 | 100.0 | 33 | 99.9 |

Sixty per cent of the fathers of chemists desired more education. There were no differences between the white and blue collar workers; approximately sixty per cent of each group desired more education.

TABLE 3.-The Percentage of Fathers of Chemists Engaged in White Collar and Blue Collar Occupations Who Wanted Further Education

| Desire for Education | White Collar | | Blue Collar | | Total | |
|----------------------|--------------|-------|-------------|-------|-------|-------|
| | No. | % | No. | % | No. | % |
| Wanted More | 9 | 60.0 | 11 | 61.1 | 20 | 60.6 |
| Did Not Want More | 6 | 40.0 | 7 | 38.9 | 13 | 39.4 |
| Totals | 15 | 100.0 | 18 | 100.0 | 33 | 100.0 |

Forty-two per cent of the fathers of personnel workers desired more education. These results are given in Table 4.

TABLE 4.-The Percentage of Fathers of Personnel Workers Engaged in White Collar and Blue Collar Occupations Who Wanted Further Education

| Desire for Education | White Collar | | Blue Collar | | Total | |
|----------------------|--------------|-------|-------------|-------|-------|-------|
| | No. | % | No. | % | No. | % |
| Wanted More | 9 | 45.0 | 5 | 38.5 | 14 | 42.4 |
| Did Not Want More | 11 | 55.0 | 8 | 61.5 | 19 | 57.6 |
| Totals | 20 | 100.0 | 13 | 100.0 | 33 | 100.0 |

There were slight differences in the responses of the white and blue collar workers among the fathers of personnel workers. A larger percentage of the white collar workers desired further education.

The attitudes of the fathers toward the son's entering college.

The fathers of both chemists and personnel workers were perceived as having definitely encouraged their sons to enter college as shown in Table 5. Eighty-one per cent of the fathers of chemists and seventy-five per cent of the fathers of personnel workers encouraged their sons to enter higher education while only one father in each group discouraged their sons.

TABLE 5.-The Percentage of Fathers of Chemists and Personnel Workers Who Encouraged, Were Neutral Toward, or Discouraged Their Son's Attendance at College

| Father's Attitude | Chemists | | Personnel Workers | |
|-------------------|----------|-------|-------------------|------|
| | No. | % | No. | % |
| Encouraged | 27 | 81.8 | 25 | 75.7 |
| Neutral | 5 | 15.2 | 7 | 21.2 |
| Discouraged | 1 | 3.0 | 1 | 3.0 |
| Totals | 33 | 100.0 | 33 | 99.9 |

The attitudes of the mothers toward the sons' entering college.

A high proportion of the sons perceived their mothers as encouraging them to enter college, as Table 6 indicates. Ninety-three per cent of the mothers of chemists and eighty-one per cent of the mothers of personnel workers encouraged their sons to enter college. Only one mother discouraged her son from attending college.

TABLE 6.-The Percentage of Mothers of Chemists and Personnel Workers Who Encouraged, Were Neutral Toward, or Discouraged Their Sons' Attendance at College

| Mother's Attitude | Chemists | | Personnel Workers | |
|-------------------|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Encouraged | 31 | 93.9 | 27 | 81.8 |
| Neutral | 2 | 6.1 | 5 | 15.2 |
| Discouraged | - | - | 1 | 3.0 |
| Totals | 33 | 100.0 | 33 | 100.0 |

The careers suggested by the parents. While both parents were generally perceived as encouraging the son to attend college, they nearly always felt that the son should decide which curriculum to study and which career to enter. Nevertheless, several fathers and mothers did suggest possible careers to their sons. The subjects emphasized that these were only suggestions and in only one or two cases were they seen as being forced upon them by their parents.

Four fathers of personnel workers suggested the following occupations: business, insurance, engineering and secondary education. Two mothers mentioned secondary education and one suggested dentistry.

Medicine was suggested most frequently by parents of chemists. Four of the six fathers making suggestions encouraged their sons to enter medicine, while the remaining two mentioned architecture and engineering. Six of the ten mothers encouraged their sons to consider medicine. The other fields were business administration, journalism, architecture, and music-education.

The suggested occupations were the professional careers with considerable status. It seems almost to be expected that medicine would be the most frequently suggested because of its high status in our society.

Summary on education. Thus far the occupational level of the fathers of chemists and personnel workers has been presented. Regarding the education of the fathers, nearly one-half of the fathers desired more education for themselves and more than three-fourths were perceived to have encouraged their sons to attend college. The mothers of both groups were seen to encourage college attendance even more frequently than the fathers. Now that the attitudes toward education have been reviewed, the occupations of the fathers are brought into closer focus.

The subjects' perceptions of the satisfaction of the father and the mother with the father's occupation and their attitude toward their son's entering the father's occupation is now analyzed. However, first the father's occupational stability is determined.

The occupational stability of the fathers. Each subject was asked whether or not his father had been in the same occupation since the subject had entered high school. This question was to determine whether or not the father had been a consistent work model for the son during the time when most youth are considering the choice of an occupation.

Only four fathers had changed occupations since their sons had entered high school. With the exception of two fathers of chemists and two fathers of personnel workers, they were consistent work models for their sons. Usually the fathers had been in the same occupation for their entire productive years.

The satisfaction of the fathers with their occupations.

The usual responses to a query as to whether or not the subject judged his father to be satisfied with his occupation were, "Yes," "No," "Partially," or "I don't know." As the responses were analyzed, it was decided that one more category was needed. A subject may feel that his father is satisfied with his work, but at the same time feel that his father discouraged the son's entering that same work. This situation was deemed different from saying, "Yes, my father is satisfied," and later saying, "My father was neutral toward my entering his work," or "My father encouraged me to enter his work."

The response in which the father was perceived as discouraging his son from entering his work appeared to represent an acceptance of an occupation rather than a

satisfaction with it. Frequently, the father was seen as one who did as well as possible with his education and who did not complain about his occupation, but who really preferred his son to enter a higher level occupation. The category of acceptance was created to include such cases.

Table 7 shows the perceived satisfaction of fathers of chemists who were engaged in white collar and blue collar occupations. Sixty-six per cent of the white collar workers, as compared to twenty-seven per cent of the blue collar workers, were satisfied with their occupations. Twenty per cent of the white collar and fifty per cent of the blue collar workers only accepted their work.

TABLE 7.-The Percentage of Fathers of Chemists Engaged in White Collar and Blue Collar Occupations Who Express Varying Degrees of Satisfaction with Their Occupations

| Degree of Satisfaction | White Collar | | Blue Collar | | Total | % of Total |
|------------------------|--------------|-------|-------------|-------|-------|------------|
| | No. | % | No. | % | | |
| Satisfied | 10 | 66.7 | 5 | 27.8 | 15 | 45.4 |
| Accepted | 3 | 20.0 | 9 | 50.0 | 12 | 36.4 |
| Partially Satisfied | - | -- | 2 | 11.1 | 2 | 6.1 |
| Dissatisfied | 2 | 13.3 | 2 | 11.1 | 4 | 12.1 |
| Totals | 15 | 100.0 | 18 | 100.0 | 33 | 100.0 |

Table 8 shows similar results with respect to fathers of personnel workers who were white and blue collar workers. Eighty per cent of the fathers who were in white collar occupations were satisfied with their work. Only thirty-eight per cent of the blue collar workers were

perceived to be satisfied. Fifteen percent of the white collar and twenty-three per cent of the blue collar workers accepted their work. Thirty per cent of the blue collar workers were perceived to be dissatisfied with their work.

TABLE 8.-The Percentage of Fathers of Personnel Workers Engaged in White Collar and Blue Collar Occupations Who Express Varying Degrees of Satisfaction with Their Occupations

| Degree of Satisfaction | White Collar | | Blue Collar | | Total | % of Total |
|------------------------|--------------|-------|-------------|-------|-------|------------|
| | No. | % | No. | % | | |
| Satisfied | 16 | 80.0 | 5 | 38.5 | 21 | 63.6 |
| Accepted | 3 | 15.0 | 3 | 23.1 | 6 | 18.2 |
| Partially Satisfied | 1 | 5.0 | - | -- | 1 | 3.0 |
| Dissatisfied | - | -- | 4 | 30.9 | 4 | 12.1 |
| Uncertain | - | -- | 1 | 7.7 | 1 | 3.0 |
| Totals | 20 | 100.0 | 13 | 100.2 | 33 | 99.9 |

The patterns seen with the fathers of chemists and personnel workers are similar. White collar workers are more frequently satisfied with their work than blue collar workers; conversely, blue collar workers more frequently only accept their work than white collar workers.

When the fathers of chemists were compared with the fathers of personnel workers, the latter group was more frequently satisfied with their occupations. A higher percentage of the fathers of chemists than the fathers of personnel workers merely accepted their occupations. The two groups were equal in the proportion dissatisfied with their occupations.

Few fathers had ever mentioned that they would rather have entered a different field than their present occupation. Six from the personnel group and four from the chemistry group had mentioned other fields. Only two of these fathers were in blue collar occupations. Three were farm owners and five were white collar men.

The satisfaction of the mothers with the fathers' occupations.

The mothers of chemists were perceived to be in very close agreement with their husbands regarding their satisfaction with his work, as is illustrated in Table 9. The percentage within the white and blue collar groups who show the various degrees of satisfaction is almost identical with the fathers of chemists. Fewer wives than their husbands in the blue collar group are satisfied with the breadwinner's work.

TABLE 9.-The Percentage of Mothers of Chemists Who Express Varying Degrees of Satisfaction with Their Husbands' Occupations

| Degree of Satisfaction | White Collar | | Blue Collar | | % of Total Total | |
|------------------------|--------------|-------|-------------|------|------------------|-------|
| | No. | % | No. | % | | |
| Satisfied | 10 | 66.7 | 3 | 16.7 | 13 | 39.4 |
| Accepted | 3 | 20.0 | 9 | 50.0 | 12 | 36.4 |
| Partially Satisfied | 1 | 6.7 | 2 | 11.1 | 3 | 9.1 |
| Dissatisfied | 1 | 6.7 | 3 | 16.7 | 4 | 12.1 |
| Uncertain | - | - | 1 | 5.5 | 1 | 3.0 |
| Totals | 15 | 100.1 | 16 | 100 | 33 | 100.0 |

Table 10 shows that approximately one-half of the mothers of personnel workers were seen to be satisfied with their husbands' occupations. The same basic pattern between

TABLE 10.-The Percentage of Mothers of Personnel Workers Who Express Varying Degrees of Satisfaction with Their Husbands' Occupations

| Degree of Satisfaction | White Collar | | Blue Collar | | Total | % of Total |
|------------------------|--------------|-------|-------------|-------|-------|------------|
| | No. | % | No. | % | | |
| Satisfied | 14 | 70.0 | 4 | 30.8 | 18 | 54.5 |
| Accepted | 4 | 20.0 | 5 | 38.5 | 9 | 27.3 |
| Partially Satisfied | - | - | 3 | 23.1 | 3 | 9.1 |
| Dissatisfied | 1 | 5.0 | 1 | 7.7 | 2 | 6.1 |
| Uncertain | 1 | 5.0 | - | - | 1 | 3.0 |
| Totals | 20 | 100.0 | 13 | 100.1 | 33 | 100.0 |

white and blue collar groups is evident as noted earlier with the fathers of personnel workers, and for the parents of chemists as well. Fewer wives are as satisfied with the occupation as their husbands, although the difference is not great.

When the mothers of chemists were compared with the mothers of personnel workers, a larger percentage of the latter group was satisfied with their husbands' occupations. Fewer of the mothers of personnel workers than mothers of chemists merely accepted the work of their husbands.

Directly asking a subject about his parents' satisfaction with the father's occupation is one approach to understanding their attitude toward that occupation. Another is to indirectly ask their satisfaction by questioning their feelings about the son's entering that occupation. Thus, the subjects were asked to relate the attitude of their mothers and fathers toward their entering the father's occupation. This attitude is now analyzed.

The father's attitude toward the son's entering his occupation.

Forty-eight per cent of the fathers of chemists discouraged their sons from entering their occupation, as Table 11 shows. Sixty-one per cent of the fathers in blue collar work discouraged their sons from following in their work, while only thirty-three per cent of the fathers in white collar work did so. Only six per cent encouraged their sons to enter their work.

TABLE 11.—The Percentage of Fathers of Chemists Engaged in White Collar and Blue Collar Occupations Who Encouraged, Were Neutral Toward, or Discouraged Their Sons' Entrance into Their Occupation

| Father's Attitude | White Collar | | Blue Collar | | Total | % of Total |
|-------------------|--------------|------|-------------|-------|-------|------------|
| | No. | % | No. | % | | |
| Encouraged | 2 | 13.3 | - | - | 2 | 6.1 |
| Neutral | 8 | 53.3 | 7 | 38.9 | 15 | 45.5 |
| Discouraged | 5 | 33.3 | 11 | 61.1 | 16 | 48.5 |
| Totals | 15 | 99.9 | 18 | 100.0 | 33 | 100.1 |

Table 12 indicates that twenty-seven per cent of the fathers of personnel workers discouraged their sons from entering the parental occupation.

Forty-six per cent of the blue collar fathers of the personnel workers discouraged their sons from entering their occupation, while only fifteen per cent of the fathers in white collar occupations acted similarly. This is the same pattern as followed by the fathers of chemists. A higher percentage of fathers of personnel workers encouraged their sons to follow their own occupations than did the fathers of chemists.

TABLE 12.-The Percentage of Fathers of Personnel Workers Engaged in White Collar and Blue Collar Occupations Who Encouraged, Were Neutral Toward, or Discouraged Their Son's Entrance into Their Occupation

| Father's Attitude | White Collar | | Blue Collar | | Total | % of Total |
|-------------------|--------------|-------|-------------|-------|-------|------------|
| | No. | % | No. | % | | |
| Encouraged | 7 | 35.0 | 2 | 15.4 | 9 | 27.3 |
| Neutral | 10 | 50.0 | 5 | 38.5 | 15 | 45.5 |
| Discouraged | 3 | 15.0 | 6 | 46.2 | 9 | 27.3 |
| Totals | 20 | 100.0 | 13 | 100.1 | 33 | 100.1 |

The mother's attitude toward the son's entering his father's occupation. Table 13 shows that the mothers of chemists were seen to either be neutral or discourage their sons from following their father's career. Not one encouraged this. Seventy-two per cent of the mothers in the blue collar group discouraged their sons from entering the father's work, while only twenty-five per cent of the mothers in the white collar group showed a similar attitude.

TABLE 13.-The Percentage of Mothers of Chemists Who Encouraged, Were Neutral Toward, or Discouraged Their Son's Entrance into Their Father's Occupation

| Mother's Attitude | White Collar | | Blue Collar | | Total | % of Total |
|-------------------|--------------|-----|-------------|------|-------|------------|
| | No. | % | No. | % | | |
| Encouraged | - | - | - | - | - | - |
| Neutral | 10 | 75 | 5 | 27.8 | 15 | 45.5 |
| Discouraged | 5 | 25 | 13 | 72.2 | 18 | 54.5 |
| Totals | 15 | 100 | 18 | 100 | 33 | 100 |

As shown in Table 14, nine per cent of the mothers of personnel workers were perceived to encourage their sons to follow in the father's career. Thirty per cent discouraged

TABLE 14.-The Percentage of Mothers of Personnel Workers Who Encouraged, Were Neutral Toward, or Discouraged Their Sons' Entrance into Their Fathers' Occupations

| Mother's Attitude | White Collar | | Blue Collar | | Total | % of Total |
|-------------------|--------------|-----|-------------|------|-------|------------|
| | No. | % | No. | % | | |
| Encouraged | - | - | 3 | 23.0 | 3 | 9.1 |
| Neutral | 15 | 75 | 5 | 38.5 | 20 | 60.6 |
| Discouraged | 5 | 25 | 5 | 38.5 | 10 | 30.3 |
| Totals | 20 | 100 | 13 | 100 | 33 | 100 |

the son's entrance into the father's work. A slightly larger proportion of the mothers in the blue collar group than of the mothers in the white collar group discouraged their sons from the parental occupation.

When the mothers of chemists and personnel workers who are in the white collar group are compared, they are equivalent in the per cent who were neutral and discouraging.

Summary. There were consistent patterns in comparing the parents of chemists and personnel workers who were engaged in white and blue collar occupations. White collar workers were more frequently satisfied with their work. White collar workers were less often seen as discouraging the son from entering the father's occupation. The blue collar workers were more often only accepting of the father's work and more frequently discouraged the son from entering that work. These generalizations were true for both the fathers and mothers.

The mothers and fathers of personnel workers were more frequently satisfied with the father's work than mothers and

fathers of chemists. The parents of chemists more often discouraged their sons from entering the father's occupation than did the parents of personnel workers. It should be kept in mind in all the comparisons that they are based not upon the fathers' and mothers' attitudes, but upon the sons' perceptions of their attitudes.

The identification of the sons with the fathers' occupations.

No specific hypotheses were stated regarding the type of identification that the chemists and personnel workers would make with their fathers. It was hypothesized, however, that the more the subjects identified with their fathers, the less they would identify with their significant adults. While this hypothesis is discussed in a later chapter, the basic information about the identification of the subjects with their fathers is presented here.

Three response categories were employed in presenting the identification of the subjects with their fathers' occupations. They are as follows: those who never seriously considered entering the father's occupation, those who seriously considered his occupation but never entered it, and those who have actually worked in the father's occupation.

Table 15 indicates that only two chemists seriously considered their fathers' occupations, while the remaining ninety-three per cent of the chemists never seriously considered their fathers' occupations. There appeared to be an extreme lack of identification with the father's occupation among chemists.

TABLE 15.-The Degree of Identification of Chemists and Personnel Workers with the Occupations of Their Fathers

| Degree of Identification | Chemists | | Personnel Workers | |
|---------------------------------|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Considered His Occupation | 2 | 6.1 | 1 | 3.0 |
| Worked In His Occupation | - | - | 11 | 33.3 |
| Never Considered His Occupation | 31 | 93.9 | 21 | 63.6 |
| Totals | 33 | 100.0 | 33 | 100.0 |

Sixty-three per cent of the personnel workers never seriously considered entering the work of their fathers. They differ from chemists in that thirty-three per cent actually worked in their fathers' occupations. This is the one distinguishing characteristic of the identification which personnel workers have made with their fathers' occupations.

This high degree of identification by one-third of the personnel workers with the work of their fathers is not explained simply by the larger proportion of fathers in the upper level occupations. Of the eleven fathers whose sons had worked in their occupations, two were in the professions, five were in managerial careers, and four were in the skilled and semi-skilled occupations.

There were also fathers of chemists in the professions and managerial occupations. There were fathers who had businesses into which their sons could have entered. There is a noticeable absence of sons who did this.

It may be postulated that the values of business are not as distant from personnel work as from the sciences.

Sales work, especially, involves the contact with people and does not always demand a high degree of persuasion in dealing with people. This is only one suggested explanation.

Another is that the personnel workers may have been more concerned with pleasing their fathers, with complying with the father's desires. Regardless of the possible explanations, the results remain that one-third of the personnel workers actually worked in the occupations of their fathers, while none of the chemists worked in their fathers' occupations.

The identification of the sons with the fathers as persons.

Table 16 shows that over eighty per cent of both chemists and personnel workers wanted to have most of the personal qualities of their fathers. Seldom did a subject indicate that he wanted only a few qualities of his father or that he did not wish to be like his father as a person.

TABLE 16.-The Degree of Identification of Chemists and Personnel Workers with Their Fathers as Persons

| Degree of Identification | Chemists | | Personnel Workers | |
|---|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| As a Total Person | 10 | 30.3 | 4 | 12.1 |
| As a Person Except for One or Two Qualities | 13 | 39.4 | 10 | 30.3 |
| Most but Not All Qualities | 6 | 18.2 | 13 | 39.4 |
| A Few, but Not All Qualities | 3 | 9.1 | 2 | 6.1 |
| Not as a Person Except for One or Two Qualities | 1 | 3.0 | 3 | 9.1 |
| Not as a Person | - | - | 1 | 3.0 |
| Totals | 33 | 100.0 | 33 | 100.0 |

Chemists and personnel workers differ in the percentage who wanted to be like their fathers as total persons. Thirty per cent of the chemists, but only twelve per cent of the personnel workers, identified to such a total degree with their fathers' qualities.

Chemists were more likely to want to be like their fathers as a total person and to be like them except for one or two qualities. Sixty-nine per cent responded in those categories. Forty-two per cent of the personnel workers responded in those two categories.

A tendency is noted for the chemists to identify to a greater degree with the personal qualities of their fathers.

THE SIGNIFICANT ADULTS

The significant adults of chemists and personnel workers were nearly always professional people. Ninety per cent of the adults of both groups were in the professions as is shown by Table 17.

Sixty-one per cent of the adults chosen by chemists and fifty-eight per cent of the adults chosen by personnel workers were teachers in high school or college.

Forty-two per cent of the significant adults of chemists were in the field of chemistry, while thirty-eight per cent of the adults chosen by personnel workers were in personnel work or psychology.

As might be expected, there is a definite trend toward the subjects' choosing teachers in their field as significant adults. This presentation does not, however, allow for more

TABLE 17.-Occupations of Significant Adults

| Occupations | Chemists | Personnel
Workers |
|---|----------|----------------------|
| | N = 31 | N = 31 |
| I. Professional and Technical | | |
| College Professors | | |
| Agronomy | - | 1 |
| Chemistry | 11 | - |
| Paper Technology | 1 | - |
| Personnel Workers | - | 6 |
| Psychology | - | 3 |
| Sociology | - | 2 |
| College Administrator | - | 1 |
| College Graduate Student, Chemistry | 1 | - |
| Teachers, High School | | |
| Coach | - | 1 |
| Music | 1 | - |
| Mathematics | 3 | - |
| Science | 2 | 1 |
| Social Science | - | 2 |
| Personnel Worker | - | 1 |
| Accountant | 1 | - |
| Agricultural Agent | - | 1 |
| Architect | 1 | - |
| Chemist | 1 | - |
| Lawyer | 1 | 1 |
| Minister | 3 | 4 |
| Officer, Army | - | 1 |
| Pharmacist | 1 | - |
| Physician | 1 | 1 |
| Psychologist, Counseling | - | 2 |
| II. Farm Owners and Managers | - | 1 |
| III. Managers, Officials and Proprietors | | |
| Manager, Railroad Station | - | 1 |
| Proprietor, Filling Station | 1 | - |
| Proprietor, Furniture Business | 1 | - |
| IV. Clerical | | |
| Mail Carrier | - | 1 |
| V. Craftsman, Foreman | | |
| Foreman, Woodshop | 1 | - |

of a qualitative understanding of the type of relationships the subjects had with the adults. There were certain patterns which did emerge when the relationships were reviewed.

The two most common patterns were those described already. The subjects were acquainted with a high school teacher or a college teacher from whom they had classes and with whom they had some informal contacts. Another pattern was that the adult was a relative of the subject or a close friend of the subject's father. This explains the choice of some persons from non-professional occupations as significant adults.

Some adults were personal friends of the subjects, rather than teachers or relatives. Several subjects had been employees of the adults while in high school or during summers. This pattern is relevant in explaining why a chemist would have chosen an accountant or an architect as a significant adult.

Ministers with whom the subjects had religious contacts during high school or college were sometimes quite significant to the subjects. The adult may have been a father of a close friend of the subject. There were cases in which the subject was included in the recreational activities of a family because he was a close friend of the son in that family. Thus, the subject gained respect and closeness to the friend's father.

The above patterns represent the major types of relationships that the subjects shared with the adults. There

were also subjects who had several relationships with one adult. The adult may have been a friend of the subject's father, a part-time employer of the subject during high school, and an active member of the same church as the subject.

This leads to some speculation regarding the degree of identification that may be associated with the number of different relationships shared between the subject and the adult. It may be hypothesized that greater identification may be expected in cases where several relationships are experienced.

The process of choosing a significant adult. Four subjects were unable to choose a significant adult because they felt that in their experience there were no adults who represented to any degree the type of adults they wished to be. Consequently, these subjects were excluded from the analysis of the significant adults.

Two of these subjects were chemists; two were personnel workers. The two chemists were able to select adults whom they respected and to whom they felt close, but felt that none of these adults could be considered persons who would be the nearest to the type of adults they would wish to be.

The two personnel workers were unable to name adults whom they respected and to whom they felt close. One felt that there were no such adults in his experience; the other was more influenced by a group of persons who represented a type of life rather than specific adults he could name.

Some subjects were unable to choose one significant adult but regarded two adults as having about the same degree of significance to them. Five personnel workers chose two significant adults, while nine chemists chose two.

In the analysis of the responses only one of the two was included because of the necessity in the statistical calculations of having each response independent of the others. The first adult named by the subject was consistently chosen as the one to be included in the analysis.

The finding that a number of subjects were unable to distinguish between the two adults gave rise to some further implications which will be discussed in Chapter Eight.

THE EARLY OCCUPATIONAL CHOICES

In addition to understanding the significant adults of chemists and personnel workers, an analysis was made of their thinking about occupations prior to the choice of their present field. It was considered important to know the time in their lives when they chose their careers and the various careers they had considered before the final choice.

As illustrated in Table 18 chemists had chosen their occupations at a decidedly earlier age than the personnel workers. Forty-five per cent of the chemists had decided on chemistry as a career by the time they completed high school. These results are similar to those found by Rogoff regarding the age at which medical students had decided definitely to study medicine.⁵⁵ Forty-four per cent of the medical students

⁵⁵Rogoff, op. cit., p. 115.

had decided on their career prior to age eighteen.

Not a single personnel worker had decided on his field during high school. Twenty-eight of the thirty-three personnel workers did not decide on their present career until after completion of college and fifteen of that number did not decide until having over a year's work experience after college graduation.

TABLE 18.-The Time Periods During Which Chemists and Personnel Workers Decided on Their Careers

| Time Period | Chemists | Personnel Workers |
|---|----------|-------------------|
| Prior to high school | 3 | - |
| During high school | 12 | - |
| During college | 13 | 6 |
| After completion of college | 3 | 12 |
| After completion of college and over
one year of work experience | 2 | 15 |
| Totals | 33 | 33 |

The chemists were much more likely to have decided early that chemistry was to be their field of work and decided to obtain the necessary education. Personnel workers more generally gained an education in another field of work and often worked in that field before changing to the personnel field.

There were thirteen chemists who have had early boyhood experiences with chemistry sets or other chemical apparatus. These were boys who were interested from an early age in experimenting. One boy would spend hours watching ants at work and would place a number of red ants on a black ant hill just to see what would happen. Another stole baking powder and

vinegar from the kitchen to watch them foam when placed together. Still another had learned the equivalent of high school chemistry before he entered the course.

These boys developed chemical apparatus either by beginning with a chemistry set or with equipment and chemicals given to them by their fathers or older brothers. Generally, they could not wait for the beginning of the science classes in high school because they were so enthusiastic about this field. When they came in contact with chemistry class they were often given opportunities to spend more time in the laboratory and do extra experiments. This they did with zeal. They frequently read library books on chemistry or were given books by their teachers.

The chemists not only chose their occupation at an earlier age but they appear to have considered fewer occupations prior to the choice. In high school, most chemists were aware of an interest in the biological or physical sciences and were considering scientific occupations, as is shown by Table 19. Very few chemists were basically uncertain of which field of work they wished to follow.

The personnel workers appeared to consider a wider range of occupations during high school, including both the biological and physical science fields and non-scientific fields. Table 20 shows that nearly one-third of the group was uncertain of an occupation at that time. Business, social service, and linguistic occupations were considered by those youth, whereas, these fields were absent from the considerations of

TABLE 19.-The Occupations That Chemists Considered During High School*

| Occupation | Number of times considered |
|--------------------------------------|----------------------------|
| The Biological and Physical Sciences | |
| Chemistry | 15 |
| Science | 9 |
| Medicine | 4 |
| Engineering | 2 |
| Forestry | 1 |
| Paper Technology | 1 |
| The Social Sciences and Other Fields | |
| Anthropology | 1 |
| Music | 1 |
| Psychology | 1 |
| Non-professional | 3 |
| Uncertain | 2 |

*The total number of times the occupations were considered is larger than thirty-three, the number of chemists, as some chemists were considering more than one career during high school.

the chemists. Not a single chemist was interested in coaching, teaching social science, writing, law, or business, but these occupations appear in the interests of personnel workers.

Certain patterns develop if one compares the earlier choices during college with the final choice of an occupation. If the chemists did not originally plan to enter chemistry in college, they frequently had planned to enter medicine or dentistry, then changed to chemistry because of lack of finances, loss of interest, or failure in the class work.

A second pattern is the change from another biological or physical science field into chemistry. This appears to be basically a minor transition. Several subjects first considered

TABLE 20.-The Occupations That Personnel Workers Considered During High School

| Occupation | Number of times considered |
|---|----------------------------|
| The Biological and Physical Sciences | |
| Medicine | 3 |
| Aeronautics | 2 |
| Dentistry | 2 |
| Engineering | 2 |
| Forestry | 1 |
| Science | 1 |
| The Social Sciences and Other Fields | |
| Coach | 4 |
| Business management | 3 |
| Lawyer | 3 |
| Teacher of social science | 3 |
| Athlete | 2 |
| Member of Diplomatic Corps | 2 |
| Minister | 2 |
| Artist | 1 |
| Certified Public Accountant | 1 |
| Interior Decorator | 1 |
| Journalist | 1 |
| Police Administrator | 1 |
| Radio Announcer | 1 |
| Non-professional | 2 |
| Uncertain | 9 |

engineering, bacteriology, paper technology, physical science teaching, and pharmacy prior to changing.

A third pattern is the change from a social science field to chemistry. One person earlier earned a degree in economics, while another spent several years in college studying anthropology.

A fourth pattern is the consideration while in college of various fields prior to the choice of chemistry. One subject was weighing the fields of science, youth work,

agricultural or medical missionary work, and the ministry before he chose chemistry. Another chose from electrical engineering, journalism, history, psychology and chemistry.

With a few exceptions, the chemists made their first choice in college from within the biological and physical sciences and later made the transition from the related fields to chemistry.

If one reviews the first choice made by personnel workers, the findings are quite different. During college personnel workers were more likely to have first chosen to be high school teachers. Eleven of the thirty-three subjects had first chosen secondary education. They were not interested in teaching the physical sciences, but history, business, physical education, English, Spanish, or agriculture. Each of these subjects had teaching experience prior to choosing personnel work and frequently this experience influenced them to make the rather easy transition to personnel work.

The next most common pattern was to begin in business and later change to personnel work. Two subjects had over four years experience in their fathers' businesses. Several others had worked in the business field even though they had no formal training in that area. These types of experiences are noticeably lacking among the chemists.

As with chemists, there were several personnel workers who had previously chosen to enter medicine. Two other common curricula chosen in college were psychology and social science.

Psychology was often a transition field chosen after leaving teaching or business and before choosing personnel work. Subjects tended to change to psychology first, then later find personnel work more compatible with their interests.

With two subjects the ministry was the first choice and for one of these persons this may still be his ultimate occupation. One subject began in police administration, another in English literature, and a third in range management.

Very few subjects were considering the biological or physical science fields as their first choice during college. Four were planning to enter medicine and one was studying chemistry and math in order to enter personnel work in the chemical industry.

Summary. To summarize these findings, chemists chose their occupation at an earlier age than personnel workers. In high school they appeared to be considering a much narrower range of occupations, primarily the biological and physical science occupations. Personnel workers were more likely to be uncertain of a choice in high school and to be considering a wider range of fields including the scientific, social service, linguistic, and business occupations.

In college, the chemists who had not already chosen chemistry were likely to have chosen an area in the biological and physical science fields and later transferred to chemistry. Personnel workers were much more likely to have completed a college degree in education, business, social

science, or psychology prior to entering their present field. Few personnel workers first chose a scientific occupation; likewise, few chemists had earlier chosen non-scientific fields.

CHAPTER 5

THE WORK VALUES

Chapter five presents the work values of the chemists and personnel workers and their perception of the work values of their fathers and significant adults. The work values in which differences were found between chemists and personnel workers will be described first. These results will determine the acceptance or rejection of hypothesis one.

Next, the work values which the significant adults were perceived to hold will be described and the differences between the adults chosen by the chemists and those chosen by the personnel workers will be analyzed to determine the adequacy of hypothesis two.

The work values of the fathers of chemists and personnel workers will then be compared. No hypothesis is stated regarding the work values of the fathers of chemists and personnel workers; however, the values are presented as descriptive data.

THE WORK VALUES OF CHEMISTS AND PERSONNEL WORKERS

Hypothesis one. Hypothesis one states that personnel workers differ from chemists in the importance given to six selected

work values. Personnel workers will significantly more often than chemists rank the following three work values in the upper three of the eleven work values:

- (a) An opportunity to see that one has directly helped another person,
- (b) An opportunity for a close relationship with other persons,
- (c) An opportunity to continually discover new things about one's own self.

Conversely, chemists will significantly more often than personnel workers rank the following three values in the upper three of the eleven values;

- (a) An opportunity to do something that will ultimately benefit mankind,
- (b) An opportunity to share one's ideas and knowledge with other persons,
- (c) An opportunity to continually discover and understand why certain happenings take place in the world.

The hypothesis was tested by means of the chi-square technique. A four-cell table was constructed for each work value. The four groups were (1) chemists who ranked the value as one of the upper three values, (2) chemists who ranked the value in the lower eight values, (3) personnel workers who ranked the value as one of the upper three values, and (4) personnel workers who ranked the value in the lower eight values.

The chi-square tables are listed in the Appendix. Since there were nineteen such tables, it was decided that the basic results would be presented in this chapter and the details of each table could be obtained by referring to Appendix B. Only tables in which significant results were obtained,

that is, a probability of .05 or less was found, were included in the final report.

Table 21 shows the frequency with which each value was ranked in the upper three of the eleven work values by chemists and personnel workers. It indicates further the significance of the difference obtained between the number of chemists and personnel workers who chose a particular value as one of the upper three. The significance levels reported were .05, .02, .01, and .001. The exact chi-square value for each is reported in Appendix B.

The frequency that each work value was ranked in each of the eleven positions by the chemists and personnel workers is presented in Appendix C. Also, the median ranking of each work value by chemists and personnel workers is listed.

TABLE 21.-A Comparison of the Number of Chemists and Personnel Workers Who Selected Each Work Value as One of the Three Most Important of the Eleven Work Values

| Work Values | Personnel | | Significance
of Chi-square
Differences |
|-------------------------------|--------------------|-------------------|--|
| | Chemists
N = 33 | Workers
N = 33 | |
| (A) Independence | 16 | 10 | |
| (B) Directly helping another | 6 | 21 | .001 |
| (C) Respect | 4 | 5 | |
| (D) A better living | - | - | |
| (E) Curiosity about oneself | 6 | 1 | |
| (F) Close relationships | 4 | 15 | .01 |
| (G) Self-expression | 22 | 12 | .05 |
| (H) Sharing knowledge | 10 | 10 | |
| (I) Curiosity about the world | 20 | 7 | .01 |
| (J) Benefiting mankind | 7 | 17 | .05 |
| (K) Security | 4 | 1 | |

The responses of chemists and personnel workers to five values were significantly different. Two of the values which were hypothesized to be chosen significantly more often by personnel workers than chemists were actually chosen more frequently by personnel workers. The values were (B) directly helping another⁵⁶ and (F) close relationships.⁵⁷ The third value, (E) curiosity about oneself, was found to be chosen infrequently by both chemists and personnel workers. Although chemists chose the value more often, the difference was not significant.

Only one of the three values which were hypothesized to be more frequently chosen by chemists was actually consistent with the hypothesis. Chemists more frequently than personnel workers chose the value (I) curiosity about the world.⁵⁸

An equal number of chemists and personnel workers selected the value (H) sharing knowledge, whereas, it had been hypothesized that a greater number of chemists would consider this value important.

The responses obtained to one value were opposite from those hypothesized. The personnel workers significantly more often selected value (J) benefiting mankind,⁵⁹ whereas, the chemists were hypothesized to choose it more frequently.

⁵⁶See Table 1, Appendix B.

⁵⁷See Table 2, Appendix B.

⁵⁸See Table 4, Appendix B.

⁵⁹See Table 5, Appendix B.

An unexpected difference appeared in the number of chemists and personnel workers who considered (G) self-expression⁶⁰ an important value. Chemists chose this value significantly more often than personnel workers.

The first hypothesis stated that differences would be present between the two groups with regard to six values. Statistically significant differences were found in the expected direction in only three of the six values; therefore, hypothesis one was rejected.

Although the basic hypothesis was rejected, the results indicate that the personnel workers value close relationships with people, the opportunity to directly help another person, and the opportunity to benefit mankind more highly than do chemists. It was hypothesized that the two groups would differ in the manner in which they may wish to aid others--the chemists indirectly and in more of an abstract manner and the personnel workers in a direct face-to-face association.

The unexpected finding is that the two groups differ not in the manner in which they desire to aid others, but rather in whether or not they are to aid others. Personnel workers consider it important to aid others both by directly helping another and by doing something which will ultimately benefit mankind, whereas, chemists consider both values as important significantly less often.

These results, even though not as hypothesized, strengthen the conception that personnel workers are

⁶⁰ See Table 3, Appendix B.

oriented toward people and concerned with their welfare.

The two values considered important significantly more often by chemists than personnel workers were related to self-expression and curiosity about the world. Certainly, the desire to express one's ability and intellectual curiosity is consistent with the manner in which scientists have been viewed in earlier literature. The relatively less important place given to aiding people and being close to people is also consistent with the literature reviewed.

The most important value of chemists and personnel workers.

The value which was ranked first by each chemist and personnel worker is presented in Table 22. There were six values which were ranked as the most important value not more than once.

Nearly one-half of the chemists chose (G) self-expression as the highest value. When (A) independence and (I) curiosity about the world are added to that number, seventy-eight per cent of the chemists are included.

Personnel workers most frequently chose (B) directly helping another as their highest ranking value. The value chosen nearly as frequently was (J) benefiting mankind. Sixty per cent of the personnel workers ranked one of these two values in the highest position.

There were, of course, chemists who considered it of most importance for them to directly help others and to benefit mankind. The importance of self-expression and independence was also evident for certain personnel workers. These

TABLE 22.-A Comparison of the Number of Chemists and Personnel Workers Who Selected Each Work Value as the One Most Important Work Value

| Work Values | Chemists
N = 33* | Personnel Workers
N = 33 |
|-------------------------------|---------------------|-----------------------------|
| (A) Independence | 6 | 5 |
| (B) Directly helping another | 2 | 12 |
| (C) Respect | - | - |
| (D) A better living | - | - |
| (E) Curiosity about oneself | 1 | - |
| (F) Close relationships | - | 1 |
| (G) Self-expression | 15 | 5 |
| (H) Sharing knowledge | 1 | - |
| (I) Curiosity about the world | 4 | 2 |
| (J) Benefiting mankind | 3 | 8 |
| (K) Security | - | - |

*One chemist felt that the first three values were of equal importance to him. It is known that the most important value for him would be (A), (G), or (I).

subjects were, however, somewhat variant from the most common patterns of chemists and personnel workers.

The major values of chemists and personnel workers. By inspection of Table 21, it is evident that certain values were selected frequently while others were selected less often. The major values of chemists were (A) independence, (G) self-expression, and (I) curiosity about the world. For personnel workers the major values were (B) directly helping another, (F) close relationships, and (J) benefiting mankind.

The values which were chosen infrequently by both groups were (C) respect, (D) a better living, and (K) security. Neither chemists nor personnel workers were concerned with the economic gain or the respect to be acquired from their professions.

The question was raised as to whether or not chemists generally rank their major values higher than the major values of personnel workers. Do chemists rank independence higher than directly helping another? Do they rank curiosity above close relationships with others? Is self-expression of more importance to chemists than benefiting mankind?

The opposite question is, Do personnel workers consider close relationships with others, the direct helping of another, and benefiting mankind as more important than independence, curiosity, and self-expression?

To answer these questions, the ranking of the total eleven values rather than only the upper three values was analyzed. For each subject it was determined whether he ranked one value higher than another, regardless of the particular ranking of each value. For example, if independence was ranked seventh by a subject and directly helping another was ranked fifth, the latter value was considered to be ranked higher.

It was determined by means of the chi-square technique whether or not differences were evident between the number of chemists and personnel workers who ranked a given value, such as (A) independence, above another value, such as (B) directly helping another. Four-cell tables were created, based on the following four groups: (1) chemists who ranked value (A) above value (B), (2) chemists who ranked value (B) above value (A), (3) personnel workers who ranked value (A) above value (B), and (4) personnel workers who ranked value (B) above value (A).

This procedure was repeated with each of values (B), (F), and (J) with values (A), (G), and (I). The nine chi-square tables are presented in Appendix B.⁶¹

Each of the nine chi-square tests was significant. The chemists most frequently ranked (A) independence, (G) self-expression, and (I) curiosity about the world above each of the following values: (B) directly helping another, (F) close relationships, and (J) benefiting mankind.

The personnel workers generally ranked the values in a manner opposite to that of the chemists. There were three comparisons, however, in which the personnel workers were not as definite in their ranking of one value over another.

Approximately an equal number of personnel workers ranked self-expression above close relationships as ranked close relationships above self-expression. Likewise, they were divided as to whether it was more important to have close relationships or independence and whether it was more important to benefit mankind or have self-expression. The chemists were quite definite as to which of the two was the more important; the personnel workers were quite equally divided on the values.

The questions asked earlier were answered in the affirmative. Chemists do rank independence, curiosity, and self-expression higher than directly helping another, having close relationships and benefiting mankind. Conversely,

⁶¹ See Tables 6-15, Appendix B.

personnel workers rank the same values of independence, curiosity and self-expression lower than the three values relating to people, with the three exceptions noted above.

Thus far it has been determined that the values most frequently selected by chemists as their three most important work values were independence, self-expression and curiosity about the world. It was determined also that the chemists rank these three values above the values chosen most frequently by personnel workers, directly helping another, close relationships and benefiting mankind. As a group, personnel workers rank their three values above the three major values of chemists, with three exceptions.

The combination of values chosen by personnel workers.

The question may still be asked as to whether or not there were certain chemists who chose the values which were found to be major values of personnel workers. Could there be chemists who have chosen one major value associated with chemists, such as self-expression and two of the values associated with personnel workers, such as directly helping another and close relationships with others? Are there personnel workers who have chosen the major values of chemists? The following analysis attempted to answer these questions by describing the combination of three values that each chemist and personnel worker selected.

Only three of the thirty-three personnel workers did not choose a single one of the three major values, directly helping another, close relationships and benefiting.

mankind. Four personnel workers chose all three of the major values.

Nineteen of the personnel workers, or fifty-seven per cent, chose two of the major values. These were the combinations of (B) and (F), (B) and (J), or (F) and (J) with a third value. Ninety per cent chose at least one of the three major values in combination with two other values. These results give indication that there was some consistency in the values chosen by personnel workers.

There were four personnel workers who in terms of the values chosen appeared more similar to chemists than to personnel workers. These were subjects who chose two of the three major values of chemists. Not a single personnel worker chose all three of the major values of chemists.

There were five personnel workers who were unlike the total group of personnel workers. Four chose two major values associated with the chemists. The fifth subject had no major values in common with personnel workers.

The combination of values chosen by chemists. The three major values of chemists were (A) independence, (G) self-expression and (I) curiosity about the world. Twenty-four per cent of the chemists chose combinations including all three values.

Sixty per cent of the chemists chose two of the three major values. Twenty of the thirty-three chemists selected (G) and (A), (G) and (I), or (A) and (I) in combination

with a third value. As with personnel workers, ninety per cent of the chemists selected at least one of the three major values.

Three chemists had none of the three major values associated with the chemistry group. Two chemists were more similar to personnel workers, because of their choice of the values (B) directly helping another and (F) close relationships. Not a single chemist chose all three of the major values associated with personnel workers.

There were chemists and personnel workers who selected exactly the same combination of values. There were seven chemists who were matched with five personnel workers in their choice of five combinations of values.

Two of the combinations of values represent rather closely the major values of chemists, since two of the three major values are present. The remaining three combinations represent neither the major values of chemists nor the major values of personnel workers.

When chemists and personnel workers were alike in their values, it appeared that either the personnel workers chose the values of the chemists or that both groups chose values which were somewhat different than the major values of their own groups. There were no cases in which chemists chose the values of personnel workers.

To summarize the combination of values chosen by both groups, first, there was some consistency in the combination of values chosen in each group. Nearly sixty per cent of

each group selected two of the three major values associated with that group. Only three in each group chose none of the three major values of their group. Two chemists were more similar to personnel workers than to their own group in terms of their values, while four personnel workers appeared more appropriately to belong with the chemists.

There were five chemists who selected the exact combination of values that were chosen by seven personnel workers.

Summary of the work values of the two groups. Chemists differ from personnel workers in five work values. They were hypothesized to be different in six selected work values. They were found to be different in the expected direction in three of the six values. Hypothesis one was rejected.

The personnel workers were, however, found to consider directly helping another, close relationships and benefiting mankind as important values significantly more often than chemists. The chemists significantly more often than personnel workers considered self-expression and curiosity about the world as important values.

Three major values of chemists were independence, self-expression and curiosity about the world. The corresponding major work values of personnel workers were directly helping another, close relationships with others, and benefiting mankind.

The chemists ranked their three major values above the major values of the personnel workers. With several exceptions, the personnel workers ranked their own values

above those of the chemists. The exceptions were those personnel workers who were divided as to whether self-expression and independence are more important than having close relationships and benefiting mankind.

There was consistency in the values chosen by the two groups. Approximately sixty per cent of each group chose two of their own three major values. Ninety per cent of each group chose at least one of their three major values. There were several in each group who chose values which were more similar to the members of the opposite group.

THE PERCEIVED WORK VALUES OF SIGNIFICANT ADULTS

Hypothesis two. Hypothesis two states that personnel workers differ from chemists in the importance that they perceive that their significant adults would give to six selected work values.

Personnel workers will significantly more often than chemists perceive their significant adults as ranking the following values in the upper three of the eleven values:

- (a) An opportunity to see that one has directly helped another person,
- (b) An opportunity for a close relationship with other persons,
- (c) An opportunity to continually discover new things about one's own self.

Chemists will significantly more often than personnel workers perceive their significant adults as ranking the following values in the upper three of the eleven values:

- (a) An opportunity to do something that will ultimately benefit mankind,

- (b) An opportunity to share one's ideas and knowledge with other persons,
- (c) An opportunity to continually discover and understand why certain happenings take place in the world.

Table 23 shows that the significant adults actually were perceived to differ in two work values, of which only one was hypothesized to be different. The significant adults of personnel workers were perceived to include value (F) close relationships⁶² in the upper three of the eleven work values significantly more frequently than the significant adults of chemists.

TABLE 23.-A Comparison of the Number of Significant Adults of Chemists and Personnel Workers Who Were Perceived to Hold Various Values as One of the Three Most Important of the Eleven Work Values

| Work Values | Chemists
N = 31 | Personnel
Workers
N = 31 | Significance
of chi-square
Differences |
|-------------------------------|--------------------|--------------------------------|--|
| (A) Independence | 14 | 5 | .02 |
| (B) Directly Helping Another | 16 | 16 | |
| (C) Respect | 2 | 8 | |
| (D) A Better Living | - | 3 | |
| (E) Curiosity About Oneself | 1 | 1 | |
| (F) Close Relationships | 4 | 13 | .02 |
| (G) Self-expression | 17 | 11 | |
| (H) Sharing Knowledge | 16 | 13 | |
| (I) Curiosity About the World | 11 | 7 | |
| (J) Benefiting Mankind | 9 | 12 | |
| (K) Security | 3 | 4 | |

Since only one of the six values was different as hypothesized, hypothesis two was rejected. An unexpected difference was found regarding (A) independence.⁶³

⁶² See Table 16, Appendix B.

⁶³ See Table 15, Appendix B.



The chemists perceived their significant adults as considering this value important significantly more frequently than personnel workers believed that their significant adults considered it important.

The major values of the significant adults. The three major values of the significant adults of chemists were; (G) self-expression, (B) directly help another and (H) sharing knowledge. A fourth value which the adults were perceived by chemists to select significantly more often than the adults of personnel workers was (A) independence. This value appeared fewer times, however, than the three major values.

The three major values of the significant adults of personnel workers were: (B) directly help another, (H) sharing knowledge and (F) close relationships.

Two other values which were moderately important to both groups of adults were (J) benefiting mankind and (I) curiosity about the world. Adults of personnel workers were slightly more concerned with (C) respect, while adults of chemists considered (G) self-expression important.

Neither of the groups considered (D) a better living, (E) curiosity about oneself, or (K) security of great importance.

The two values which were considered of importance to both groups were those of directly helping another person and sharing knowledge with others. This perception of the adults is, no doubt, influenced by the types of relationships

the subjects shared with them. A considerable number of the adults were teachers with whom the subjects had informal as well as classroom contacts.

While there were two values in which the adults differed significantly and two in which there were some divergences even though they were not significant, there was a noticeable similarity in the values of the significant adults of both groups. The two groups of adults certainly appear more similar to one another than the chemists and personnel workers to one another.

The combinations of values of the significant adults. Since there were fifteen subjects who were unable to rank the eleven values as they perceived their significant adults would rank them, these subjects were asked to choose only the upper three values which they perceived their significant adults to hold. For this reason, an analysis of the most important value of the significant adults was not possible; however, the combinations of values chosen by the adults was reviewed.

As with the subjects themselves, nearly one-half of the significant adults of chemists were perceived to choose various combinations of two of the three values (A) independence, (G) self-expression and (I) curiosity about the world. Twenty-five per cent were seen to choose two of the three values (B) directly helping another, (F) close relationships and (J) benefiting mankind with a third value.

Combinations of two of the three above values, (B), (F), and (J), with a third value were selected by forty-five per cent of the significant adults of personnel workers. Five were seen to value a combination which included all three of the values.

There appeared to be more variety in the combinations of values chosen by the significant adults of personnel workers than in those chosen by the significant adults of chemists. There were seven adults from one group who selected the same five combinations of values as seven adults from the second group. The combinations were composed largely of values which were associated with personnel workers, such as (B) directly helping another and (J) benefiting mankind.

Summary. It was expected and was hypothesized that the chemists and personnel workers have identified with different types of adults. It was expected that the significant adults of personnel workers would be persons who valued close relationships, curiosity about one's own self, and being of aid to others more than the significant adults of chemists. Conversely, it was expected that the significant adults of chemists would value curiosity, sharing knowledge, and benefiting mankind more than the adults of personnel workers.

Hypothesis two was rejected; however, it must be noted that the adults did differ in the expected direction in the value they were perceived to place upon close relationships. Although not hypothesized to be so, the adults of chemists

were seen to place more emphasis upon independence than the adults of personnel workers.

Beyond these two differences, the significant adults showed some basic similarities. Directly helping another and sharing knowledge with others were among the three most frequently selected values of both groups.

THE PERCEIVED WORK VALUES OF THE FATHERS

The major work values of the fathers. There was no hypothesis stated regarding the work values of fathers; however, they are examined here for the descriptive information that will be gained.

Table 24 shows the work values which chemists and personnel workers perceived that their fathers consider important.

TABLE 24.--A Comparison of the Number of Fathers of Chemists and Personnel Workers Who Were Perceived to Hold Various Values as One of the Three Most Important of the Eleven Work Values

| Work Values | Personnel | | Significance
of Chi-square
Differences |
|-------------------------------|--------------------|-------------------|--|
| | Chemists
N = 33 | Workers
N = 33 | |
| (A) Independence | 16 | 18 | |
| (B) Directly helping another | 6 | 11 | |
| (C) Respect | 7 | 12 | |
| (D) A better living | 5 | 6 | |
| (E) Curiosity about oneself | - | - | |
| (F) Close relationships | 5 | 8 | |
| (G) Self-expression | 25 | 16 | .05 |
| (H) Sharing knowledge | 6 | 5 | |
| (I) Curiosity about the world | 6 | 3 | |
| (J) Benefiting mankind | 1 | 9 | .02 |
| (K) Security | 22 | 11 | .02 |

There were three values which were chosen frequently by chemists. These values were (G) self-expression, (K) security, and (A) independence. There were no other values which were chosen nearly as frequently as these three.

The three major values of fathers of personnel workers were (A) independence, (G) self-expression, and (C) respect; however, there were three other values which were chosen nearly as often as (C) respect, so the major values of the fathers of personnel workers are not as distinct and outstanding as those of the fathers of chemists. For the personnel workers it is less accurate to speak of only three major values.

The similarity in the three major values of the two groups of fathers is evident, since both were perceived to choose independence and self-expression. The two groups differ significantly in the frequency that three values were chosen. Fathers of chemists were seen to select (G) self-expression⁶⁴ and (K) security⁶⁵ more frequently than the fathers of personnel workers, while the latter group chose (J) benefiting mankind⁶⁶ more frequently than the chemistry group.

There were five values which both groups of fathers were perceived to consider of less importance. Value (E)

⁶⁴See Table 17, Appendix B.

⁶⁵See Table 19, Appendix B.

⁶⁶See Table 18, Appendix B.

curiosity about oneself was never chosen by either group. The remaining four values were: (D) a better living, (F) close relationships, (H) sharing knowledge, and (I) curiosity about the world.

The combinations of values of the fathers. Since such a large number of fathers of chemists were perceived to chose three values primarily, it was expected that there would be a number who had chosen a combination of values which included all three of the values. This expectation was true. A combination of the three values (A) independence, (G) self-expression, and (K) security was chosen by nearly one-fourth of the fathers of chemists. A combination of values (G) and (K) with a third value accounts for fifty-four per cent of the fathers of the chemists.

The major values of the chemists themselves were often found in the combinations of values of their fathers. The combination of two of the three values (A) independence, (G) self-expression, and (I) curiosity about the world with a third value was perceived to be important to forty-eight per cent of the fathers.

Two of the major values of the personnel workers were found infrequently among the fathers of chemists. The combinations of two of the three values (B) directly helping another, (F) close relationships, and (J) benefiting mankind with a third value were found in only two cases.

The major values of the two groups of subjects, chemists and personnel workers, were found with equal frequency

among the combinations of values of the fathers of personnel workers. Thirty per cent of the fathers were perceived to choose two of the three major values of chemists; thirty per cent chose two of the three major values of personnel workers. This result is in contrast to findings among fathers of chemists.

A combination of the values (G) self-expression and (K) security with a third value accounted for only twelve per cent of the fathers of personnel workers. This same combination accounted for fifty-four per cent of the fathers of chemists.

As was noted in the first examination of Table 2⁴ and appears evident again, the fathers of chemists show much less variation than fathers of personnel workers in the values they are perceived to consider important.

When the two groups of fathers were perceived to choose the same combination of values, the values were most often those associated with the chemists. There were no cases in which fathers from each group were seen as choosing the values relating to directly helping another, close relationships, and benefiting mankind.

The work values of the professional fathers. It has been determined through research that work values differ in relation to occupational level. The fathers who were in professional occupations were removed for a closer analysis.

The most noticeable difference between the ten professional fathers and the total group of fathers of personnel

workers was the emphasis of the professionals upon the values (B) directly helping another, (F) close relationships, and (J) benefiting mankind. Sixty per cent of the professionals were perceived to choose the two values (B) and (J), while only four per cent of the non-professional fathers were seen to select them. Removal of the professionals leaves only one father who had this combination of values.

The removal of the professional fathers from the total group of fathers of personnel workers reduces noticeably the frequency of the values which relate to people, and causes the total group of fathers to be much more similar to the fathers of chemists.

The seven professional fathers of chemists do not have a similar effect on the total group of fathers of chemists. They are to a large degree much like the total group. The unexpected finding is the relatively high proportion of the professionals who were seen to emphasize security. Fifty-seven per cent of the professionals as compared with sixty-nine per cent of the non-professionals were perceived as ranking security as an important value.

The professional fathers were quite similar to the total group in the frequency that the three major values of the fathers of chemists were selected. The professionals were not seen as emphasizing the values which relate to people, such as the professional fathers of personnel workers did.

Summary. The fathers of chemists differed from the fathers of personnel workers in three work values. The fathers of chemists were seen to choose more frequently than the fathers of personnel workers the values of self-expression and security. Likewise, the personnel group was perceived to place greater importance upon benefiting mankind than the chemistry group.

It was determined that the difference between the two groups in the emphasis placed on benefiting mankind was largely due to the values of the professional fathers within the total group of fathers of personnel workers.

The major values of the fathers of chemists were seen as self-expression, security, and independence. Those of the fathers of personnel workers were seen as self-expression, respect, and independence. The similarity in their major values is evident, although the fathers of personnel workers tend to show much more variation in the values chosen. A number of values compete for the fourth place below the three major values, while among the fathers of chemists three major values stand out quite clearly as being the most frequently chosen.

Summary of the Chapter. Hypothesis one was rejected. Chemists and personnel workers differed in the expected direction in only three of the six values in which differences were hypothesized; however, personnel workers differ from chemists in the importance placed by them upon having close relationships with others, directly helping another, and benefiting

mankind. Chemists place greater importance than personnel workers upon self-expression and curiosity about the world.

Hypothesis two was rejected. There were differences in only one of the six values in which differences were hypothesized. Significant adults of personnel workers were perceived to be more concerned with close relationships than significant adults of chemists. There was no significant difference, however, in the importance they were seen to place upon directly helping another or benefiting mankind.

Both groups of significant adults were seen to emphasize the importance of directly helping another and sharing knowledge. The significant adults of chemists were perceived to value independence more than the adults of personnel workers.

Fathers of both groups were perceived to emphasize self-expression and independence. The fathers of chemists were seen to place greater importance upon security and self-expression. The fathers of personnel workers were perceived to show greater concern for benefiting mankind.

Throughout the analysis, it was apparent that the chemistry groups showed less variation in values. There was a concentration on several major values, while the personnel group showed less agreement in values.

CHAPTER 6

THE RELATIONSHIPS OF CHEMISTS AND PERSONNEL WORKERS WITH ADULTS

In this chapter, the findings regarding five hypotheses are discussed. Hypotheses three through seven dealt with the closeness that the chemists and personnel workers have experienced with their significant adults and with their parents.

It has already been determined that personnel workers value a close relationship with people more highly than chemists. This was hypothesized to be true. It was also hypothesized that personnel workers have experienced closer relationships with parents and adults. It will be shown in this chapter that this general hypothesis could not be accepted.

When the chi-square test and the Fisher exact probability test were employed to test differences, the .05 level of probability was considered significant.

Hypothesis three. This hypothesis states that personnel workers have more frequently than chemists felt that their relationship with their significant adults was as close as or closer than their relationship with other friends.

Table 25 shows the responses of chemists and personnel workers when asked the degree of closeness they felt toward their significant adults.

TABLE 25.-The Degree of Closeness Felt Toward Significant Adults by Chemists and Personnel Workers

| The Degree of Closeness | Chemists | | Personnel Workers | |
|--|----------|-------|-------------------|------|
| | No. | % | No. | % |
| Closer to Him Than to Any Other Adult Person | 3 | 9.7 | 4 | 12.9 |
| As Close to Him as to My Parents | 2 | 6.4 | 5 | 16.1 |
| As Close to Him as to Other Friends | 11 | 35.5 | 8 | 25.8 |
| Closer to Him Than to Most Other Adults | 10 | 32.3 | 10 | 32.3 |
| As Close to Him as to Most Other Adults | 3 | 9.7 | 3 | 9.7 |
| Less Close to Him Than to Most Other Adults | - | - | 1 | 3.2 |
| No Feeling of Closeness in Any Manner | 2 | 6.4 | - | - |
| Totals | 31 | 100.0 | 31 | 99.9 |

The general distribution of responses of both groups is similar. The chemists and personnel workers were divided into two groups, one including those who felt closer to the adult than to any other person, those who felt as close to the adult as to their parents, and those who felt as close to him as to other friends and the second group including those who felt closer to the adult than to most other adults, those who felt as close to him as to most adults, and those who felt less close to him than to most adults.

Four groups were thereby created: (1) chemists who felt close to the adult, (2) personnel workers who felt

close to him, (3) chemists who felt less close to the adult, and (4) personnel workers who felt less close to him. The chi-square test applied to determine whether or not there was a significantly larger number of personnel workers who felt close to the adult was found not to be significant.

The hypothesis as stated before was rejected. There was no evidence to indicate that personnel workers have perceived closer relationships with their significant adults than chemists.

Hypothesis four. This hypothesis states that personnel workers have experienced more intimate contacts with their significant adults than chemists have experienced with their significant adults. The chemists and personnel workers were compared in terms of their responses to four questions: Did you ever have a chance for informal "bull sessions" with him? Did you ever discuss your future plans with him? Did you ever visit in his home? Was he ever a visitor in your home?

TABLE 26.-The Percentage of Chemists and Personnel Workers Who Had "Bull Sessions" With Significant Adults

| Responses | Chemists | | Personnel Workers | |
|------------------------------|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Held "Bull Sessions" | 26 | 83.9 | 26 | 83.9 |
| Did Not Hold "Bull Sessions" | 5 | 16.1 | 5 | 16.1 |
| Totals | 31 | 100.0 | 31 | 100.0 |

Table 26 indicates that an equal proportion of chemists and personnel workers had "bull sessions" with their significant adults. Eighty-three per cent of each group had this experience.

Approximately three-fourths of each group discussed their future plans with the adults, as Table 27 shows. No difference was found between the groups in this respect.

TABLE 27.-The Percentage of Chemists and Personnel Workers Who Discussed Their Future Plans With Significant Adults

| Responses | Chemists | | Personnel Workers | |
|------------------------------|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Discussed Their Future | 23 | 74.2 | 24 | 77.4 |
| Did Not Discuss Their Future | 8 | 25.8 | 7 | 22.6 |
| Totals | 31 | 100.0 | 31 | 100.0 |

A slightly higher percentage of personnel workers than chemists visited in the homes of significant adults. Table 28 shows that sixty-one per cent of the personnel workers as compared with fifty-one per cent of the chemists had this experience. A chi-square test applied to the differences in responses was not significant.

TABLE 28.-The Percentage of Chemists and Personnel Workers Who Visited in the Homes of Their Significant Adults

| Responses | Chemists | | Personnel Workers | |
|--|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Visited in the Home of Their Significant Adult | 16 | 51.6 | 19 | 61.3 |
| Did Not Visit in the Home of Their Significant Adult | 15 | 48.4 | 12 | 38.7 |
| Totals | 31 | 100.0 | 31 | 100.0 |

Nearly the same proportion of chemists and personnel workers responded that significant adults visited in their homes. Table 29 shows the percentage to be thirty-eight and thirty-five, respectively. No differences were evident.

TABLE 29.-The Percentage of Chemists and Personnel Workers Who Had Significant Adults Visit in Their Homes

| Responses | Chemists | | Personnel Workers | |
|--|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Were Visited by Significant Adults | 11 | 35.5 | 12 | 38.7 |
| Were Not Visited by Significant Adults | 20 | 64.5 | 19 | 61.3 |
| Totals | 31 | 100.0 | 31 | 100.0 |

In regard to three of the four questions, there was not enough difference in responses to warrant the application of a statistical test of difference. A test applied to the remaining question resulted in no significant difference. Hypothesis four was rejected. There was no indication that personnel workers have experienced more intimate contacts with their significant adults than have chemists.

Hypothesis five. Hypothesis five states that personnel workers more frequently than chemists have desired to be like their significant adults as persons, that is, have wanted a higher proportion of the adults' personal qualities. Table 30 shows the responses of the two groups.

The chemists and personnel workers were divided into two groups: (1) those who desired to be like the adult as

a total person, those who desired to be like the adult as a total person, except for one or two qualities, and those who wanted most but not all of the personal qualities of the adult, and (2) the number who wanted fewer qualities than those in the first group.

TABLE 30.-The Degree of Identification of Chemists and Personnel Workers With Significant Adults as Persons

| Degree of Identification | Chemists | | Personnel Workers | |
|---|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| As a Total Person | 6 | 19.3 | 4 | 12.9 |
| As a Person, Except for One or Two Qualities | 10 | 32.2 | 8 | 25.8 |
| Most, but Not All Qualities | 4 | 12.9 | 8 | 25.8 |
| A Few, but Not All Qualities | 6 | 19.3 | 3 | 9.7 |
| Not as a Person, Except for One or Two Qualities | - | - | 1 | 3.2 |
| Not as a Person | 1 | 3.2 | 1 | 3.2 |
| Not Well Enough Acquainted to Judge His Qualities | 2 | 6.4 | 2 | 6.4 |
| Never Viewed The Person in This Manner | 2 | 6.4 | 5 | 16.1 |
| Totals | 31 | 100.0 | 31 | 100.0 |

In the first group there were twenty chemists and twenty personnel workers. The remaining chemists and personnel workers were in the group that desired fewer qualities.

A chi-square test applied to these data revealed that there was no significant difference between the number of chemists and personnel workers who desired most of the personal qualities of their significant adults. This hypothesis was rejected also.

Likewise, there was no difference in the number of chemists and personnel workers who identified with the work of their significant adults. Table 31 shows that fifty-eight per cent of the chemists and fifty-four per cent of the personnel workers desired to do the work of their significant adults.

TABLE 31.-The Degree of Identification of Chemists and Personnel Workers With the Occupations of the Significant Adults

| Degree of Identification | Chemists | | Personnel Workers | |
|---|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Wished to Enter the Adult's Occupation | 18 | 58.1 | 17 | 54.8 |
| No Desire to Enter the Adult's Occupation | 13 | 41.9 | 14 | 45.2 |
| Totals | 31 | 100.0 | 31 | 100.0 |

There were no results to support the thinking that the personnel workers are more concerned with the personal qualities of their significant adults while the chemists are more interested in the occupational life of their significant adults and less concerned with their personal qualities.

Hypothesis six. This hypothesis states that personnel workers differ from chemists in the frequency that the personal qualities desired in their significant adults relate to "understanding, acceptance and concern for other persons".

Each subject was first asked to what extent he wanted to be like his significant adult as a total person, that is, have the personal qualities he had. Immediately after this he was asked to relate which qualities the adult had which he would want for himself.

The responses to the question were categorized into two groups, those referring to a relationship with other people and those referring to intellectual qualities. The following words and phrases were considered to represent the quality of a relationship with other people:

accepting, charitable, compassionate, friendly, gregarious, humanitarian, permissive, tolerant, his ability to make people like him, his ability to get along with others, his trying to help others, his interest in people, his helpfulness to me, his helpfulness to others, his kindness toward others, and his interest in me as a person.

The following words and phrases were defined as an emphasis upon intellectual qualities:

ability, brilliance, capabilities, competence, knowledge, scholarship, smartness, his desire for learning, his professional excellence, his professional ability, his ideas, his knowledge of his field, his excellent memory, his teaching ability, his counseling ability, his research ability.

It became apparent that certain subjects responded that they desired both the intellectual and relating qualities of an adult. Their responses were analyzed in terms of which of the qualities were mentioned first as a means of emphasizing the qualities which seemed to be most prominent in the thinking of the subject about the significant adult.

The responses were finally analyzed into four major categories: (1) those desiring only the qualities regarding

the relationship with others, (2) those desiring only intellectual qualities, (3) those desiring both qualities of relating and intellect, but mentioning the qualities of relating first, and (4) those desiring both qualities of relating and intellect, but noting the intellectual qualities first.

Categories were created for those whose responses could not be considered as either intellectual or relating qualities, and for those who desired few or no qualities which the adult possessed.

Table 32 shows the per cent of chemists and personnel workers who responded in each of the categories. The analysis of the responses took two forms in an attempt to accept or reject the hypothesis.

First, the chemists and personnel workers were compared in terms of the number desiring only relating qualities and the number desiring only intellectual qualities. These responses were placed in a two by two table and were analyzed according to the Fisher exact probability test, as reported

TABLE 32.-The Qualities of Significant Adults Which Were Desired by Chemists and Personnel Workers

| Types of Qualities | Chemists | | Personnel Workers | |
|------------------------------------|----------|-------|-------------------|-------|
| | No. | % | No. | % |
| Relationship with others only | 6 | 19.3 | 8 | 25.8 |
| Intellect only | 10 | 32.2 | 3 | 9.7 |
| (1) Relationship (2) Intellect | 6 | 19.3 | 9 | 29.0 |
| (1) Intellect (2) Relationship | 4 | 12.9 | 6 | 19.3 |
| Neither intellect nor relationship | 3 | 9.7 | 2 | 6.4 |
| No qualities desired | 2 | 6.4 | 3 | 9.7 |
| Totals | 31 | 100.0 | 31 | 100.0 |

in Siegel.⁶⁷ It was determined that the difference between the responses of chemists and personnel workers was not significant at the accepted level.

Second, the four major categories were compressed into two and the chemists were compared with personnel workers in terms of their responses to the two categories. Those desiring intellectual qualities and those desiring both intellectual qualities and relating qualities, but mentioning the intellectual qualities first, were placed in one category. This category was seen as being made up of those placing primacy on intellectual qualities.

In a similar manner, a category was created of those placing primacy on relating qualities. A chi-square test was applied to determine if chemists and personnel workers differed in the primacy given to relating qualities. The difference was not significant at the accepted level.

Since differences were found in neither technique of testing, the hypothesis that personnel workers more frequently desire qualities of "understanding, acceptance, and concern for others" was rejected. It can only be stated that there is a slight tendency for chemists to desire only intellectual qualities in their significant adults.

Hypothesis seven. This hypothesis states that personnel workers have perceived themselves as having shared more affection with their fathers and mothers than chemists.

⁶⁷Siegel, op. cit., p. 96.

The subjects were asked the following question: Compared with your friends and their fathers, do you feel you and your father felt more, about the same, or less affection for one another? The hypothesis, translated into responses to this question, would state that when tested by means of chi-square, a significantly larger number of personnel workers than chemists would respond that they shared more affection with their fathers than their friends shared with their fathers.

A review of Table 33 reveals that the number responding that they felt that they had shared more affection than did their friends was nearly equal for chemists and personnel workers. The difference as tested by the chi-square test was not significant.

TABLE 33.-The Degree of Affection Shared by Chemists and Personnel Workers With Their Fathers

| Degree of Affection | Chemists | | Personnel Workers | |
|-------------------------------|----------|-------|-------------------|------|
| | No. | % | No. | % |
| Less affection than friends | 3 | 9.1 | 8 | 24.2 |
| The same affection as friends | 18 | 54.5 | 14 | 42.4 |
| More affection than friends | 12 | 36.4 | 10 | 30.3 |
| Uncertain | - | - | 1 | 3.0 |
| Totals | 33 | 100.0 | 33 | 99.9 |

There is, on the contrary, a larger number of personnel workers than chemists who felt less affection with their fathers than they perceived their friends did. This result may be considered only a slight tendency, for the most

striking feature of the responses listed in Table 33 is the similarity between the two groups.

Turning to the responses of chemists and personnel workers to the same question asked in reference to their mothers, the similarity in responses of the two groups was also the most noticeable aspect of Table 34. Approximately one-third in each group felt more affection toward their mothers than they believed their friends felt toward their mothers. The chi-square test applied to the number of chemists and personnel workers who felt more affection toward their mothers yielded non-significant results.

It was concluded that there are no results to support the hypothesis that personnel workers have perceived themselves as having shared more affection with their parents than chemists.

TABLE 34.-The Degree of Affection Shared by Chemists and Personnel Workers with Their Mothers

| Degree of Affection | Chemists | | Personnel Workers | |
|-------------------------------|----------|------|-------------------|------|
| | No. | % | No. | % |
| Less affection than friends | 2 | 6.1 | 4 | 12.1 |
| The same affection as friends | 18 | 54.4 | 17 | 51.5 |
| More affection than friends | 12 | 36.4 | 11 | 33.3 |
| Uncertain | 1 | 3.0 | 1 | 3.0 |
| Totals | 33 | 99.9 | 33 | 99.9 |

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Summary. Hypotheses three through seven were rejected. It was determined that chemists and personnel workers do not differ significantly in the degree of closeness felt toward their significant adults, in the intimacy of contacts experienced with significant adults, in the degree to which they have identified with the personal qualities of the significant adults, in the frequency that they desire the personal qualities of their significant adults which pertain to "understanding, acceptance, and concern for other persons," and in terms of the degree of affection they feel that they have shared with their parents.

There was no evidence to indicate that the personnel workers have experienced closer relationships with parents and adults than chemists, even though the personnel workers value a close relationship with other persons more highly than chemists.

CHAPTER 7

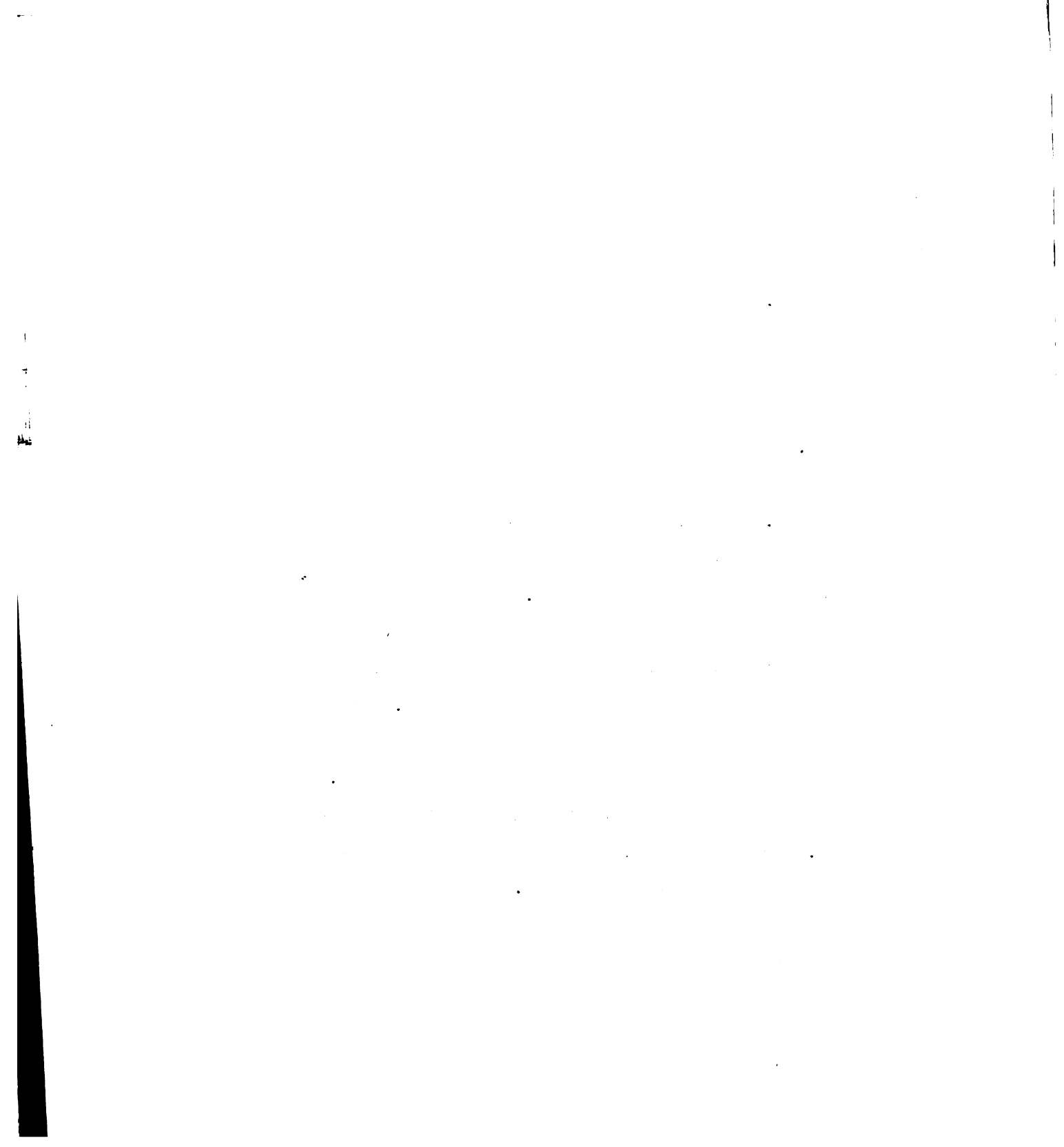
CONDITIONS ASSOCIATED WITH THE PROCESS OF IDENTIFICATION

Hypothesis eight. Hypothesis eight states that a positive relationship exists between the degree of identification of a son with his father and the degree of identification predicted between the two persons by means of a combination of conditions.

In order to adequately test this hypothesis, several steps were taken. First, a rank order correlation was calculated between the work values of each subject and his perception of his father's work values.

It will be recalled that if a subject found it difficult to rank his perception of his father's values, he was asked to list only the three most important values. Fifteen of the subjects found the ranking too difficult; thus, those subjects were excluded from this portion of the analysis. Fifty-one subjects formed the population for this aspect of the research. Of that number, twenty-three were chemists and twenty-eight were personnel workers.

Second, the fifty-one subjects were ranked on the basis of the size of the rank order correlation from the highest



coefficient to the lowest coefficient.⁶⁸ The highest coefficient was .84, the lowest, -.75. The median was .27.

The coefficients represented the similarity between the subject's work values and his perception of his father's work values, the degree of identification of the son with the father.

Third, the same fifty-one subjects were ranked by means of a combination of conditions from those predicted to have the highest degree of identification with their fathers to those predicted to have the lowest degree of identification.⁶⁹ The ideal setting for identification was theorized and the subjects were ranked from the ideal to the least ideal.

Two methods of combining the several conditions were attempted. First, each condition was considered to be different in its importance. Thus, the subjects were ranked into several categories based upon one condition, then, ranked within the categories by the second condition and ranked further within the second categories by a third condition.

The second method considered each condition of equal importance by giving to each the same weight. Thus, the

⁶⁸See Table 1, Columns 1 and 2, Appendix D, for a listing of the fifty-one coefficients and the ranking of the coefficients.

⁶⁹See Table 1, Column 3, Appendix D, for the ranking based on the predicted identification.

subjects were ranked by means of the total score obtained from the weight of each condition.

The results obtained from the two methods were so similar that the method which appeared in the writer's judgment to be the most logical and more nearly congruent with theoretical considerations was finally employed. The method which considered each condition of different importance was selected.

The fifty-one subjects were, therefore, first placed in one of the six categories which represent the extent to which they desired to be like their fathers as persons.

The six categories are as follows:

- (1) I wanted to be like my father as a person.
- (2) I wanted to be like him, except for one or two qualities he had.
- (3) I wanted to have most, but not all qualities he had.
- (4) I wanted to have a few, but not all qualities he had.
- (5) I did not want to be like him as a person, except for one or two qualities he had.
- (6) I did not want to be like my father as a person.

The subjects were then ranked within each of the six categories by means of a second condition: the son's perception of the extent of agreement between himself and his father and mother as to whether or not he should enter his father's occupation. There were different degrees of agreement which determined the ranking of each subject.

The son who agreed with the perceived attitude of the parents as to whether or not he should enter the father's occupation was theorized to have identified

more with the father than the son who disagreed with the attitudes of the parents. The son who perceived the father and mother as discouraging him from entering the father's work and who actually did not seriously consider entering the father's occupation was theorized to have identified with the father. For this son to have entered the father's field would have meant rejection rather than identification with the father's values and attitudes.

The following conditions were considered as agreement between the son and his parents regarding the choice of his father's work and these conditions were ranked above the other conditions as predicting a higher degree of identification.

- (1) The father and mother were perceived by the son as discouraging the son from entering the father's work and the son did not seriously consider entering the father's work.
- (2) The father and mother were perceived by the son as neutral toward his entering the father's work and the son entered, seriously considered, or did not seriously consider entering the father's work.

There were no cases in which both parents were perceived to encourage the son's entrance into the father's occupation.

When the father and mother were perceived to differ in their attitudes, and the son agreed with one of the parents, this was considered less agreement than when the son agreed with both parents. The following conditions were considered of less agreement between the son and his parents regarding his entrance into the father's work:

- (1) One parent is seen as discouraging the son from entering the father's work, while the other parent is neutral. The son does not seriously consider entering the father's occupation.
- (2) One parent is seen as encouraging the son to enter the father's work, while the other parent is neutral. The son enters or seriously considers entering the father's work.

The following two conditions were considered disagreement between the parents and son and were ranked lower than the prior two conditions:

- (1) One parent is seen as discouraging the son from entering the father's work, while the other parent is neutral. The son enters the father's work.
- (2) One parent is seen as encouraging the son to enter the father's work, while the other is neutral. The son does not seriously consider entering the father's work.

It is evident that not all the logical combinations of conditions were elaborated here. Empirically, these combinations were not found, so they were not listed here.

If the subjects were ranked equally on the first two conditions, they may have been ranked differently on the third condition: the perceived satisfaction of the father and mother with the father's occupation.

The satisfaction of parents with the father's occupation was considered differently if it was expressed by professional parents than if it was expressed by non-professional parents.

Professional parents were never found to discourage the son from entering the father's occupation; they were found to be neutral or encouraging in this regard. If these parents

were perceived to be satisfied with the father's occupation, this was considered as a condition which would influence a higher identification with the father. For these professional parents to be neutral or encouraging toward the son's entrance into the father's work, as they were found to be, and to be dissatisfied with the father's work would present an inconsistency to the son, which is theorized here to reduce the degree of identification with the father.

If both parents were satisfied with the father's work, that subject was ranked highest, if one parent was partially satisfied the subject was ranked second, and if one parent was dissatisfied that subject was ranked third or lowest.

Turning now to non-professional parents, those not in the professional, technical and kindred level in the U.S. Census classification of occupations, satisfaction with the father's occupation was viewed differently. For these parents to have encouraged their sons to enter a professional field of work, which most were seen to do by encouraging attendance at college and for both parents to discourage their sons from entering the father's occupation, which forty-four per cent of the non-professionals which were analyzed in this portion of the study were seen to do, while still being satisfied with the father's occupation would seem to present the sons with an inconsistency which is theorized to be related to a lower degree of identification with the father.

It would appear more possible for the son to identify with a father who encourages the son to obtain more education and who wishes that it had been possible for him to obtain more education than a father who wishes the son to obtain more education but who is himself satisfied with his own station in life. The latter father would seem to say to his son, "Do as I say, not as I do".

To discourage the son from entering the father's occupation and to be dissatisfied themselves with the father's occupation would appear to present the son with a consistent attitude which is theorized to be related to a higher degree of identification of the son with the father.

If both parents in non-professional families were dissatisfied with the father's work that subject was ranked highest, if one parent was dissatisfied, that subject was ranked second, if one parent was partially satisfied, the subject was ranked third, and if both parents were satisfied, the subject was ranked fourth or lowest.

Those subjects who were equal on the prior conditions, may have been differentiated on the basis of the degree of affection perceived to have been shared by father and son. The three degrees of affection were: more affection than friends with their fathers, the same degree of affection as friends with their fathers, and less affection than friends with their fathers. Subjects were ranked

highest if they experienced more affection. Those who felt less affection were ranked lowest.

One condition which was listed in the hypothesis was not actually employed in this analysis. This condition concerned the change or lack of change in occupations by the father during the subject's high school career. Only four fathers changed occupations; thus, it was considered a consistent pattern rather than a condition which varies from subject to subject.

To illustrate the manner in which the conditions were utilized to rank the subjects, a case is reviewed. The subject who was predicted to have the highest degree of identification with his father was a chemist: (1) who desired to be like his father as a (total) person, (2) who was in agreement with his parents regarding whether or not he should enter his father's occupation, chemistry, (3) whose parents were both satisfied with the father's occupation, and (4) who felt he shared about the same degree of affection with his father as friends with their fathers.

Each subject was ranked in a similar manner based on the conditions discussed above. There were several subjects who were tied in rank, but this was not a handicap in calculating the Kendall rank order correlation, as there are corrections outlined to allow for such situations.

The subjects were ranked once according to the actual identification between themselves and their fathers.

They were ranked again according to the predicted identification between them. A Kendall rank order correlation of 0.33 was obtained between these two rankings. This may be interpreted as meaning that there is a low positive correlation between the actual and the predicted identification. A test of the significance of the coefficient⁷⁰ was applied and it was determined that the coefficient was different from a coefficient of zero at beyond the .001 level of significance.

Hypothesis eight was accepted. A positive, significant relationship exists between the degree of identification of a son with his father and the degree of identification predicted between son and father by a combination of conditions which are theorized to make identification more probable.

A subject (1) who desired a high proportion of his father's personal qualities, (2) who was perceived to be in agreement with his parents as to whether or not he should follow in the father's occupation, (3) whose parents, if in the professional level, were satisfied with the father's occupation or whose parents, if in the non-professional levels, were dissatisfied with the father's occupation, and (4) who perceived that he shared more affection with his father than friends shared with their fathers was

⁷⁰Siegel, op. cit., p. 221.

also likely to perceive a high degree of similarity between his own and his father's work values.

Hypothesis nine. Hypothesis nine states that the more favorable the conditions are for the son to identify with the father, the less the son would identify with his significant adult.

Since four of the subjects could name no significant adults, as was noted in Chapter 4, there were forty-seven rather than fifty-one subjects included in the procedure necessary to test this hypothesis.

The hypothesis was tested in the following manner. First, the subjects were ranked by means of the conditions predicted to influence the degree of identification of the son with the father, as discussed under hypothesis eight above. They were ranked from those for whom the conditions for identification were considered most favorable to those for whom the conditions were considered least favorable.

Next, a Kendall rank order correlation coefficient was calculated to determine the association between the work values of each subject and the work values which he perceived his significant adult to hold. Each coefficient was designated as the degree of identification of the subject with the significant adult. The coefficients ranged in magnitude from 1.00 to $-.16$.^{7/} The median was .42. The forty-

^{7/} See Table 2, Columns 1 and 2, in Appendix D.

seven subjects were ranked according to the value of these coefficients from the lowest to the highest.

A Kendall rank order correlation coefficient was then calculated between these two rankings of the subjects. The first ranking represented the most to the least favorable conditions for identification of the son with the father, and the second ranking represented the lowest to the highest degree of identification of the subject with his significant adult.

The coefficient obtained was .19, a low, positive correlation. When the coefficient was tested to determine whether or not it differed significantly from a coefficient of zero, it was not found to be different, although it was near the difference which is considered to be significant.

Hypothesis nine was rejected; however, there seems to be a tendency for subjects for whom the conditions are considered favorable for identification with their fathers, to identify less with significant adults, but this tendency was not of the degree to be considered significant.

Hypothesis ten. The final hypothesis states that a positive relationship exists between the degree of identification of a subject with his significant adult and the degree of identification predicted between the two persons by means of a combination of conditions.

There were four major conditions which were employed to predict the identification of subjects with their significant

adults. They were: (1) the extent to which the subject desired to be like the significant adult as a person, (2) the desire or lack of desire of the subject to follow in the significant adult's occupation, (3) the degree of closeness that the subject felt toward his significant adult, and (4) the type of contacts that the subject experienced with his significant adult.

By means of the four conditions, the forty-seven subjects who had chosen significant adults were ranked from the one for whom the conditions were predicted to be most favorable for identification to the one for whom the conditions were predicted to be least favorable.⁷² The procedure for combining the four conditions was similar to the one employed in hypothesis eight in which conditions were utilized to predict identification with the father.

The subjects were first placed in one of eight categories depending upon the degree to which they desired to have the personal qualities of a significant adult. The eight categories are:

- (1) I wanted to be like him as a person.
- (2) I wanted to be like him, except for one or two qualities he had.
- (3) I wanted to have most, but not all qualities he had.
- (4) I wanted to have a few, but not all qualities he had.
- (5) I did not want to be like him as a person, except for one or two qualities he had.
- (6) I did not want to be like him as a person.

⁷²See Table 2, Column 3, in Appendix D.

- (7) I did not know him as a person well enough to know if I wanted qualities he had.
- (8) This category was not one of the alternative answers presented to the subjects. Some subjects decided that none of the former seven responses were relevant to themselves, since they had never thought of the adult in terms of wanting or not wanting his personal qualities.

The subjects were then ranked within each of the eight categories by means of a second condition. If they desired to enter the same occupation as the significant adult, they were ranked highest. If they wanted to enter the same field of work as the adult, although not the same occupation, such as desiring to be a chemist like the adult, but to work in industry whereas the adult was a college instructor, they were ranked below the first group of subjects. Those who did not want to enter the work of their significant adult were ranked lowest.

At this point, the subjects were ranked in the eight categories and within the eight categories were ranked according to three criteria. The subjects were further distinguished by the condition of the closeness that they felt to their significant adults. The closer the subjects felt to the adults, the higher they were ranked. Following are the six degrees of closeness, presented from greater to lesser degree of closeness:

- (1) I felt closer to him than to any other adult.
- (2) I felt as close to him as to my parents.
- (3) I felt as close to him as to other friends.
- (4) I felt closer to him than to most other adults.
- (5) I felt as close to him as to most other adults.
- (6) I felt less close to him than to most other adults.

Finally, if subjects were still ranked equally by the conditions stated above, they were distinguished by the intimacy of contacts they experienced with the adults. The four types of contacts with the adults were: "bull-sessions," talking over future plans, visiting in his home, and his visiting in the subject's home. If a subject had all four types of contacts with the adult, he was ranked higher than those having fewer types of contacts. Likewise, those having three types were ranked higher than those having two.

There were subjects who had the same number but different types of contacts. For example, one may have had "bull-sessions" and discussed future plans with an adult, while another may have exchanged visits with the adult. For purposes of ranking, having experienced bull-sessions and discussions of future plans with an adult was considered less close than exchanging visits in homes.

By means of the above procedure, the subjects were ranked from the subject for whom the conditions were most favorable for identification with a significant adult to the subject for whom conditions were least favorable for identification.

The same subjects were ranked according to the actual degree of identification. The highest ranking subject was the one who showed the largest positive coefficient of correlation between his work values and his perception of the significant adult's work values.

A Kendall rank order correlation was calculated between the two rankings of the same subjects. The coefficient

obtained was .21, a low positive correlation. It was determined that the coefficient was different from a coefficient of zero at the .05 level of significance. A low, but significant, positive correlation was obtained.

Hypothesis ten was accepted since a positive significant relationship was found between the degree of identification of the subjects with their significant adults and the degree of identification predicted between the two persons by a combination of conditions.

Summary. Hypothesis eight was accepted. A significant positive relationship exists between the actual degree of identification of the sons with their fathers and the degree of identification predicted by a combination of conditions.

Hypothesis nine was not accepted. There was a tendency for those subjects who had conditions favorable for identification with their fathers to identify to a lesser degree with significant adults, but the relationship was not statistically significant.

Hypothesis ten was accepted. The degree of identification of the subjects with their significant adults, predicted by means of a combination of conditions, was related positively and significantly to the actual degree of identification of subjects with their significant adults.

A subject (1) who desired a high proportion of the personal qualities of his significant adult, (2) who wanted also to enter the exact occupation as the one in which the

adult was engaged, (3) who felt as close as or closer to his significant adult than to other friends, and (4) who had informal discussions with the adult, discussed his future plans with the adult, and exchanged home visits with him was also likely to have perceived his own and his significant adult's work values as being similar.

CHAPTER 8

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

SUMMARY

The purpose of this research was to determine if scientists and social service workers have identified with significant adults who were perceived by the two occupational groups as differing in selected work values. The two occupational groups were also analyzed to determine if they were different in selected work values.

Each subject was requested to rank eleven work values for himself and as he perceived his father and a significant adult would rank them. If that task were too difficult, he was asked to select the three most important work values for himself and the two others. The subjects were also asked to describe the types of relationships they experienced with their fathers and their significant adults.

Six subjects were excluded from the analysis of the results because they felt that their own values or the values of their fathers or significant adults could not be expressed as was requested in the research. Consequently, thirty-three chemists and thirty-three personnel workers were included in the final analysis of the work values of the two groups and the work values of their fathers.

Four subjects were unable to select a significant adult because no adults in their experience met the criteria for a significant adult employed in this research. Thirty-one chemists and thirty-one personnel workers were included in the final results pertaining to significant adults.

CONCLUSIONS

The work values of the subjects. Personnel workers and chemists differ in five of the eleven work values. Personnel workers significantly more often than chemists consider the following work values as one of the three most important values: an opportunity to see that one has directly helped another person, an opportunity to do something that will ultimately benefit mankind, and an opportunity for a close relationship with other persons.

Chemists significantly more often than personnel workers selected the following values: an opportunity to do the work one is really good at and enjoys, and an opportunity to continually discover and understand why certain happenings take place in the world.

There was consistency in the work values selected as being of importance to chemists and personnel workers. The three major work values of chemists were: (A) independence, (G) self-expression, and (I) curiosity about the world. Twenty-four per cent of the chemists selected all three values as the three most important values, sixty per cent selected two of these three values among the three most important

values, and ninety per cent chose at least one of the three values among the three most important values. Only twelve per cent of the chemists did not choose a single one of these three values among the three most important values.

The three major work values of personnel workers were: (B) directly helping another, (F) close relationships, and (J) benefiting mankind. Twelve per cent of the personnel workers selected all three values as the three most important values, fifty-seven per cent chose two of these three values among the three most important values, and, as with chemists, ninety per cent chose at least one of the values among the three most important work values. Twelve per cent of the personnel workers did not include one of these values among the three most important work values.

These conclusions have meaning in terms of their relationship to earlier theory and research. In general, the conclusions are in agreement with the findings of Darley, Hammond, Roe, and Rosenberg.

Darley's hypothesis, that physical scientists are concerned with empiricism and rational understanding of the work, while social service workers show an altruistic concern for others, was supported here.⁷³ The findings of Hammond⁷⁴ and Roe⁷⁵ that physical scientists are more oriented away from

⁷³Darley, op. cit.

⁷⁴Hammond, op. cit.

⁷⁵Roe, op. cit., The Psychology of Occupations. pp. 316-17.

people and obtain their major satisfactions away from people while social service workers are oriented toward people and are dependent upon people for their major satisfactions, are similar to the findings of this research.

It would appear that a finer distinction has been observed in this research regarding the orientation of scientists and social service workers toward people than has been found in earlier research. Rosenberg described the people-orientation as one in which students wished an opportunity to work with people rather than things and to be helpful to others.⁷⁶ It appears that neither Rosenberg nor the other researchers cited earlier distinguish between various ways in which one may be helpful to others.

In this research it was hypothesized that the chemists would wish the opportunity to be helpful to others by doing something which will ultimately benefit mankind. The concept of the scientist as one who produces a new drug or a more effective fertilizer and indirectly aids many people was employed. This way of helping others was contrasted with the direct face-to-face association by which the personnel worker aids others.

It was found, however, that personnel workers value both ways of aiding others more than chemists. This finding would appear to give more support to the theoretical position that social service workers are oriented toward people to a higher degree than scientists.

⁷⁶Rosenberg, op. cit., p. 12.

The above conclusions also have meaning in regard to the classification of occupations which has been developed by Roe.⁷⁷ The occupational groups were classified by means of the activities in which the members engaged. Such a classification appears to be supported when the members of two such groups also differ in selected meanings which work holds for them. They differ not only in what they do, but also differ in the meaning their work holds for them.

The significant adults of the subjects. Personnel workers perceived their significant adults as ranking the opportunity for close relationships with others as one of their three most important work values significantly more often than the chemists perceived their adults as ranking the same value of similar importance.

The chemists significantly more often than personnel workers perceived their significant adults as considering an opportunity to make one's own decisions and carry them out an important work value.

Both groups of significant adults were perceived to value an opportunity to see that one has directly helped another person and an opportunity to share one's ideas and knowledge with others.

Ninety per cent of the adults chosen as significant adults by chemists and personnel workers were engaged in professional occupations. Sixty-one per cent of the chemists

⁷⁷ Anne Roe, "A New Classification of Occupations," Journal of Counseling Psychology, I (Winter 1954), p. 215.

and fifty-eight per cent of the personnel workers selected teachers in high school or college as significant adults.

Forty-two per cent of the significant adults of chemists were in the field of chemistry, while thirty-eight per cent of the significant adults of personnel workers were also in personnel work or psychology.

The foregoing results appear to mean that the significant adults of the chemists and personnel workers were seen to be adults who were directly helpful to others and who were willing to share their thinking with others rather than two groups of adults, one holding to a complex of values associated with intellectual understanding the the other holding to humanitarian values.

It appears that many adults selected as being significant were those who had been helpful personally to the subjects. There was, in the writer's judgment, evidence that the adults had frequently helped the subjects in selecting a college or graduate school, or had aided in the solving of a personal situation. In selecting a significant adult, it appears that both groups of subjects consider his personal helpfulness as an important factor.

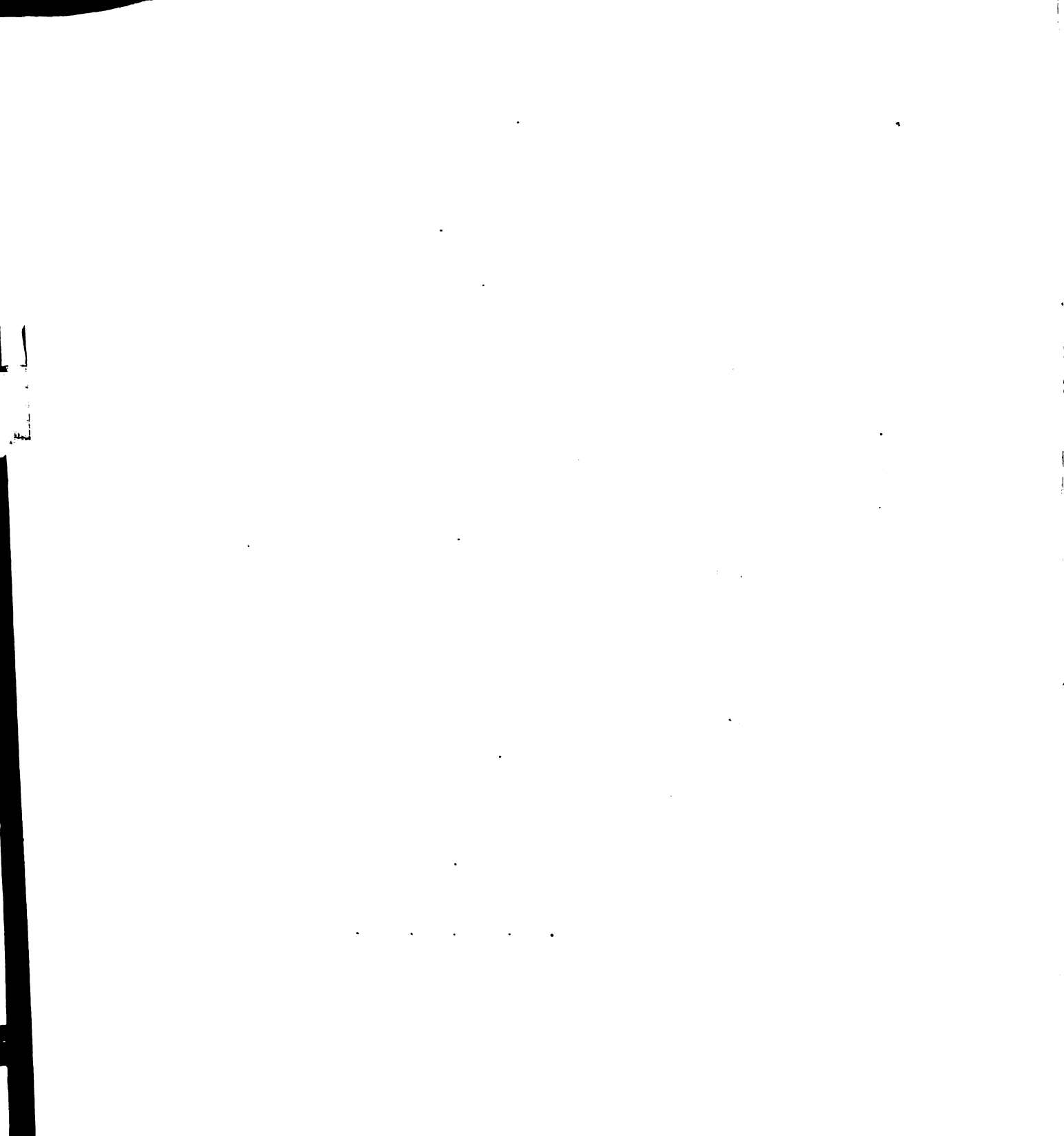
The findings also indicate that school is the institution in which significant adults of the subjects are frequently found. This finding is probably related to the importance that education held for these subjects and it seems also to relate to the encouragement that the subjects received from their parents to obtain a higher education. The encouragement

of the parents would seem to influence the types of adults with whom the subjects chose to identify. Secondary teachers and college instructors often became important figures in the lives of students, especially those students who came from homes in which education was valued highly.

The experiences of the subjects with people. The personnel workers did not perceive themselves as having had closer relationships with their parents and significant adults than the chemists perceived with their parents and significant adults. The two groups did not differ in the types of qualities of the significant adults which they desired for themselves, nor did they differ in the types of contacts they had experienced with their significant adults.

Relative to Roe's hypothesis that the quality of the relationship between the child and the parents is related to the field of work which the child will ultimately choose,⁷⁸ the two occupational groups studied here did not differ in their perceptions of the closeness experienced with parents and significant adults during adolescence. Roe's hypothesis was not fully tested here, but it is thought that the results obtained add information to the same problem in the adolescent period rather than the early childhood period.

⁷⁸Roe, The Psychology of Occupations, op. cit., p. 320.



Conditions associated with identification. A significant positive relationship was found between a combination of conditions which were theorized to be favorable for identification and the degree of identification that subjects made with their fathers and their significant adults. This result would give support to Stoke who had stated that the extent to which the son will identify with his father is dependent upon certain conditions, including qualities of the son, qualities of the father, and the qualities of the relationship between them.⁷⁹

IMPLICATIONS

The development of work values. One reason for studying the identification process was to gain clues as to how the work values of chemists and personnel workers may have developed. From the results obtained, at least the following description of the values found in the background of the subjects may be reviewed. The description is only a tentative statement and for that reason was reserved for this portion of the research.

Education was highly valued in the homes of both groups. The sons were encouraged to gain a higher education. The fathers of both groups were seen to value independence and

⁷⁹Stoke, op. cit., p. 168.

self-expression. Security was of great importance to fathers of chemists; respect was important to fathers of personnel workers.

The professional fathers of personnel workers emphasized the values relating to people. They were humanitarian and valued close relationships. If this group is removed from the fathers of personnel workers, the remaining fathers, like the fathers of chemists, value self-expression and independence. The two groups of fathers, then, did not emphasize helping others, close relationships, sharing knowledge, or curiosity about the world.

The subjects later came in contact with other adults, who were frequently teachers, who valued sharing knowledge and directly helping another person. Both were values which were of little importance in the homes of the subjects, with the exception of the professional fathers of personnel workers. These adults had little concern for security, a factor valued highly by many of the fathers.

The personnel workers found adults who were more concerned with close relationships than their fathers. The chemists related to adults who, like their fathers, valued independence and self-expression.

Through the process of identification with significant adults, many subjects came in contact with values which were different than those expressed in their homes. The exception would be those personnel workers who had professional fathers.

For them, the contact with the adults must have had more of a reinforcing effect than an innovating effect.

Somehow in this process, the personnel workers developed the values related to people. This may have been influenced by contact with the significant adults, for the adults held the people-oriented values.

The primary value which the chemists developed which was not present in their homes was a curiosity about the world. This value was somewhat more evident among their significant adults than among their fathers. Although the chemists were close to adults who valued directly helping another person, the chemists do not consider this value important to themselves.

The personnel workers from professional homes probably were presented with the most consistent pattern of values in their youth. Values related to people were emphasized by their fathers and their significant adults.

These personnel workers from non-professional homes have probably faced a transition in values, from those of self-expression, independence, respect, and security to those of close relationships, directly helping another, and benefiting mankind.

The chemists may have undergone less transition than the personnel workers from non-professional homes. The fathers of chemists emphasized self-expression, independence, and security and developed a curiosity about the world. Two values held by their fathers are still accepted by the chemists.

Longitudinal research is required before more definitive statements may be made regarding the development of work values. If the values prevalent in the home of a pre-adolescent were analyzed, and if this same boy were interviewed periodically during his adolescence to gain knowledge about his present significant adults, both living and literary, and his present complex of work values, then, the probable effect of the various adults on the boy's values might be more clearly understood. At least, one would know the boy's values prior to, during, and after contact with an adult.

Longitudinal research is needed also to confirm or reject impressions gained by the writer regarding the transition in values which the various groups studied here may have undergone.

The significant adults. A number of subjects found it difficult to select one significant adult. The selection was often made from at least three and as many as six or seven adults for whom the subject had respect and to whom he felt close.

It has become the writer's impression that it would be more fruitful to study fewer qualities of a number of adults who have been significant to a person. The subjects often appeared to identify with only certain aspects of each adult rather than with the total person of an adult.

It would seem plausible that there would be some consistency in the values of the various adults whom the subjects have considered significant. This procedure would give more

information about the range of identifications made by a person prior to and during the process of choosing an occupation.

It would appear, also, that the time period during which a subject was acquainted with a significant adult may determine differences in the type of influence the adult may have on the subject. In boyhood, the identification with an adult may generalize to the total person, whereas, during adolescence and early adulthood the identification may more likely be with specific qualities of the adult.

The adults may also play different parts in the subject's choice of an occupation. Some may have no direct influence on the choice. Others may be idols of literature, history, or living national figures who are distant from the subject, but who are highly respected and imitated. A particular adult may actually influence the subject to choose a different occupation than the one he was following originally--he may, as one subject said, "Open the door to a new world." Another adult may serve to reassure or reinforce the choice made earlier by a subject.

Practical implications. To the counseling psychologist, as to other student personnel workers, it is important to know the various social and psychic forces which influence a person to choose one particular occupation from the multitude available. This research adds to a growing body of knowledge regarding both the social and psychic forces.

It was found that students entering two different occupational fields differ significantly in certain work values and that within each of the two groups of students there was a moderate degree of consistency in work values.

Counselors may wish to explore with a person attempting to choose a career his own values regarding work. A counselor could aid the person to understand more clearly the opportunities which he hopes to gain from work and the values held most frequently by individuals engaged in various occupational fields.

This is not to suggest that the counselor encourage the "people-oriented" person to enter careers in which those humanitarian values are prevalent, but to allow the person to realize the values which are present in the various fields, so that he will be able to determine the risks of each choice for himself.

The counselor may also wish to consider the influence of significant persons upon an individual who is on the threshold of choosing a career.

The findings here indicate that most parents of the students placed high value upon education. It was probably this encouragement to gain more education that gave opportunity to the sons to become acquainted and identify with certain types of role models. The parents play a part in determining the type of adults who may become significant to their son.

Rather than note the importance of specific findings of this research, the important implication appears to be that the counselor may profitably explore with a person the attitudes that his parents have toward his education and toward his choice of a given field of work. The counselor may also review with the person the type of adults he has respected and whether or not he has formed any identifications with literary or living adults.

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APPENDIX A
THE INTERVIEW SCHEDULE

INTERVIEW SCHEDULE

As I mentioned to you earlier, I would like to ask you some questions about your background. I would like to focus our thinking on the time period when you were in high school and in college as an undergraduate. Thinking of this time period, I want to ask first about your parents and the part they played in your choice of a career. Let us begin by thinking about your father and his work career.

- 1.1 What is your father's occupation? _____
- 1.2 Has he been in this same occupation since you began high school? Yes ____ No ____
- 1.3 (If No) What other jobs did he hold? _____
- 1.4 How many years of education did he have an opportunity to complete? _____
- 1.5 Has he ever mentioned that he would like to have had more education? Yes ____ No ____
- 1.6 How many years of education did your mother complete? _____
- 1.7 Does she have an occupation besides that of housewife? Yes ____ No ____
- 1.8 (If Yes) What is her occupation? _____
- 1.9 Do you feel that your father has been satisfied with his work? Yes ____ No ____
- 1.10 Has your father ever mentioned a field of work he would rather have entered? Yes ____ No ____
- 1.11 (If Yes) What field was it? _____
- 1.12 Do you feel that your mother has been satisfied with your father's occupation? _____
- 1.13 Did you ever seriously consider entering your father's occupation? Yes ____ No ____
- 1.14 How did your father feel about your entering his occupation? Did he encourage ____ feel neutral ____ or discourage it? ____

- 1.15 And did your mother encourage ____ feel neutral ____ or discourage it? ____
- 1.16 How did your father feel about your attending college?

- 1.17 Did your mother agree with your father or feel differently? _____
- 1.18 Did your father express any suggestions about what you might study in college? _____
- 1.19 Did your mother have any suggestions? _____
- 1.20 Now, we know that people consider different things important in the work they do. Some feel it is important to be one's own boss; others feel it is important to have contact with a number of people; still others want to see what they have accomplished in their work. After interviewing some people, I have developed a list of eleven opportunities which may be important for a person to have in his work.

Suppose your father were offered a new job with the eleven opportunities that I have listed on these cards. Would you look over these eleven and judge which ones would be most important and which ones would be least important to your father. I know you must judge which ones your father would choose based on what you know about him as a person. Would you rank these from the most important to the least important as you judge your father would rank them.

(If the subject is unable to rank the values, ask him to select the three values he would judge to be of most importance to his father.)

1__ 2__ 3__ 4__ 5__ 6__ 7__ 8__ 9__ 10__ 11__
(Use Cards 1.20.)

- 1.21 We have been talking about your father's work. Now let us discuss your father as a person. I would like to know to what extent you wanted to be like your father as a person. Which of these statements come nearest to describing that?
- 1__ 2__ 3__ 4__ 5__ 6__ (Use Card 1.21.)
- 1.22 (If 1, 2, 3, 4) What were the qualities that he had which you wanted for yourself?

- 2.1 Speaking further about your father as a person, would you describe the relationship that you had with your father when you were in high school. I would like to know first, the degree of affection you felt for one another.

Compared with your friends and their fathers, do you feel you and your father felt more, about the same degree, or less affection for one another?

-
- 2.2 I would also like to know about the relationship between you and your mother during this same time period. Using your friends as comparisons, how would you describe the degree of affection between you and your mother?
-

Now, switching our focus away from your parents, I would like to know about adults you were acquainted with when you were in high school and in college as an undergraduate. I would like you to think of adults you knew when you were deciding upon your career. Could you name for me several adults you knew whom you respected and to whom you felt close.

1. _____
 (Name) (Occupation) (Family relationship)

Do you think primarily of one person or of several persons?

2. _____
 3. _____
 4. _____

What kinds of work did these (this) persons (person) do?

Were these persons (Was this person) related to you?

- 3.1 Of those persons you have mentioned, which one would come closest to being the kind of total person you wish to be in terms of his general field of work, his personal life, his character, and his personality? _____
- 3.2 Did you want to do the kind of work he was doing?
 Yes ____ No ____

- 3.3 Thinking of the work he was doing and the feeling he had about his work, I would like to know what you believe he considered most important in his work. Suppose he were offered a new job with these same eleven opportunities. Would you rank the opportunities the way you judge he would rank them.

(If the subject is unable to rank the values, ask him to select the three values he would judge to be of most importance to this adult.)

1__ 2__ 3__ 4__ 5__ 6__ 7__ 8__ 9__ 10__ 11__
(Use Cards 3.3.)

- 3.4 Did you find it easier to rank these for your father __ or for this person?__

- 3.5 Now I would like to know the kinds of contacts you had with this person. (If a teacher) Did you have classes from this person? Yes __ No __

- 3.6 Did you have contacts with him other than in class? Yes __ No __

- 3.7 (If not a teacher, or if 3.6 is Yes) What kinds of contacts did you have with him? _____
-

- 3.8 Did you ever have a chance for informal bull sessions with him? Yes __ No __

- 3.9 Did you ever discuss your future plans with him? Yes __ No __

- 3.10 Did you ever visit in his home? Yes __ No __

- 3.11 Was he ever a visitor in your home? Yes __ No __

- 3.12 Considering the contacts you had with him, how close did you feel to him? Which of these statements best describes your closeness to him?

1__ 2__ 3__ 4__ 5__ 6__ 7__ (Use Card 3.12.)

- 3.13 To what extent did you want to be like him as a total person, that is have the traits and qualities he had? Which of these statements best describes the degree to which you wanted to be like him?

1__ 2__ 3__ 4__ 5__ 6__ 7__ (Use Card 3.13.)

- 3.14 (If 1, 2, 3, 4) As you think about it, which qualities that he had stand out in your mind as the ones which you wanted for yourself? _____
-

- 4.1 Now, the last question is about yourself. Looking into your future and the work you will be doing, I would like to know what opportunities you consider most important in your work. Would you rank these opportunities for yourself.

1__ 2__ 3__ 4__ 5__ 6__ 7__ 8__ 9__ 10__ 11__
(Use Cards 4.1.)

CONTENTS OF CARD 1.21

1. I wanted to be like my father as a person .
2. I wanted to be like him, except for one or two qualities he had.
3. I wanted to have most, but not all, qualities he had.
4. I wanted to have a few, but not all, qualities he had.
5. I did not want to be like him as a person, except for one or two qualities he had.
6. I did not want to be like my father as a person.

CONTENTS OF CARD 3.12

1. I felt closer to him than to any other adult person.
2. I felt as close to him as to my parents.
3. I felt as close to him as to other friends.
4. I felt closer to him than to most other adults.
5. I felt as close to him as to most other adults.
6. I felt less close to him than to most other adults.

CONTENTS OF CARD 3.13

1. I wanted to be like him as a person.
2. I wanted to be like him, except for one or two qualities he had.
3. I wanted to have most, but not all, qualities he had.
4. I wanted to have a few, but not all, qualities he had.
5. I did not want to be like him as a person, except for one or two qualities he had.
6. I did not want to be like him as a person.
7. I did not know him as a person well enough to know if I wanted qualities he had.

CONTENTS OF CARDS 1.20, 3.3, AND 4.1

- A. An opportunity to make one's own decisions and carry them out.
- B. An opportunity to see that one has directly helped another person.
- C. An opportunity to do work which is respected and considered important by other persons.
- D. An opportunity to earn a better living than one's parents.
- E. An opportunity to continually discover new things about one's own self.
- F. An opportunity for a close relationship with other persons.
- G. An opportunity to do the work one is really good at and enjoys.
- H. An opportunity to share one's ideas and knowledge with other persons.
- I. An opportunity to continually discover and understand why certain happenings take place in the world.
- J. An opportunity to do something which will ultimately benefit mankind.
- K. An opportunity to feel that one has security in his work.

APPENDIX B
CHI-SQUARE TABLES

Table 1.-A comparison of the number of chemists and personnel workers who selected value (B), an opportunity to see that one has directly helped another person, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|-------------------|-------------|-------------|----|
| Chemists | 6 | 27 | 33 |
| Personnel Workers | 21 | 12 | 33 |

Chi-square is 12.285, 1 degree of freedom, p is .001.

Table 2.-A comparison of the number of chemists and personnel workers who selected value (F), an opportunity for a close relationship with other persons, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|-------------------|-------------|-------------|----|
| Chemists | 4 | 29 | 33 |
| Personnel Workers | 15 | 18 | 33 |

Chi-square is 7.391, 1 degree of freedom, p is .01.

Table 3.-A comparison of the number of chemists and personnel workers who selected value (G), an opportunity to do the work one is really good at and enjoys, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|-------------------|-------------|-------------|----|
| Chemists | 22 | 11 | 33 |
| Personnel Workers | 12 | 21 | 33 |

Chi-square is 4.947, 1 degree of freedom, p is .05.

Table 4.-A comparison of the number of chemists and personnel workers who selected value (I), an opportunity to continually discover and understand why certain happenings take place in the world, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|-------------------|-------------|-------------|----|
| Chemists | 20 | 13 | 33 |
| Personnel Workers | 7 | 26 | 33 |

Chi-square is 9.026, 1 degree of freedom, p is .01.

Table 5.-A comparison of the number of chemists and personnel workers who selected value (J), an opportunity to do something which will ultimately benefit mankind, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|-------------------|-------------|-------------|----|
| Chemists | 7 | 26 | 33 |
| Personnel Workers | 17 | 16 | 33 |

Chi-square is 5.304, 1 degree of freedom, p is .05.

Table 6.-A comparison of the number of chemists and personnel workers who ranked value (B), an opportunity to see that one has directly helped another person, above value (I), an opportunity to continually discover and understand why certain happenings take place in the world.

| | B above I | I above B | N |
|-------------------|-----------|-----------|----|
| Chemists | 8 | 25 | 33 |
| Personnel Workers | 23 | 10 | 33 |

Chi-square is 11.923, 1 degree of freedom, p is .001.

Table 7.-A comparison of the number of chemists and personnel workers who ranked value (F), an opportunity for a close relationship with other persons, above value (I), an opportunity to continually discover and understand why certain happenings take place in the world.

| | F above I | I above F | N |
|-------------------|-----------|-----------|----|
| Chemists | 7 | 26 | 33 |
| Personnel Workers | 23 | 10 | 33 |

Chi-square is 13.750, 1 degree of freedom, p is .001.

Table 8.-A comparison of the number of chemists and personnel workers who ranked value (J), an opportunity to do something which will ultimately benefit mankind, above value (I), an opportunity to continually discover and understand why certain happenings take place in the world.

| | J above I | I above J | N |
|-------------------|-----------|-----------|----|
| Chemists | 4 | 29 | 33 |
| Personnel Workers | 26 | 7 | 33 |

Chi-square is 26.943, 1 degree of freedom, p is .001.

Table 9.-A comparison of the number of chemists and personnel workers who ranked value (B), an opportunity to see that one has directly helped another person, above value (G), an opportunity to do the work one is really good at and enjoys.

| | B above G | G above B | N |
|-------------------|-----------|-----------|----|
| Chemists | 6 | 27 | 33 |
| Personnel Workers | 22 | 11 | 33 |

Chi-square is 13.957, 1 degree of freedom, p is .001.

Table 10.-A comparison of the number of chemists and personnel workers who ranked value (F), an opportunity for a close relationship with other persons, above value (G), an opportunity to do the work one is really good at and enjoys.

| | F above G | G above F | N |
|---|-----------|-----------|----|
| Chemists | 4 | 29 | 33 |
| Personnel Workers | 17 | 16 | 33 |
| Chi-square is 10.057, 1 degree of freedom, p is .01 | | | |

Table 11.-A comparison of the number of chemists and personnel workers who ranked value (J), an opportunity to do something which will ultimately benefit mankind, above value (G), an opportunity to do the work one is really good at and enjoys.

| | J above G | G above J | N |
|--|-----------|-----------|----|
| Chemists | 9 | 24 | 33 |
| Personnel Workers | 18 | 15 | 33 |
| Chi-square is 4.011, 1 degree of freedom, p is .05 | | | |

Table 12.-A comparison of the number of chemists and personnel workers who ranked value (B), an opportunity to see that one has directly helped another person, above value (A), an opportunity to make one's own decisions and carry them out.

| | B above A | A above B | N |
|--|-----------|-----------|----|
| Chemists | 10 | 23 | 33 |
| Personnel Workers | 21 | 12 | 33 |
| Chi-square is 6.083, 1 degree of freedom, p is .02 | | | |

Table 13.-A comparison of the number of chemists and personnel workers who ranked value (F), an opportunity for a close relationship with other persons, above value (A), an opportunity to make one's own decisions and carry them out.

| | F above A | A above F | N |
|-------------------|-----------|-----------|----|
| Chemists | 7 | 26 | 33 |
| Personnel Workers | 18 | 15 | 33 |

Chi-square is 6.439, 1 degree of freedom, p is .02

Table 14.-A comparison of the number of chemists and personnel workers who ranked value (J), an opportunity to do something which will ultimately benefit mankind, above value (A), an opportunity to make one's own decisions and carry them out.

| | J above A | A above J | N |
|-------------------|-----------|-----------|----|
| Chemists | 9 | 24 | 33 |
| Personnel Workers | 21 | 12 | 33 |

Chi-square is 7.394, 1 degree of freedom, p is .01

Table 15.-A comparison of the number of significant adults of chemists and personnel workers who were perceived to select value (A), an opportunity to make one's own decisions and carry them out, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|-------------------|-------------|-------------|----|
| Chemists | 14 | 17 | 31 |
| Personnel Workers | 5 | 26 | 31 |

Chi-square is 4.857, 1 degree of freedom, p is .05

Table 16.-A comparison of the number of significant adults of chemists and personnel workers who were perceived to select value (F), an opportunity for a close relationship with others, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|--|-------------|-------------|----|
| Chemists | 4 | 27 | 31 |
| Personnel Workers | 13 | 18 | 31 |
| Chi-square is 4.857, 1 degree of freedom, p is .05 | | | |

Table 17.-A comparison of the number of fathers of chemists and personnel workers who were perceived to select value (G), an opportunity to do the work one is really good at and enjoys, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|--|-------------|-------------|----|
| Chemists | 25 | 8 | 33 |
| Personnel Workers | 16 | 17 | 33 |
| Chi-square is 4.121, 1 degree of freedom, p is .05 | | | |

Table 18.-A comparison of the number of fathers of chemists and personnel workers who were perceived to select value (J), an opportunity to do something which will ultimately benefit mankind, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|--|-------------|-------------|----|
| Chemists | 1 | 32 | 33 |
| Personnel Workers | 9 | 24 | 33 |
| Chi-square is 5.775, 1 degree of freedom, p is .02 | | | |

Table 19.-A comparison of the number of fathers of chemists and personnel workers who were perceived to select value (K), an opportunity to feel that one has security in his work, as one of the upper three of the eleven work values.

| | Upper Three | Lower Eight | N |
|-------------------|-------------|-------------|----|
| Chemists | 22 | 11 | 33 |
| Personnel Workers | 11 | 22 | 33 |

Chi-square is 6.061, 1 degree of freedom, p is .02

APPENDIX C

THE RANKING OF THE ELEVEN WORK VALUES

TABLE 1.-A Frequency Distribution of the Ranking of the Work Values by Chemists.

| Values | Ranking | | | | | | | | | | | Total |
|--------|---------|-----|---|---|----|---|----|----|---|----|----|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| A | 6 | 6* | 4 | 3 | 3* | 5 | 2 | 2 | 2 | 0 | 0 | 33 |
| B | 2 | 1 | 3 | 3 | 4 | 3 | 5 | 5* | 2 | 4 | 1 | 33 |
| C | 0 | 0 | 4 | 3 | 1 | 3 | 5 | 3 | 4 | 6* | 4 | 33 |
| D | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 4 | 2 | 9* | 14 | 33 |
| E | 1 | 2 | 3 | 3 | 2 | 4 | 3 | 6* | 4 | 3 | 2 | 33 |
| F | 0 | 2 | 2 | 0 | 3 | 4 | 3* | 4* | 5 | 4 | 5 | 33 |
| G | 15 | 7* | 0 | 4 | 2* | 1 | 1 | 2 | 1 | 0 | 0 | 33 |
| H | 1 | 3 | 6 | 4 | 10 | 4 | 3 | 0 | 1 | 1 | 0 | 33 |
| I | 4 | 11* | 5 | 6 | 2 | 1 | 3 | 0 | 1 | 0 | 0 | 33 |
| J | 3 | 1 | 3 | 2 | 4 | 1 | 8* | 2 | 4 | 4* | 1 | 33 |
| K | 0 | 2 | 2 | 2 | 3 | 4 | 0 | 6 | 5 | 5* | 4 | 33 |

*The asterick refers to values tied in ranking. Four of the thirty-three subjects ranked either two or three of the values equally. When this occurred the equally ranked values were placed in the same ranking in this table. For example, a subject ranked as number one values (G), (I), and (A), therefore, all these were listed in number two ranking, while another subject ranked values (B), (E), and (F) eighth rather than seventh, eighth, and ninth, so they are all placed in ranking number eight above.

TABLE 2.-The Median Ranking of Each Value by Chemists

| Value | A | B | C | D | E | F | G | H | I | J | K |
|--------|------|------|------|------|------|------|------|------|------|------|------|
| Median | 3.16 | 6.10 | 7.16 | 9.78 | 7.13 | 8.10 | 2.14 | 5.15 | 3.10 | 7.19 | 8.42 |

TABLE 3.-A Frequency Distribution of the Ranking of the Work Values by Personnel Workers

| Values | Ranking | | | | | | | | | | | Total |
|--------|---------|----|---|---|----|---|---|---|---|----|----|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | |
| A | 5 | 4 | 1 | 5 | 2 | 6 | 2 | 4 | 2 | 1 | 1 | 33 |
| B | 12 | 4 | 5 | 2 | 3 | 2 | 1 | 3 | 1 | 0 | 0 | 33 |
| C | 0 | 2 | 3 | 2 | 2* | 5 | 3 | 7 | 5 | 4 | 0 | 33 |
| D | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 5 | 6 | 19 | 33 |
| E | 0 | 0 | 1 | 7 | 2* | 3 | 6 | 4 | 3 | 6 | 1 | 33 |
| F | 1 | 6 | 8 | 7 | 3 | 0 | 3 | 2 | 2 | 1 | 0 | 33 |
| G | 5 | 2 | 5 | 2 | 7 | 3 | 5 | 2 | 1 | 1 | 0 | 33 |
| H | 0 | 5* | 5 | 4 | 9 | 3 | 4 | 2 | 0 | 0 | 1 | 33 |
| I | 2 | 5* | 0 | 2 | 5 | 3 | 4 | 3 | 5 | 2 | 2 | 33 |
| J | 8 | 5 | 4 | 2 | 1 | 4 | 3 | 1 | 1 | 2 | 2 | 33 |
| K | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 4 | 8 | 10 | 7 | 33 |

*The asterick refers to values tied in ranking. One subject ranked both values H and I second, another ranked values C and E as fifth.

TABLE 4.-Median Ranking of Each Value by Personnel Workers

| Value | A | B | C | D | E | F | G | H | I | J | K |
|--------|------|------|------|-------|------|------|------|------|------|------|------|
| Median | 5.25 | 2.10 | 7.50 | 11.08 | 7.42 | 4.07 | 5.21 | 5.17 | 6.50 | 3.63 | 9.15 |

APPENDIX D

KENDALL RANK ORDER CORRELATION COEFFICIENTS

TABLE 1.-The Kendall Rank Order Coefficients Calculated From a Comparison of the Work Values of the Subjects and Their Perception of the Work Values of Their Fathers

| The Coefficients | Ranking based on
actual identification | Ranking based on
predicted identification |
|------------------|---|--|
| (1) | (2) | (3) |
| .84 | 1 | 28 |
| .82 | 2 | 13.5 |
| .78 | 3 | 2.5 |
| .69 | 4 | 21.5 |
| .60 | 5 | 32 |
| .56 | 6 | 51 |
| .53 | 8 | 2.5 |
| .53 | 8 | 13.5 |
| .53 | 8 | 16.5 |
| .49 | 10 | 30 |
| .45 | 12.5 | 2.5 |
| .45 | 12.5 | 5 |
| .45 | 12.5 | 10 |
| .45 | 12.5 | 27 |
| .44 | 15 | 8 |
| .42 | 16 | 8 |
| .39 | 17 | 29 |
| .38 | 18 | 13.5 |
| .35 | 19.5 | 6 |
| .35 | 19.5 | 21.5 |
| .31 | 21.5 | 25 |
| .31 | 21.5 | 35.5 |
| .27 | 24.5 | 11 |
| .27 | 24.5 | 13.5 |
| .27 | 24.5 | 21.5 |
| .27 | 24.5 | 39.5 |
| .24 | 27.5 | 33 |
| .24 | 27.5 | 44 |
| .22 | 29 | 45 |
| .20 | 30 | 21.5 |
| .16 | 31 | 21.5 |
| .10 | 32 | 16.5 |
| .05 | 33.5 | 2.5 |
| .05 | 33.5 | 41.5 |
| .02 | 35.5 | 43 |
| .02 | 35.5 | 46 |
| -.02 | 38.5 | 8 |
| -.02 | 38.5 | 18 |
| -.02 | 38.5 | 26 |
| -.02 | 38.5 | 38 |
| -.09 | 41 | 47 |
| -.13 | 42.5 | 31 |
| -.13 | 42.5 | 35.5 |

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TABLE 1.-Continued.

| The Coefficients
(1) | Ranking based on
actual identification
(2) | Ranking based on
predicted identification
(3) |
|-------------------------|--|---|
| -.16 | 44 | 39.5 |
| -.22 | 45 | 49 |
| -.24 | 46 | 21.5 |
| -.25 | 47 | 48 |
| -.42 | 48 | 35.5 |
| -.55 | 49 | 41.5 |
| -.60 | 50 | 35.5 |
| -.75 | 51 | 50 |

TABLE 2.-The Kendall Rank Order Correlation Coefficients
Calculated From a Comparison of the Work Values of the
Subjects and Their Perception of the Work Values of Their
Significant Adults

| The Coefficients | Ranking based on
actual identification | Ranking based on
predicted identification |
|------------------|---|--|
| (1) | (2) | (3) |
| 1.00 | 1 | 25 |
| .85 | 2 | 7 |
| .82 | 3 | 13 |
| .75 | 4.5 | 4 |
| .75 | 4.5 | 11 |
| .73 | 6 | 33 |
| .71 | 7.5 | 5 |
| .71 | 7.5 | 8 |
| .69 | 9 | 29 |
| .64 | 10 | 32 |
| .60 | 11.5 | 21 |
| .60 | 11.5 | 44 |
| .56 | 13.5 | 27 |
| .56 | 13.5 | 12 |
| .53 | 16 | 26 |
| .53 | 16 | 24 |
| .53 | 16 | 15.5 |
| .51 | 18 | 10 |
| .49 | 19 | 22 |
| .48 | 20 | 1 |
| .45 | 22 | 17 |
| .45 | 22 | 34 |
| .45 | 22 | 43 |
| .42 | 26.5 | 19 |
| .42 | 26.5 | 20 |
| .42 | 26.5 | 41 |
| .42 | 26.5 | 47 |
| .38 | 28 | 9 |
| .35 | 29 | 35 |
| .31 | 31 | 23 |
| .31 | 31 | 37 |
| .31 | 31 | 42 |
| .27 | 33 | 36 |
| .25 | 34 | 30 |
| .24 | 35.5 | 3 |
| .24 | 35.5 | 31 |
| .16 | 37 | 39 |
| .13 | 38 | 2 |
| .09 | 39.5 | 6 |
| .09 | 39.5 | 40 |
| .05 | 41 | 38 |

TABLE 2.-Continued.

| The Coefficients
(1) | Ranking based on | Ranking based on |
|-------------------------|------------------------------|---------------------------------|
| | actual identification
(2) | predicted identification
(3) |
| .02 | 42.5 | 14 |
| .02 | 42.5 | 18 |
| -.02 | 45 | 15.5 |
| -.02 | 45 | 28 |
| -.02 | 45 | 45 |
| -.16 | 47 | 46 |

TABLE 3.--The Ranking of the Fifty-one Subjects Based on the Conditions Which are Predicted to Influence the Identification of the Son with the Father

| Degree of Father's Personal Qualities Desired ¹ | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
|--|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Agreement with Parents Regarding Whether or Not the Son Should Enter the Father's Occupation | Both Parents | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | One Parent | | | | | | | | | | | | | | | |
| | Neither Parent | | | | | | | | | | | | | | | |
| | Both Parents | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Parents' Satisfaction with the Father's Occupation | Professionals Satisfied | | | | | | | | | | | | | | | |
| | Non-Professionals Satisfied | | | | | | | | | | | | | | | |
| | Non-Professionals Partially Satisfied | | | | | | | | | | | | | | | |
| | Non-Professionals Satisfied | | | | | | | | | | | | | | | |
| | Non-Professionals Partially Satisfied | | | | | | | | | | | | | | | |
| | Non-Professionals Satisfied | | | | | | | | | | | | | | | |
| | Non-Professionals Partially Satisfied | | | | | | | | | | | | | | | |
| | Non-Professionals Satisfied | | | | | | | | | | | | | | | |
| Degree of Affection with the Father ² | More | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| | Same | | | | | | | | | | | | | | | |
| | Less | | | | | | | | | | | | | | | |
| Composite Ranking | | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 11 |

¹See page 132 for the meaning of each numerical ranking. One is the highest, six the lowest proportion of the qualities desired.

²See page 136 for the meaning of each ranking.

TABLE 3.-Continued

| Degree of Father's Personal Qualities Desired | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
|--|----------------|------|------|------|------|------|------|------|----|------|------|------|------|
| Agreement with Parents Regarding Whether or Not the Son Should Enter the Father's Occupation | Both Parents | | | | | | | | | | | | |
| | One Parent | | | | | | | | | | | | |
| | Neither Parent | | | | | | | | | | | | |
| | Parent | X | X | X | X | X | X | X | X | X | X | X | X |
| Parents' Satisfaction with the Father's Occupation | Both Parents | X | X | X | X | | | | | | | | |
| | One Parent | | | | | | | | | | | | |
| | Parent | | | | | | | | | | | | |
| | Both Parents | | | | | | | | | | | | |
| | One Parent | | | | | | | | | | | | |
| | Parent | | | | | | | | | | | | |
| | Both Parents | | | | | | | | | | | | |
| | One Parent | | | | | | | | | | | | |
| | Parent | | | | | | | | | | | | |
| | Both Parents | | | | | | | | | | | | |
| | One Parent | | | | | | | | | | | | |
| | Parent | | | | | | | | | | | | |
| Degree of Affection with the Father | More | | | | | | | | | | | | |
| | Same | | | | | | | | | | | | |
| | Less | | | | | | | | | | | | |
| Composite Ranking | | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 16.5 | 16.5 | 18 | 21.5 | 21.5 | 21.5 | 21.5 |

TABLE 3.-Concluded

| Degree of Father's Personal Qualities Desired | | 4 | 4 | 5 | 5 | 5 | 6 | Impos-
sible |
|--|----------------|----|----|----|----|----|----|-----------------|
| Agreement with Parents Regarding Whether or Not the Son Should Enter the Father's Occupation | Both Parents | X | | X | | | | |
| | One Parent | | | | X | | X | |
| | Neither Parent | | | | | | | |
| | Parent | | X | | | | | X |
| Parents' Satisfaction with the Father's Occupation | Both Parents | | X | | | | | |
| | One Parent | | | | | | | |
| | Both Parents | X | | | | X | | X |
| | One Parent | | | | | | X | |
| | Both Parents | | | | | | | |
| | One Parent | | | | | | | |
| | Both Parents | | | | | | | |
| | One Parent | | | | | | | |
| | Both Parents | | | | | | | |
| | One Parent | | | | | | | |
| | Both Parents | | | | | | | |
| | One Parent | | | | | | | |
| Degree of Affection with the Father | More | | | | | | | |
| | Same | X | X | X | X | X | X | X |
| | Less | | | | | | | |
| Composite Ranking | | 45 | 46 | 47 | 48 | 49 | 50 | 51 |

TABLE 4.-The Ranking of the Forty-seven Subjects Based on the Conditions Which Are Predicted to Influence the Degree of Identification with the Significant Adult

| Degree of Personal Qualities of the Adult Desired ¹ | Desire to Follow in the Adult's Occupation | | | | Degree of Closeness Felt to the Adult ² | Had "Bull Sessions" | Discussed Future Plans | Visited in the Adult's Home | Adult Visited in Subject's Home | Composite Ranking |
|--|--|---------------|---------|--|--|---------------------|------------------------|-----------------------------|---------------------------------|-------------------|
| | Exact Work | Field of Work | Neither | | | | | | | |
| 1 | | X | | | 1 | X | X | X | X | 1 |
| 1 | | X | | | 3 | X | X | X | | 2 |
| 1 | | X | | | 3 | | | X | | 3 |
| 1 | | X | | | 4 | X | X | X | | 4 |
| 1 | | X | | | 4 | X | X | | | 5 |
| 1 | | | X | | 2 | X | | X | X | 6 |
| 2 | X | | | | 1 | X | X | | | 7 |
| 2 | X | | | | 2 | X | X | X | X | 8 |
| 2 | | X | | | 2 | X | X | | | 9 |
| 2 | | X | | | 3 | X | X | | X | 10 |
| 2 | | X | | | 3 | X | X | | | 11 |
| 2 | | X | | | 4 | | | X | X | 12 |
| 2 | | X | | | 4 | X | | X | | 13 |
| 2 | | X | | | 4 | X | X | | | 14 |
| 2 | | | X | | 1 | X | X | X | X | 15.5 |
| 2 | | | X | | 1 | X | X | X | X | 15.5 |
| 2 | | | X | | 2 | X | X | X | X | 17 |
| 2 | | | X | | 2 | X | X | X | | 18 |
| 2 | | | X | | 3 | X | X | X | | 19 |
| 2 | | | X | | 3 | X | | | | 20 |
| 2 | | | X | | 4 | X | X | X | X | 21 |
| 3 | X | | | | 3 | X | X | X | | 22 |
| 3 | X | | | | 3 | X | X | | | 23 |
| 3 | X | | | | 4 | X | X | | | 24 |
| 3 | X | | | | 4 | | X | | | 25 |
| 3 | X | | | | 4 | | | | | 26 |
| 3 | X | | | | 4 | X | X | | | 27 |
| 3 | X | | | | 5 | | X | X | X | 28 |
| 3 | | | X | | 3 | X | X | X | X | 29 |
| 3 | | | X | | 4 | X | X | X | | 30 |
| 3 | | | X | | 4 | X | X | | | 31 |
| 3 | | | X | | 4 | | | | | 32 |
| 4 | X | | | | 3 | X | X | X | X | 33 |
| 4 | X | | | | 3 | X | X | X | | 34 |

TABLE 4.-Continued.

| Degree of Personal
Qualities of the
Adult Desired ¹ | Desire to
Follow in
the Adult's
Occupation | | Degree of
Closeness
Felt to the
Adult ² | Had "Bull Sessions" | Discussed
Future Plans | Visited
in the Adult's
Home | Adult
Visited in
Subject's Home | Composite
Ranking |
|--|---|-----------------------------|---|---------------------|---------------------------|-----------------------------------|---------------------------------------|----------------------|
| | Exact
Work | Field
of Work
Neither | | | | | | |
| 4 | X | | 4 | X | X | X | | 35 |
| 4 | X | | 4 | X | X | | | 36 |
| 4 | | X | 5 | | X | X | X | 37 |
| 4 | | X | 5 | X | X | X | | 38 |
| 4 | | | 4 | X | X | X | X | 39 |
| 5 | | | 3 | X | X | X | X | 40 |
| 6 | | | 3 | X | | | | 41 |
| 7 | X | | 6 | | | | | 42 |
| 7 | | | 4 | X | | | | 43 |
| 7 | | X | 5 | X | | X | | 44 |
| 8 | | X | 2 | X | X | X | X | 45 |
| 8 | | X | 3 | X | X | X | X | 46 |
| 8 | | X | 3 | X | X | X | | 47 |

¹See page 141 for the meaning of each numerical ranking. One is the highest, eight the lowest proportion of the qualities desired.

²See page 142 for the meaning of each numerical ranking. One is the greatest degree of closeness. Each successive numeral indicates a lesser degree of closeness.

ROOM USE ONLY.

~~JUL 8 1960~~

~~JUL 28 1960~~

~~AUG 30 1960~~

~~MAR 5 1961~~

~~JAN 25 1962~~

~~JUL 23 1962~~

~~APR 23 1963~~

~~JAN 5 1966~~

~~OCT 7 1966~~

~~FEB 11 1967~~

~~MAR 9 1967~~

~~JUL 11 1967~~

ROOM USE ONLY.