Perceived Family Emotional Relationships, Person Orientations, and Expected-Job-Satisfaction Among Teachers in Training in Mexico: a Test of Anne Roe's Theory of Vocational Interest and Choice with the General Culture Group

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A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Saul Torres
August 1982
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ABSTRACT

PERCEIVED FAMILY EMOTIONAL RELATIONSHIPS, PERSON ORIENTATIONS, AND EXPECTED-JOB-SATISFACTION AMONG TEACHERS IN TRAINING IN MEXICO: A TEST OF ANNE ROE'S THEORY OF VOCATIONAL INTEREST AND CHOICE WITH THE GENERAL CULTURE GROUP

by

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Problem

Anne Roe claims that occupational interests and person orientation develop to a significant extent from the complex interaction of family emotional relationships in the formative years. She describes three basic family patterns (Accepting, Concentrating, and Avoiding) of needs satisfaction as antecedents to the two types of person orientation within eight occupational group classifications. Research has mostly failed to support her global occupational predictions. This study explored the specific predictions for a General Culture Group.
Method

A sample of 298 subjects was used from the population of 311 teachers in training at the University of Montemorelos, N. L., Mexico. They are representative of the General Culture Group, level 2, in Roe's scheme of classifications. Spanish language translations of the Family Relations Inventory (FRI), the Biographical Questionnaire--Subtest VI, the Person Interest Inventory, and the Job Satisfaction Blank No. 5 were developed and adapted for use in this study. Chi-Square Tests of Goodness of fit and of Independence, Product Moment Correlation with Regression Analysis and Analysis of Variance procedures were used on the data to test null hypothesis.

Results

A significant frequency of subjects with antecedents in the Concentrating category in family emotional relationships was found which supported the trend predicted. It was also found that these subjects significantly represented the major Orientation Toward Persons category proposed in Roe's theory. The findings support Roe's original proposition of composite occupational characteristics for the General Culture sample. The PII and JSB are not adequate predictors of family emotional relationships antecedents and do not take the place of the FRI for research in the framework of Roe's theory. No significant sex differences were found on the FRI categories. Expected-Job-Satisfaction was found to be contingent with Person Orientation. High Expected-Job-Satisfaction is significantly correlated with Orientation Toward Persons.
Conclusion

The data analyses revealed support for the general trend predicted in Roe's theory for a General Cultural occupation like teaching. This sample reported the characteristic Concentrating Family Emotional Relationship background, Orientation Toward Persons, and High Expected-Job-Satisfaction of a significantly homogeneous group. Teachers in training in Mexico are more likely to describe their Family Emotional Relationship antecedents as predicted in Roe's propositions.
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Dedicated to:
My wife Maria
My children William Saul and Emir Josue
My parents William and Benedicta

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CHAPTER I

INTRODUCTION

In her speculations concerning the various determinants of occupational choice Anne Roe (1957) emphasizes the importance of the perceived parental-child interaction atmosphere. It is from these early need satisfaction patterns that later development into vocational interests and choice is postulated in the general theory. She has forwarded propositions from her general theory for the predicting of general occupational choice areas associated with two major orientations. Roe sets out three patterns of early relationships and suggests that these predominant attitudes perceived in the home, which relates to the dominant parent in the decision making, are significantly associated with orientation toward persons and orientation not-toward persons. Shertzler and Stone (1976) suggest that Roe's scheme can lead to the prediction of the broad and group vocational orientation that develops in the individual.

Roe indicates that in our society "there is no single situation which is potentially so capable of giving some satisfaction at all levels of basic needs as in the occupation" (Roe, 1956, p. 31). It seems important then that more study be carried out in order to assess the relationship that Roe's theory suggests between the perceived family emotional relationship categories and the development of
one major orientation toward persons or not-toward persons in vocational commitment, as well as the correlation with overall expected job satisfaction with the occupational choice.

In Anne Roe's classification of occupations and groups, teachers are placed in the General Culture Classification (Group VII) at the first and second level (see table 1, p. 3). The occupations in this group are proposed as oriented towards persons and are most closely related to those in Group I (Service) because of the towards-person interest factor and to those in Group VIII (Arts and Entertainment) because of their cultural aspect.

Teachers would represent an example of an occupational population to be significantly characterized by a background of overprotective and overdemanding family emotional relationships as defined by the Concentrating category. This background in turn develops a major orientation toward persons and those occupational choices which relate to people as a focus of their work.

Specifically, Roe predicts that children from warm, loving, and casual homes, as defined by the Accepting category, will develop that major orientation toward persons and choose occupations which involve contact with people as the primary focus of their work, for example social-service and business-contact fields. If the parents are overdemanding and overprotecting, as defined by the Emotional Concentrating Home, the child's orientation will be more oriented toward persons than not, and they will choose occupations which minimize many close contacts with others, such as those occupations in the Arts and Entertainment and General Culture fields. Finally,
|-------|--------|---------|----------------|------------------|--------------|----------|-----------|------------------|-----------------|

|-------|--------|---------|----------------|------------------|--------------|----------|-----------|------------------|-----------------|
if the parents avoid their children, either through rejection or
neglect as defined by the Avoiding category, the children will
develop that major orientation toward activities which does not involve
people directly but focus on non-person oriented activities, as in the
Technology, Outdoor, and Scientific fields (see the Circumplex, figure 1).

Roe's "Circumplex" is a schematic representation of the main
theory. Here the direction of orientation "Towards Persons" and
"Not towards Persons" is positioned in a circular relation to the
three basic Family Emotional Relationships: Acceptance, Avoidance,
and Emotional Concentration. The corresponding occupational classifi-
cations are also placed around the circumplex. The patterns of
vocational development are indeed complex. Nevertheless, Roe's
theory being a significant contribution to the psychology of occupa-
tions (Smart, 1969), does provide a stimulating framework for further
research.

Researchers like Roe and Siegelman (1964), Medvene (1970),
Medvene and Shueman (1978) have found significant trends to support
further inquiry into Roe's propositions, namely the orientation
towards persons or not towards persons associated with specific
activity choices within careers. Her developmental hypotheses are
couched in terms of those complex formative experiences that might
be thought to shape one's major orientation by the warmth or cold-
ness of the parental emotional attitudes perceived in the family.

There is a growing need for cross-cultural studies in order
to broaden the applications of theory and to uncover more of the
"Circumplex"

Figure 1 Schematic Representation of Roe's Theory. (From Anne Roe, "Early Determinants of Vocational Choice," *Journal of Counseling Psychology*, 1957, 4, p. 216. Copyright 1957, *Journal of Counseling Psychology*, reproduced with permission of the copyright owner. Further reproduction prohibited without permission.)
relationships which might add knowledge to the study of vocational interest and choice structures.

The literature reveals that research with Roe's general theory over the years has not consistently supported her wide vocational propositions and the scheme of occupational classifications as composite units of occupations whose subjects would all have only the predicted type of person orientation (Hagen, 1960; Switzer, Grigg, Miller and Young, 1962; Smart, 1969). It is believed that further research could be valuable in order to test the application of the theoretical propositions, within a selected occupational activity like teaching. Study has been carried out within a more narrow range of occupational activities, e.g., male psychologists (Medvene, 1969), male theological students and clergy (Byers, Forrest and Zaccaria, 1968), and male engineering students (Medvene and Shueman, 1978) with findings in support of the propositions presented by Roe. In the past not many specific studies have been carried out directed only to teachers in training with a measure of expected job satisfaction.

When reviewing the research findings, it was found that four studies comparing a smaller number of occupational classifications have also been made. Yet they report either no support or only partial support for the predictions when comparing these groups: e.g., Smart (1969) studied male subjects across seven classifications; Grigg (1959) studied female graduates in nursing and science; Utton (1962) studied female social workers, occupational therapists, dietitians, and laboratory technicians; and Brown (1971) studied students majoring
in Physical Education, Education, and Fine Arts with a reconstruction of Roe's theory.

Roe stated early in her papers (1957) that her hypotheses "have been developed with reference to the present United States culture, including the major variations due to gross socioeconomic subdivisions." The author makes it clear that her propositions are intended to indicate major trends and that other variables not mentioned at length in her formulations can be expected to induce modifications in specific instances.

Research in a different cultural perspective with selected aspects of Roe's theory of vocational interest and choice for the General Culture Classification could prove valuable to testing some of the propositions presented in her book The Psychology of Occupations (1956). No inquiry has been initiated in Mexico with Roe's propositions which would provide data on any significant differences among the General Culture Classification, as well as other correlational data useful in understanding more of the determinants of vocational interest and choice.

Occupational choices must be made earlier in the educational ladder in Mexico than in the United States. Occupational choices and commitment to teacher training have to be made right after Junior High School (Secondary School--grade 9) and lead into pre-professional (Elementary School teaching) and/or professional training (High School teaching). The Teacher Education Program at the University of Montemorelos in Montemorelos, Nuevo Leon, Mexico, has a large population of students in teacher training (for Elementary and High Schools)
which is an invaluable research opportunity in pursuing research with Roe's theory. The University was founded in 1975 as part of a new interest in the state of Nuevo Leon for the development of much-needed private educational centers. Education majors form the largest percentage (15.84% for 1981) of students at the University level. The institution is supported by the Civil Educational and Philanthropic Association (ACFE). It forms a vital part of the educational institutions within the Inter-American Division of Seventh-day Adventists. It actually has on campus a teacher training population of 239 students (3rd quarter 1980-81) in its two schools of education. These teachers in the coming years will be serving the needs of 164 Elementary and Secondary Schools sponsored by the ACFE in Mexico. Seventy more teachers in training are off campus fulfilling full-time teaching appointments in ACFE schools as a social service requirement for the full Licentiate degree (B.A.).

It is hoped that the relationships investigated in this study on the basis of Roe's theory will be stimulating for educational psychologists and vocational guidance professionals in Mexico and in other countries. There is a continuing need to search for significant relationships in the various determinants of occupational interest, the satisfying vocational life and the relevant role of theory.

Statement of the Problem

Anne Roe claims that occupational interests and person orientation develop to a great extent from the complex interaction of parent-child relations in the formative years. She has not been the only author suggesting the importance of the family background and
vocational development; yet her emphasis on the perceived family emotional relationships and the corresponding occupational choice groups is unique in many ways.

The family emotional relationships and person orientation dimensions predicted in the "Circumplex" (see figure 1) for eight occupational classifications of job activities have been the concern of research studies since 1957. In most attempts to test her general theory subjects have been chosen from prominent members of the occupational classifications defined by Roe and asked to fill out inventories recalling their parent-child relationships as well as other biographical data on a post hoc basis. These studies have failed to support statistically her theory.

More recent studies using factorial designs with seven levels of occupations, two levels of birth order or age or sex and two levels of parental socioeconomic status as independent variables, and the six Family Relations Inventory (FRI) scales as measures of family emotional relationships to serve as dependent variables, have been carried out (Smart, 1969); as well as other multivariate analysis designs with all eight occupational classifications (Appleton, 1969) and these have also failed to give full support to her original predictions.

Research reports that provide partial support are offered by Martins (1974), Appleton and Hasen (1969), Brunkan (1965), Green and Parker (1965). Significantly full support is reported for the theoretical predictions in studies with Psychologists and Engineers occupations tested by Medvene (1969) and Medvene and Shueman (1978).
Roe and Siegelman (1964) found relationships in the predicted direction; that is, the more love and attention in childhood, the greater the degree of person-orientation in later life. But few significant relationships were found for the group of women in the study. They add that the number and the patterning of the significant correlations would seem to indicate that the more affectionate and concentrating the parents, the more person-oriented the son; and conversely that the more neglecting and rejecting the parents, the less the male will seek close personal relations in later vocational life (p. 19).

This variety of findings concerning Roe's predictions raises methodological and theoretical questions and a challenge for further research into the application of the theory to the General Culture Classification. Few inquiries have been carried out using male or female teachers in training as the unique population. No additional research has been reported with Roe's predictions with a population outside the United States, except for a study of the specific occupational classification scheme, as applicable among a student population in Israel, with supportive findings for the hierarchical level order but not for all the classification dimensions (Meir, 1970).

In conclusion, the problems presented by (1) conflicting research findings around Roe's original propositions, (2) the lack of data from a variety of cultural settings for the predictions for the General Culture Classifications, Level 2, and (3) the failure of previous studies comparing subjects across the eight occupational
classifications in order to support the predicted person orientation dimensions; all these now point to a need for more cross-cultural study of the family emotional relationships variables associated with teachers in training, as well as the corresponding person orientations and perceived expected job satisfaction with the occupational choice.

Research reviews have indicated consistently (Osipow, 1968) that Roe's formulations may need some refinement or modification rather than outright rejection.

**Purpose of the Study**

This study was conducted with the purpose of testing selected aspects of Anne Roe's Theory of Vocational Interest and Choice in the General Culture classification. The null-hypotheses developed were directed toward testing the antecedent family emotional relationships proposed in the theory for a General Culture occupation like teaching with a Mexican sample. Special attention was given to the sex and parent dominance variables in classifying the subjects and to the dependent variables: Orientation Toward Persons (Sum Relate Score) and Expected-Job-Satisfaction (EJS Score).

The forthcoming findings seek to make a contribution to an understanding of the three family emotional relationships variables proposed by Roe as antecedents which influence occupational choice, Orientation Towards Persons, and Expected-Job-Satisfaction. It is hoped that the findings will add to what is now known and aid educational guidance professionals as they endeavor to provide adequate career guidance for students in teacher training institutions.

Demonstration of any relationships between antecedent and
subsequent variables admittedly is not absolute evidence that the antecedent variable is itself the cause of the subsequent variable, but would be an important first step.

Definition of Terms

Biographical Questionnaire--Subset VI (BQ): This is a subset of the Biographical Questionnaire developed by Roe and Siegelman (1964) to identify the dominant parent in the home. A parent dominance score is obtained by summing the score on five items. Scores of 20 and above indicate mother dominance; scores below 20 indicate father dominance (Medvene and Shueman, 1978). Items ask the subject to identify which parent was perceived as having had greater weight in decision making the home (see appendix A2).

Circumplex: The schematic representation of Anne Roe's Theory in which the family emotional relationships of Avoidance, Concentration, and Acceptance are positioned in a circular continuum of "warm-cold" family attitudes and serve to predict the corresponding Major Orientation Towards Persons and Major Orientation Not Towards Persons, as well as the occupational classifications associated with the theory (see figure 1--Circumplex).

Civil Philanthropic and Educational Association (ACFE): The legal name of the branch of the Seventh-day Adventist Church in Mexico (Inter-American Division) supporting medical and educational institutions under state law. ACFE sponsors 164 schools in Mexico, 16 of which serve as field service components for the University of Montemorelos' teacher training program on a one-year full-time social service practicum requirement for the degree.
Dominant Parent: That one parent having the greater weight in decision making in the home. A score of twenty (20) or above on the Roe and Siegelman's Biographical Questionnaire (Subset VI) is interpreted as mother dominance and nineteen (19) or below as father dominance. For example, Son-Father-Accepting: male who viewed the father as dominant and perceived him as Accepting.

Expected-Job-Satisfaction (EJS): The concept of expected overall job satisfaction with one's occupational choice as a combination of psychological, physiological, and environmental circumstances that cause a person truthfully to say, "I expect that I will be satisfied with my job." This definition assumes that it is possible for a person to balance the specific or expected satisfaction of needs against the specific or expected dissatisfaction and thus arrive at a composite satisfaction with the choice of job as a whole (Hoppock, 1935, p. 48). Measured by the Hoppock Job Satisfaction Blank No. 5 (1970) for Expected-Job-Satisfaction in teaching as: High EJS = 24 points and above (78-99 Percentile), Moderate EJS = 16 to 23 points (23-77 Percentile), Low EJS = 4 to 15 points (1-21 Percentile).

Family Emotional Relationship: The perceived parent-child attitude background which develops from early patterns of attention and experiences of satisfaction and frustration related to the dominant parent in the home. Child rearing modes that distinguish the individual's predominant position in the family atmosphere as: (1) the center of attention and control (Concentrating), (2) avoidance by rejection or neglect (Avoiding), or (3) accepted and loved
(Accepting), as measured on the FRI scales for parent dominance. The subjects are classified according to the highest percentile score on the FRI scales for that dominant parent reported on the BQ.

**Family Relations Inventory (FRI):** This instrument was developed by Brunkan and Crites (1964) specifically to measure Roe's constructs of parental acceptance, concentration, and avoidance. The FRI has six subscales: Mother Avoidance, Mother Acceptance, Mother Concentration, Father Avoidance, Father Acceptance, and Father Concentration. Subjects are asked to evaluate the truthfulness of statements about their mothers' and fathers' behaviors, attitudes, reactions to them, and expectations for them during childhood and adolescence. The three family emotional relationship categories (Accepting, Concentrating, and Avoiding) are based on the subjects' dominant parent category and the highest percentile score on the categories corresponding to the dominant parent.

**Job Satisfaction Blank No. 5 (JSB):** This instrument was developed by Robert Hoppock (1970) with items requesting the subject to express his or her specific or expected job satisfaction level. It has four general items divided into equivalent halves using a Likert-type scale. This instrument was used with special instructions adapted so that the subject would express his or her expected job satisfaction with teaching. Scores range from 4 (Lowest Expected-Job-Satisfaction) to 28 (Highest Expected-Job-Satisfaction). (See appendix A4.)

**Occupational interest:** The major focus of attention in the vocational life and a major factor in the vocational choice (Roe and
Siegelman, 1964, p. 3). As an interest grows it creates a lasting
tensional condition that leads to congruent conduct.

**Orientation Toward Persons (OTP):** This dimension is
considered as a bipolar continuum, from persons as consistently the
focus of attention to any non-person aspect of the environment as
consistently the focus. Orientation Toward Persons (Sum Relate
score) is characterized by a focus on persons desiring close emotional
contact with them. A Sum Relate score (SR) of forty-one (41) or
below on the **Person Interest Inventory** is considered as an indicator
of Toward Person Orientation.

**Orientation Not Toward Persons (ONTP):** This basic interest
dimension leads towards a focus on living things other than persons,
towards objects and ideas. At most this orientation shows interest
in people on the basis of curiosity about them. A Sum Relate score
(SR) of forty-two (42) or above on the **Personal Interest Inventory** is
considered as an indicator of that major Orientation Not Toward Persons.

**Person Interest Inventory (PII):** This instrument was
developed by Roe and Siegelman (1964) to measure person orientation.
The Sum Relate score obtained by summing items 2, 3, 6, 8, 9, 11, 16,
18, 21, 23, 24, 25, 27, 28, 30, 32, and 33 were used as the criteria
for classifying subjects into that major Orientation Towards Persons
or Orientation Not Towards Persons. It was devised to distinguish
between desiring close emotional contact with persons and interest
in persons on the basis of only curiosity about them.

**Teachers in Training:** This term refers to those subjects
enrolled as full-time students in the two schools of education at the
University of Montemorelos (1980-81) and those subjects in social service teaching at ACFE sponsored schools as part of the degree requirements and/or attending full-time summer sessions (1980) at the University for advancement toward the Licentiate (B.A.) degree requirements.

Theoretical Framework

The basic purpose of theory is to explain the meaning underlying a set of descriptive principles growing out of an array of data (Hewer, 1963). Because there have been many studies related to the choice of an occupation, social scientists have looked for an understanding of the causal inter-relationships underlying these data.

Vocational counselors and psychologists have a responsibility to use the relevant research findings of social scientists in their practice. They should also seek new insight into man’s behavior and into the motivational needs influencing vocational choice behavior. The student in search of an occupation may have considered many factors as he chooses an occupation, but he may never be able to easily relate them in a systematic fashion.

Much of what is known about vocational choice comes from research done by psychologists. Because the vocational choice and the vocational life of an individual is an expression of the total personality, a counselor can seek understanding of an individual in any one or all ways suggested by theorists. He can interpret the dynamics of vocational choice using more than one, or any aspect of the personality theories. Many psychologists have turned to personality and need theory to explain motivational aspects of
vocational choice. Anne Roe is an example of this approach.

Smith (1961) suggested that there are three broad approaches to personality and vocational activity: trait, structural, and adjustment. Related to trait theory Smith states that "a personality is...definable in terms of a qualitative and quantitative differentiation from other such individuals" (1961, p. 29). The basic proposition being that people differ in their traits and jobs differ likewise in their requirements. Three structural theories relate to vocational choice: psychoanalytic theory (Super and Bachrach, 1957; Segal, 1961; Galinsky, 1962), self-concept theory (Super, 1957; O'Hara and Tiedeman, 1959), need theory (Roe, 1956; Schaffer, 1963; Merwin and Di Vesta, 1959). The adjustment approach stresses the interaction between the person and his environment.

Super (1957), O'Hara and Tiedeman (1959), and Hewer (1963) have also contributed much of the thinking and research for a developmental theory. The developmental approach stresses the concept that the choice of a vocation is not a single event that takes place at a certain time, but that is the result of a developmental process. Therefore, all of an individual's vocational behavior including the vocational choice becomes more meaningful when viewed longitudinally.

Holland (1973) has made a significant contribution to understanding the inter-relationships underlying the choice of an occupation. He proposes that a person expresses his personality through the choice of a vocation and that each person holds to stereotypes of various vocations that have psychological and sociological rele-
vance for that individual. Many of these stereotypes have demonstrable validity and create what Holland labels as a characteristic interpersonal environment. Vocational satisfaction, stability, and achievement depend upon the extent to which the individual's personality type and his work environment are compatible (Isaacson, 1971; Holland, 1973).

Anne Roe's Theoretical Propositions

As a clinical psychologist, Roe approached the field of career development through her research on the personality traits of artists and scientists (1946a, 1946b, 1946c, 1949, 1950, 1951a, 1951b, 1952a, 1952b, 1953a, 1953b, 1954, 1956). As a result of these studies, Roe eventually formulated a theory of vocational choice which was published in 1957. The theory is summarized in a series of eight hypotheses, five of which are largely advanced as assumptions. Indeed, they are stated in such a way as to make it almost impossible to test them empirically. Hypotheses 6, 7, and 8 are more easily tested and have been the bases of several investigations. The original formulations (Roe, 1957) were the following:

1. The hereditary bases for intelligence, special abilities, interests, attitudes, and other personality variables seem usually to be nonspecified (p. 212). With this statement, Roe acknowledges the importance of genetic factors which contribute to a person's abilities but she also states that in most instances genetic elements limit the degree of development rather than directly determine the type of expression.

2. The pattern of development of special abilities is
primarily determined by the directions in which psychic energy comes
to be expended involuntarily (p. 212). The influence of Murphy (1947)
is evident in her use of the concept of canalization of psychic energy
and in her basic assumption that experiences of early childhood are
likely to be related to vocational choice. Roe, however, says little
by way of explanation of hypothesis 2 and offers no research evidence
in its support.

3. These directions are determined in the first place by the
patterning of early satisfactions and frustrations (p. 213). At this
point Roe draws upon Maslow's (1954) classification of needs as an
explanation of human motivation.

Maslow's theory states that higher order needs cannot appear
until lower needs are at least relatively satisfied. According to
Roe, by the time a healthy child is a few months old the first five
needs are probably affecting the child's behavior, although in widely
varying degrees. As the child grows, the higher needs become more
important and have a greater effect upon vocational choice. Robert
Hoppock (1963) also speculates that occupations are chosen to meet
needs and satisfaction results from a job which meets our needs today
or from a job which promises to meet them in the future. Some
individuals have a strong psychological need for contact with other
people; other individuals prefer a more isolated life and they are
happier when they are by themselves with only occasional social
interchange.

4. The eventual pattern of psychic energies, in terms of
attention directedness, is the major determinant of field or fields
to which no person will apply himself (p. 213). This is a statement for which no empirical validation is offered.

5. The intensity of these (primary) unconscious needs, as well as their organization, is the major determinant of the degree of motivation as expressed in accomplishment (p. 213). This implies that all accomplishment is based on unconscious as well as on conscious needs. Roe maintains that there is accomplishment which is "a free expression of capacity" and that this form of accomplishment can be distinguished from accomplishment on other bases. No further explanation or evidence is offered.

6. Needs satisfied routinely as they appear do not develop into unconscious motivators (p. 213). This statement refers to the manner in which needs are satisfied in the young child so as to either form or not form unconscious motivators. The fact that the satisfaction is gained routinely is important, i.e., in a direct matter-of-fact way as opposed to need gratification with a great deal of emotional stress and strain.

7. Needs for which even minimum satisfaction is rarely achieved will, if higher order, become in effect expunged, or will, if lower order, prevent the appearance of higher order needs, and will become dominant and restricting motivators (p. 213). This hypothesis suggested that if a child's higher order needs are not met that they will possibly disappear. For example, if a child's expressions of natural curiosity were thoroughly blocked, the child might cease to be curious. With less than total blocking, hypothesis eight would apply.
8. Needs, the satisfaction of which is delayed but eventually accomplished, will become unconscious motivators, depending largely upon the degree of satisfaction felt. This will depend, among other things, upon the strength of the basic need in the given individual, the length of time elapsing between arousal and satisfaction, and the values ascribed to the satisfaction of this need in the immediate environment (p. 214).

It is in general connection with these hypotheses that Roe goes on to specify the various child-rearing modes and their effect on subsequent behavior.

These modes refer to the child's position in the family emotional relationship: (1) the center of attention, (2) avoided, or (3) accepted. As the center of attention of the family, the child is the focus of "emotional concentration," the term Roe uses to describe the first mode. As examples of emotional concentration, she lists overprotection and overdemand (see table 2).

In the case of overprotection, parents may baby a child, discouraging its independence and restricting its exploratory behavior. They may concentrate upon his physical characteristics and praise any real or fancied talents of the child. On the other hand, parents may make heavy demands upon the child in terms of perfection of performance and may institute severe training programs. This may take the form of demands for achievement in school work.

In the case of avoidance of the child, two extremes are again suggested--rejection and neglect. When a child is emotionally rejected he may not necessarily be physically deprived but lack of
TABLE 2

FAMILY'S EMOTIONAL RELATIONSHIPS

<table>
<thead>
<tr>
<th>1. Emotional concentration on the child</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Over-protection</td>
<td></td>
</tr>
<tr>
<td>b. Over-demanding</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Avoidance of the child</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Emotional rejection of the child</td>
</tr>
<tr>
<td>b. Neglect of the child</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Acceptance of the child</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Casual acceptance of the child</td>
</tr>
<tr>
<td>b. Loving acceptance</td>
</tr>
</tbody>
</table>

Source: Roe, 1956.

emotional gratification is intentional on the part of the parents. With emotional neglect, the child is often ignored and the lack of emotional gratification is generally not intentional.

Within the framework of the third basic mode of child-rearing, acceptance, there are also two approaches, (a) casual acceptance and (b) loving acceptance. Children who are accepted by their parents are neither concentrated upon nor overlooked. Parents are non-coercive, nonrestrictive, and encourage the independence of their children.

In emotional concentration, the overdemanding parent may make satisfaction of the needs for love and esteem conditional upon conformity and achievement. While children reared by an avoiding
parent are intentionally deprived of gratification of their emotional needs. Some of these parents, although they may provide adequate gratification of physiological and safety needs, neglect their children's higher order needs. Concentrating parents do not go so far as to cause stultification of the child's development in emotional respects as do most rejecting and neglecting parents.

Parents of the accepting group provide reasonable gratification of the needs of their children. Need gratification will not be emphasized as it is with those who emotionally concentrate upon their children and gratification will also not be deliberately delayed, as it is with those who avoid their children.

In describing the child-rearing mode of emotional concentration, she stated:

This ranges between the extreme of over-protection to that of overdemandingness. Perhaps a sort of mean between these two is the quite typical anxiety of parents over a first child, anxiety which, in the same parents, may be much alleviated for the second child (Roe, 1957, p. 213).

Roe believes that an individual reared in a family in which the dominant parent (the one having the greater weight in decision making) is perceived as either primarily accepting or primarily concentrating develops a sphere of interests centered around person-oriented occupations; in contrast, one who perceives the dominant parent (mother or father) as primarily avoiding develops interest centered around non-person-oriented occupations. Her hypotheses were developed around and mostly intended to apply to males as they had reported qualitatively different childhood experiences in earlier studies. Another part of Roe's theory is the classification of
occupations into two dimensions: (1) focus of activity, and (2) level at which the activity is pursued. This classification is shown in table 3.

TABLE 3
CATEGORIES IN ROE'S CLASSIFICATION OF OCCUPATIONS

<table>
<thead>
<tr>
<th>Activity</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Service</td>
<td>1. Professional and managerial,</td>
</tr>
<tr>
<td></td>
<td>level 1</td>
</tr>
<tr>
<td>II. Business Contact</td>
<td></td>
</tr>
<tr>
<td>III. Organizations</td>
<td>2. Professional and managerial,</td>
</tr>
<tr>
<td></td>
<td>level 2</td>
</tr>
<tr>
<td>IV. Technology</td>
<td></td>
</tr>
<tr>
<td>V. Outdoor</td>
<td>3. Semiprofessional and small business</td>
</tr>
<tr>
<td>VI. Science</td>
<td>4. Skilled</td>
</tr>
<tr>
<td>VII. General Cultural</td>
<td>5. Semiskilled</td>
</tr>
<tr>
<td>VIII. Arts and Entertainment</td>
<td>6. Unskilled</td>
</tr>
</tbody>
</table>


An avoiding family emotional relationship in which the child is not made the focus of any intense personal relationship seems to be conducive to permitting his attention to focus upon other objects in the environment. From this atmosphere may develop such object-orientation of interests as will eventually manifest itself in technological and highly scientific interests.

On the other hand, if the child is involved in intense personal relationships (positive or negative) his attention may be concentrated
upon them, and very frequently this will become the source of con-

flicts. When these family conflicts are centered around dominance,
which are unacceptable to the individual for some reason (perhaps
because it had been unsafe), he or she may find occupations in Group
I (Service) or some of those in Group VII (General Culture) most
satisfactory. When the dominance attitude can be incorporated, but
personal relations are still considered important, occupations in
Group II (Business Contact) may be most suitable, and some of those
in Group III (Organizations). Incorporation of submissive attitudes
may lead to subordinate roles in any Group, but perhaps particularly
in Group III.

If, instead of accepting the intense personal involvement,
the individual struggles against it, we have the sort of defensive
non-interest in persons that appears in Group VI (Science). If a
child is the object of emotional concentration, not upon relations
with others, but upon himself, whether through the overconcern of
his parents for his body, or because of the possession of special
abilities which capture his and his companions' attentions, he may
develop the narcissistic attitudes which are so characteristic of
persons in Group VIII (Arts and Entertainment; Roe, 1956, p. 320).

Occupations in Group VII (General Culture) include at level
2: clergymen, columnists, news commentators, educational administra-
tors, and teachers (High School and Elementary). Roe hypothesized
(see "circumplex," figure 1) that if the attitudes of the parents
were warm and accepting or concentrating then their children will
develop a major orientation towards others and choose occupations
which relate to people as the focus of their work. Examples of such occupations are those in the social service fields and general culture fields. The General Culture groups are predicted as mostly characterized by Emotional Concentration in the family emotional relationship.

Maslow's need hierarchy as related to occupations is used by Roe in *The Psychology of Occupations* (1956, pp. 31-35). It is in this regard that she states that "In our society there is no single situation which is potentially so capable of giving some satisfaction at all levels of basic needs as is the occupation" (Roe, 1956, p. 31). This relationship as suggested by Roe is significant to this study. Her emphasis may well be said to be identified as pointing to overall job satisfaction. This concept has been developed by Robert Hoppock's pioneer work in vocational satisfaction since 1935. Hoppock proposes that some individuals have a strong psychological need for contact with other people. They like social activities or other experiences that permit them to be near or with many other people and to engage in conversation with them. Other individuals are happier when they are by themselves, with only occasional social interchange, and then preferably with small groups. The reaction by the individual to these physical and psychological needs influences his selection of an occupation (Isaacson, 1971, p. 28). Hoppock adds that:

Occupational choice improves as we become better able to anticipate how well a prospective occupation will meet our need; our capacity thus to anticipate depends upon our knowledge of ourselves, our knowledge of occupations, and our ability to think clearly; information about occupations affects occupational choice by helping us to discover the occupations that may meet our needs, and by helping us to anticipate how well satisfied we may hope to be in one occupation as compared with another (Isaacson, 1971).
Table 4 shows Maslow's Need Hierarchy as Related to occupations. Roe also suggests that occupations should be ordered in a counter-clockwise arrangement around the "circumplex" in order to correspond to her theoretical formulations.

**TABLE 4**  
NEED HIERARCHY AS RELATED TO OCCUPATIONS

<table>
<thead>
<tr>
<th>Needs</th>
<th>Work-Related Fulfillment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiological needs</td>
<td>Earning money to secure the essentials for living: food, water, etc.</td>
</tr>
<tr>
<td>Safety needs</td>
<td>Shelter: renting an apartment, buying a house. Fringe benefits: pension, savings, clothing. Personal property: furniture, car</td>
</tr>
<tr>
<td>Love and Belonging</td>
<td>Working with a congenial group. Being needed and welcomed by peers and superiors</td>
</tr>
<tr>
<td>Esteem needs</td>
<td>Representing adulthood; independence, and freedom; feeling accomplishment, responsibility, and prestige; being valued by word associates</td>
</tr>
<tr>
<td>Self Actualization</td>
<td>Creative behavior; use of talents, pursuit of interests, productiveness</td>
</tr>
</tbody>
</table>

Source: Roe, 1957.

In 1964 a revised statement of the theory was given by Roe and Siegelman in *The Origin of Interests* (p. 5) as follows:

**Proposition 1.** Genetic inheritance sets limits to the potential development of all characteristics, but the specificity of the
genetic control and the extent and nature of the limitation are different for different characteristics.

It is probable that the genetic element is more specific and stronger in what we call intellectual abilities and temperament than it is in such other variables as interests and attitudes.

Proposition 2. The degrees and avenues of development of inherited characteristics are affected not only by experience unique to the individual, but also by all aspects of the general cultural background and the socio-economic position of the family.

Proposition 3. The pattern of development of interests, attitudes, and other personality variables with relatively little or non-specific genetic control is primarily determined by individual experiences through which involuntary attention becomes channeled in particular directions.

The important word here is involuntary. The elements in any situation to which one gives automatic or effortless attention are keys to the dynamics of behavior. This proposition is clearly related to hypotheses concerning the relations between personality and perception.

a. These directions are determined in the first place by the patterning of early satisfactions and frustrations. This patterning is affected by the relative strengths of various needs, and the forms and relative degrees of satisfaction which they receive. The two latter aspects are environmental variables.

b. The modes and degrees of need satisfaction determine which needs will become the strongest motivators. The nature of the motivation may be quite unconscious.

   Possible variations are:

1. Needs satisfied routinely as they appear do not become unconscious motivators.

2. Needs, for which even minimum satisfaction is rarely achieved, will, if higher order (as used by Maslow, 1954), become expunged or will, if lower order, prevent the appearance of higher order needs and will become dominant and restricting motivators.

3. Needs, the satisfaction of which delayed but eventually accomplished, will become (unconscious) motivators, depending largely upon the degree of satisfaction felt. Behavior that has received irregular reinforcement is notably difficult to extinguish.

   The degree of satisfaction felt will depend, among other things, upon the strength of the basic
need in the given individual, the length of time elapsing between arousal and satisfaction, and the values ascribed to the satisfaction of this need in the immediate environment.

Proposition 4. The eventual pattern of psychic energies, in terms of attention directedness, is the major determinant of interests.

Proposition 5. The intensity of these needs and of their satisfaction (perhaps particularly as they have remained unconscious) and their organization are the major determinants of the degree of motivation that reaches expression in accomplishment.

Roe and Siegelman's study (1964, p. 61) found relationships in the predicted direction; that is, the more love and attention in childhood, the greater the degree of person-orientation in later life. But there are fewer significant relationships found for the group of women they studied. Their study offers support for the hypothesis from both male groups (Student and Adult samples); for the women there is no clear evidence. The number and the patterning of the significant correlations would seem to indicate that the more affectionate and attentive the parents, the more person-oriented the son; and conversely that the more neglecting and rejecting the parents, the less the son will seek close personal relations in later life.

Summary of the Theoretical Propositions

Hypotheses one through five of Roe's theory are a series of statements which, when summarized (Smart, 1969), seem to state the following: each individual's genetic background underlies his abilities and interests and sets limits on them. Further, each individual expends his "psychic energy" in a manner not entirely under his control and this involuntary expenditure of energy is
influential in the development of the individual's abilities. Combined with the expenditure of the psychic energy is the development of need primacies based on early frustrations and satisfactions in the manner outlined by Maslow (1954). The degree of motivation toward the attainment of a vocational goal is a product of the arrangement and intensity of the individual's particular need and the family emotional relationship which may be inferred from his accomplishments.

Her hypotheses six, seven, and eight in the original formulations go on to explain how various child-rearing practices affect the formation of psychic energy release. A child's early experiences with his parents are assumed to create or foster basic attitudes, and interest which "will be given expression in the general pattern of the adult's life, in his personal relations, in his emotional relations, in his activities and in vocational choice" (Roe, 1957, p. 217). From three characteristic family atmospheres (emotional concentration on the child, avoidance of the child, and acceptance of the child) Roe predicts the resulting person-orientations and the classes of occupations to which such early childhood experiences will lead. For example, emotional concentration on the child which takes the form of over-demandingness is assumed to produce children who enter the General Culture field (teachers). The scheme for classifying occupations in eight groups is an integral part of her original theory of vocational interest and choice. Roe's hypotheses are intended to apply most directly to males as can be inferred from her extensive studies of eminent scientists.
Occupations as a source of need satisfaction are of extreme importance in our culture. What is important, according to Roe, is that this relationship exists and is an essential aspect of the job satisfaction within an occupation for the individual in a sort of feedback arrangement. Satisfaction and commitment to the occupational activities increase as higher order needs are seen as satisfied or anticipated as being satisfied (Roe, 1967; Hoppock, 1963).

Bordin, Nachmann, and Segal (1963) have grouped Holland and Roe in emphasizing vocational choice—that is, the prediction of the occupational role that the individual is fulfilling at a particular point in time. Both Holland and Roe (Osipow, 1968) strive for a more differentiated structure approach in which occupations are grouped according to personal characteristics or activities. All agree that this particular choice is not synonymous with the end of the process. Bordin, Nachmann, and Segal (1963) remain convinced "that Roe's basic direction is fruitful . . ."

Roe's hypotheses concern orientation patterns or needs which have been generated by the interaction between child and parents; while the psychoanalytic view is characterized by the central position given to sublimation and other defense mechanisms transforming infantile impulses, some instinctive, and some resulting from parental interaction, into vocational choices. Her use of a person-orientation classification in connection with the theory suggests that she had one dimension in mind, namely the degree of orientation toward person or non-persons. The dominant parent plays a particularly strong role in determining this orientation.
Even when it is hypothesized that the degree of person-orientation in later life is generally positively related to the amount of love and attention received in childhood from the dominant parent; the patterning of significant correlations seem to indicate a clearer relationship for a greater number of men than women (Roe & Siegelman, 1967).

Although Roe acknowledges a debt to Maslow's hierarchical classification of needs, she makes little visible use of his stated needs in her classification system. She makes little use also of his principles about the appearance of needs in her basic developmental principle that the needs that will have relevance for vocational development are those for which there has been a delay in gratification, but for which subsequent gratification is achieved.

General Questions to Be Answered

The following questions were sought to be answered in relation to the subjects in teacher training in Mexico at the University of Montemorelos:

1. Is Roe's prediction that a Concentrating parent-child interaction background is characteristic of the General Culture Group VI significantly supported by the distribution of subjects on the family emotional relationship categories?

2. Is Roe's prediction that a Concentrating parent-child interaction background is characteristic of the General Culture Group VI significantly supported by the distribution of male and female subjects on the family emotional relationship categories?

3. Is Roe's prediction that individuals choosing General
Culture occupations (like teaching) would be characterized by a major Orientation Toward Persons (OTP) significantly supported by the frequency of subjects falling in this category?

4. Are there significant differences between the frequencies of male and female subjects on the family relationship categories?

5. Are there significant differences between the frequencies of subjects in the Expected-Job-Satisfaction levels and the family emotional relationship categories to the extent that these variables could be considered contingent?

6. Is there a significant correlation between the Sum Relate and the parent-dominant Accepting, Concentrating, and Avoiding score?

7. Are there significant correlations between Expected-Job-Satisfaction scores and the parent-dominant Accepting, Concentrating, and Avoiding scores?

8. Are Roe's predictions that Person Orientation is a function of an antecedent family relationships supported by the frequency of Ss from these types of homes in the Orientation Toward Persons and Orientation Not Toward Persons categories?

**Research Hypotheses**

The research hypotheses proposed were thought to be a test of some of Roe's ideas applied to the General Culture Group. Brunkan and Crites' (1964) research, which resulted in developing the Family Relations Inventory (FRI) for measuring Roe's constructs of parental acceptance, concentration, and avoidance was an important source in testing her prediction for a composite group in this study. The hypotheses allowed for three categories of family emotional relation-
ships when using the FRI scales. In the absence of any specific cultural information about how the responses would be distributed in the sample, the theoretical probability of equal occurrence (1:1:1) of frequencies in the three categories of the FRI was tested as a null statement. The research hypotheses given below express the predicted direction suggested in Roe's theory for the General Culture Group as a composite group. Medvene (1969) and Medvene and Shueman (1978) assumed an equal distribution for the three family emotional relationship categories in their test (Chi-Square Test) of Roe's theory using samples of psychologists and engineers.

Therefore the exploratory nature of this study with teachers in training as a composite group in Mexico suggested the following research hypotheses:

1. There is a statistically significant difference between the frequency of Ss in the Concentrating, Accepting, and Avoiding categories of family emotional relationships.

2. There is a statistically significant difference between the frequency of male Ss in the Concentrating, Accepting, and Avoiding categories of family emotional relationships.

3. There is a statistically significant difference between the frequency of female Ss in the Concentrating, Accepting, and Avoiding categories of family emotional relationships.

4. There is a statistically significant relationship between the frequency of Ss in the Orientation Toward Persons category and in the family emotional relationship categories.

5. There is a statistically significant relationship between
the frequency of Ss in the Orientation Toward Persons category and in the Expected-Job-Satisfaction categories.

6. There is a statistically significant relationship between the frequency of Ss by sex category and the family emotional relationship categories.

7. There is a statistically significant correlation between the Sum Relate score and the Accepting, Concentrating, and Avoiding category scores.

8. There is a statistically significant correlation between the Expected-Job-Satisfaction score and the Accepting, Concentrating, and Avoiding category scores.

9. There is a statistically significant difference between the frequency of Ss with Orientation Toward Persons for the Accepting and Concentrating categories combined.

10. There is a statistically significant difference between the frequency of Ss in Orientation Not Toward Persons in the Avoiding Category.

Organization of the Study

This study is organized as follows: chapter 1 presents the statement of the problem, questions to be answered, research hypotheses, definition of terms and the theoretical framework upon which the study has been based. In chapter 2, the literature is reviewed with chronological presentation of those studies that have been non-supportive and supportive of Roe's Theory. Chapter 3 includes a description of the subjects, instruments, and methodology used to test the null hypotheses in the study. Chapter 4 presents the
findings in two main sections: data relevant to the subjects in the study. Chapter 5 summarizes the findings and presents the conclusions and implications within the limits of the study, as well as recommendations for further study.
CHAPTER II

REVIEW OF THE LITERATURE

Anne Roe is a native of Colorado. She obtained a Ph.D. in Psychology from Columbia University. In 1957 she was appointed to an adjunct professorship in psychology at New York University but moved to Harvard in 1959 where she held positions of lecturer in Education, Director of the Center of Research in careers and, eventually, Professor of Education. In 1967 she became professor emeritus of Harvard but moved to Tucson and was appointed a lecturer in Psychology at the University of Arizona, a position which she still holds. She has authored five books and over 90 papers and monographs, and has held many elected and appointed positions in the American Psychological Association.

A lifelong career in clinical psychology and an interest in anthropology and sociology have been major influences in Roe's orientation to the problems of vocational behavior.

In a recent article for the Academic Psychology Bulletin (MPA), she stated in retrospect:

My own researches have focused on personality and interest factors, and on parent-child relations. I have not expected them to give me an overall picture and of course they did not, but I am still looking for one. This is the more important because the processes of vocational developmental and choice do not differ essentially from developmental and choice processes in general. Furthermore, because vocational development and choice result in clearly observable behavior--a job--study
of them as examples should be useful for developmental psychology overall (Roe, 1979).

The Origins of Vocational Choice

In Roe's first published research (1946a), she reported a good deal of information about artists and attempted to relate this information to vocational choice. But this biographical data and projective text information failed to indicate any relationship between vocational choice and personality in this group of 20 artists. At this time, Roe mentioned "identification within the family" as a possible factor influencing personality and eventual vocational choice.

In another publication that same year (1946c), she discussed the same findings but with a different emphasis. This article stressed the implications for testing practice and interpretation. In a later research project (1950), sponsored by the National Institute of Health as an extensive study of relationships between personality and vocation, sixty-five physicists and 177 biologists were analyzed with Rorschach protocols. The subjects were members of faculties of six leading universities and included astrophysicists, geophysicists, engineering physicists, and physical chemists. Few notable differences were found, with the exception of striking differences in color and shading shock; but "which is cause and which is effect, are not shown by these data" (p. 397).

The (1951a) monograph entitled "A Psychological Study of Eminent Biologists" was more comprehensive than her preceding work. A good deal more information about the subjects, in this case 20 eminent biologists, was presented. In addition to TAT and Rorschach
tests, much more biographical data were collected. These data included detailed accounts of early history, professional history, psychosocial/developmental history, religious beliefs, and recreational pursuits. Also, verbal, spatial, and mathematical test scores were presented. In summarizing this extensive amount of information, Roe made several statements which can be recognized as part of her later theoretical formulations. For example, she stated that there was evidence of lack of warmth in many of the parental homes, and incidence of deaths, divorce or serious illness among parents of biologists was high. Concerning social development, she concluded that a general picture of shyness, lateness in developing interest in or being able to express interest in girls, and present general uninterest in most social groups was characteristic of all but one or two of the group. She found evidence in the Rorschach protocols to indicate that eminent biologists as a group had little interest in interpersonal relations although they were adequate in handling such relations.

The next study reported by Roe (1951b) was another in the series of projects which was supported by the National Institute of Health. This time Roe chose as subjects 22 physicists who were interviewed and tested in depth in much the same manner as were the biologists in her preceding study. In addition, Rorschach data were gathered on another 48 physical scientists but the study concentrated mainly on the former group. As a group, the 22 physicists were found to be not involved in social groups to any great degree and they did not particularly enjoy social relationships. One of the most
striking aspects of the TAT protocols was the feeling of independence of parents that was so strongly present and the lack of guilt feelings over this independence. A general acceptance of aggression as a permissible element in behavior was also noted. This group of physicists was found to have a strikingly "large amount" of "free anxiety" and to have considerably more emotional responsiveness than the previously studied biologists.

The 1951c study gathered more data on eminent research scientists using the Rorschach, TAT, and a Verbal-Spatial-Mathematical test constructed for these studies. The data presented with the 1952a study was a new attempt to relate test scores to occupational categories. Yet, the data presented dealt more with a validation of projective techniques. Nevertheless, it is interesting that she reported the clinicians as being intensely interested in people while other types of psychologists were not as interested in persons. Little was said about anthropologists because the sample was small—25 anthropologists as compared to 104 psychologists.

The last in a series of monographs by Roe (1953c) was probably the most complete of her studies conducted in this area. This series of studies was designed to investigate the existence of relationships between life history, intellectual functioning, and personality characteristics and the selection and pursuit of a particular science as a profession. A new sample which included 14 eminent psychologists and eight eminent anthropologists was drawn and the data from this group of subjects was compared to the data previously collected on physical scientists. This information included:
(1) family background including occupations and education of fathers; (2) early history relevant to occupational choice; (3) psychosocial development; (4) TAT results; (5) Rorschach results; and (6) verbal-spatial-mathematical test results. Family histories and psychological development seemed to indicate patterns involving over-protection and firm, if not overt, control by parents over psychologists. Among anthropologists there was more over-protection and more open hostility. Over half of the anthropologists reacted with more rebelliousness than is generally usual, and these were still angry or rejecting or disrespectful of one or both parents. Social scientists differed from physical scientists in that they were more concerned at an earlier age about personal relations. Also social scientists reported a conflict over dominance and authority and in a number of homes the mother was dominant, indicating the possibility of difficulty in achieving masculine identification. Physicists seemed to identify more easily with their fathers. On the Rorschach, the social scientists were remarkably productive, rather uncritical and somewhat haphazard in their use of rational controls. They were reported to be very sensitive, intensively concerned with persons, rather freely aggressive and often troubled with conflicts over dominance and authority. It was readily apparent that the data in this monograph related more to family history and vocational choice than did the results of earlier studies.

Roe's book, *The Psychology of Occupations*, was published in 1956. It attempted to synthesize material from the areas of vocational guidance, industrial psychology, and, to some extent, clinical
psychology and in so doing presented a survey of the general field of the psychology of occupations. Roe gathered data which emphasized individual differences in intelligence, physical ability, personality, culture, and family backgrounds and related these differences to vocational choice in very general ways. The latter half of the book was devoted to a detailed elaboration of Roe's classification of occupations. This included numerous studies which described and evaluated various occupations. In the final chapter, Roe stated implications of occupational psychology for education, psychological theory, therapy and society in general. She noted the increasing requirements being made for higher education and questioned—"To what extent is it realistic?" Adding that the frequent discrepancy between aspiration and reality has caused much frustration and unhappiness. Providing students some first-hand experience with various occupational settings would be helpful with insights into the types of emotional settings and emotional satisfactions incident to work. Changes in high school programs are implied in order to give the student some systematic help in finding out what they can do about personal satisfaction and difficulties in a job situation. The problem then is more important than just raising levels of personal individual satisfaction but also includes the preservation and development for society of an enormous creative potential which is going to waste.

For the vocational counselor implications in her book are more direct. It is important to make the counselee more aware of his expected job satisfaction in advance of the sort of emotional
reactions that are going to affect job satisfaction. Many young people are unprepared to meet personal frustration because this aspect never occurred to them. Here the counselor can be of immediate and direct help, long before the educational setting can be so modified as to deal in some degree with the problem (Roe, 1956, p. 314).

The implications for psychological theory are only expressed in a general way. Hence she believes that any development of the theory of occupational choice and selection will go far beyond vocational guidance as such, in its implications for normative psychological theory generally and for personality theory in particular.

The last chapter ends with special attention to the role of experience in the family which is seen as crucial in the genesis of individual differences in interests and drives. It is here that she poses two alternative hypotheses for future checking:

1. The form in which drives find their first satisfactions will later be expressed as dominant interests.

2. Drives which are most effectively frustrated will be the ones which will later become dominant motivators, provided that the frustration is not so long continued as to result in their practical expungement. Individual differences in interests are also related to the timing of the emergence of basic needs, and to the specific environmental situation at that stage. It is interesting that she declares:

It has become abundantly clear that the problem of occupational adjustment is not merely one of matching aptitudes or even patterns of aptitudes to establish job requirements for these aptitudes but, that it is as complicated as life
adjustment, of which it is only a facet. . . . It is likely also to be impossible to be impossible to set them up (research studies) with that elegance of design which is so satisfying to the orderly mind and so often impossible in research in human lives (p. 314).

Roe and Siegelman (1964) conducted a study in which they attempted to show some relationship between childhood experiences and various adult activities, including vocational choice. The theoretical framework from which they worked was somewhat different from Roe's earlier theory. Childhood experiences were assessed by several inventories and questionnaires which were given to a sample of 24 male and 25 female engineers, 22 male and 23 female social workers, and 142 Harvard University seniors from a wide variety of majors. The questionnaires included information about the subjects' general interest, occupational interests and several personality measures. Roe and Siegelman hypothesized that early parent-child experiences would relate to adult interest patterns and that orientation toward persons as an adult would be a function of the extent and satisfaction of early personal relations. They concluded that their findings generally supported their major hypothesis. This implied that Roe's theory may be valid in accounting for the way childhood experiences affected adult orientation toward persons. General results were mixed and the authors conclude that the person-non-person continuum is too simplistic for all categories. There were, nevertheless, demonstrated relationships between antecedent measures and later occupational choice among males (p. 61).

A good test of the usefulness of a theory lies in its ability to stimulate research designed to test it. Roe's relatively young theory has been successful in terms of such a criterion. The first
study specifically designed to test Roe's theory was conducted by Grigg (1959). He chose to investigate differences in childhood recollections about parental treatment among women studying mathematics and science as compared with women studying nursing. He predicted that the mathematics/science majors would recall a "colder, less attentive" parental attitude than would the nursing students. Grigg compared the answers to a 15-item questionnaire about recollections of parental reactions during childhood, feelings of acceptance as a child, and father's and mother's reactions to the responsibilities of parenthood of 24 women graduate nursing students and 20 women graduate students in chemistry, physics, and mathematics. Grigg's study is the first among nineteen research studies conducted through 1978 to test the application of various aspects of Anne Roe's theory. Inquiry with her propositions has produced a wide range of findings showing non-supportive and supportive data.

Non-Supportive Studies

In considering the following non-supportive evidences to be reviewed it is important to identify some of the methodological and theoretical aspects that may have contributed to the conflicting findings. Some of the aspects to keep in mind are (1) the overly global classifications of occupational areas as given in Roe's original formulations, (2) the poor validity or reliability of the various instruments used in earlier studies, (3) the original focus of Roe's proposition based on male subjects and, (4) changes over the lifespan of adult subjects' perceptions of the family emotional relationship and the retrospective technique of data gathering.
Two groups of women were used as Ss; one identified with science and mathematics, and the other with nursing, in Grigg's (1959) study. The first group consisted of 20 graduate students from departments of chemistry, physics, and mathematics and the second group consisted of 24 graduate nurses who had been employed as nurses but who had returned to graduate school in order to qualify for higher positions. A 15-item questionnaire was devised to measure the kinds of parental treatment postulated by Roe. Following is an example of the kinds of questions asked:

When I was a child, I feel my parents:

  ___ a. Babied me and encouraged dependence
  ___ b. Were somewhat exacting and perfectionistic with me
  ___ c. Seemed not to feel close identification or sympathy for me
  ___ d. Seemed to take me as a part of life and never got very upset about things that I did.

Apparently no earlier effort was made to establish the validity or reliability of this instrument as no such information was reported. However, Grigg drew the following conclusions: (1) contrary to Roe's hypothesis, women who were in nursing did not report significant and characteristic difference in their early experiences with parents from women who were associated with science and mathematics; (2) women in science and mathematics reported significantly more interest as children in gadgets and things than in companionship; (3) since empirical discrimination between nurses and women associated with science and technology did not occur on the basis of reported early experience with parents, it appeared that some variable other than experience of parental reactions during childhood was more pertinent to adult occupational choice. Roe (1959) criticized Grigg's study.

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because women were used as Ss and because nurses were used to represent the Service category of occupations. Roe had previously pointed out (Roe, 1956, p. 221) that nurses are not easily classified as to the interest group. In addition to Roe's criticisms, the validity and reliability of the instrument used by Grigg are open to serious question. Also, the small samples used did not justify such sweeping generalizations to entire occupational groups.

Hagen (1960) assessed Roe's theory using a longitudinal approach. Using a large sample (245) of Harvard sophomores first contacted between 1938 and 1942, he collected family history data that pertained to vocational, social, personal, and medical information. Parents, and at times other individuals, provided retrospective information about the subjects' childhood personality and parental child-rearing practices. Data were also obtained concerning the subjects' current practices in rearing their own children. These subjects were also required to respond to open-ended questionnaires concerning their attitudes and adjustment at work.

The subjects' childhood experiences based on the family history data were then rated independently on Roe's three categories of child-rearing practices by two judges who agreed in their assignment of practices to categories in 70 percent of the sample. Then each subject's occupation was assigned to a category within Roe's vocational classification scheme and several predictions were made. It was predicted that people in service occupations come from a protective childhood climate, people in business contact or general cultural occupations from a demanding climate, people in outdoor
occupations from a rejecting climate, and people in technological fields from a casual climate. The results indicated that when childhood climate was paired with current occupation, only one of the child-rearing categories (casual) was significantly related to current vocation. Half the people from casual atmosphere were in appropriate occupations, which proved to be significant beyond the .01 level of probability, but the sample was very small, and in view of the lack of predictive success for the other categories, Hagen concluded that Roe's theory was not supported by the data.

Assessing Roe's theory on the agreement between childhood parental practices and the emergence of orientation toward persons or towards non-persons, Hagen still failed to find results corroborative of Roe's theory. Of 112 subjects classified in the demanding or overprotective categories, 69 were in vocations oriented toward persons and 43 in careers not-oriented toward persons. Of the 42 Ss from rejecting or casual environments, only 16 were in occupations not oriented toward persons (which is where the theory predicted they should be), while 26 were in fields where orientation toward persons was predominant. These distributions failed to be significant, leading to the conclusion that the data fail to support Roe's model in even the broadest way.

He adds that some theoretical limitations seem likely, most significantly the fact that a variety of orientation is possible within a career so that a scientist may be oriented toward persons and work in a laboratory or he may be oriented toward persons and teach, or administer research projects (Osipow, 1968).
In 1962 a more in-depth study was conducted by Switzer, Grigg, Miller, and Young. They used two groups of male students as Ss in their study. One group was composed of ministerial students, the other of chemistry majors. Each group was given a questionnaire which assumed to measure the Ss' perception of the parental attitudes characteristic of ministers and chemists, according to Roe's theory; namely, over-demanding and rejecting, respectively. The questionnaire contained two scales (rejecting and demanding) designed to measure each parent separately. Thus four scores were obtained from each S. On the basis of Roe's hypothesis, the prediction was made that the ministerial group would perceive their parents as having been more demanding than the chemistry group. The results of the study were not in agreement with the prediction. The ministerial students did not score higher on the over-demanding scale and the chemistry students did not score higher on the rejecting scale. The scaling techniques of this study left something to be desired in that evidence for the validity of the questionnaire was lacking.

Utton (1962) also conducted a study which tested Roe's theory. He used four groups of women as Ss--social workers and occupational therapists, whom Roe described as being oriented toward persons, and dietitians and laboratory technicians who are described as being oriented chiefly toward nonpersonal activities. All Ss were given the Allport-Vernon-Lindsey Study of Values and a Childhood Experience Rating Scale.

Consistent with Roe's theory, the social workers and occupational therapists were found to show greater altruistic love of people
than did the dietitians and laboratory technicians. However, the Ss employed in person oriented occupations did not recall their childhood family environment as being any warmer than did the Ss employed in non-person oriented occupations. Further analysis of the data revealed that there was more similarity between the recollection of the social workers and the laboratory technicians than between the other professional groups represented. The social workers felt less accepted by their parents than did either the occupational therapists or the dietitians. There was a greater rapport between the dietitians and their parents than between the social workers and their parents. Utton interpreted the results of this study as not supporting Roe's theory. But he also made allowances for the fact that the Childhood Experience Rating Scale may have been easily biased by response set toward the scale, and Ss might have had little difficulty in identifying those items which reflected a noncommittal attitude.

Crites (1962) designed a study to test the hypothesis that a continuum of importance of interpersonal relations exists for occupations. He required 100 students to rank eight occupational fields with respect to the degree that the fields required interpersonal relations with people as the main work activity of the job. Crites concluded that Roe's theoretical scale was not as valid as the empirically derived scale that he developed, at least so far as the ordering of judgments about job orientation toward persons or towards non-persons is concerned. Although the differences between the two orders is slight, an over-emphasis in Roe's theory of the degree of
importance that person orientation has for a career field might be partially responsible for the failure of research to validate Roe's position.

Brunkan and Crites (1964), critical of the efforts that have been made by other investigators to test Roe's theory, developed a more effective instrument with which to assess family background factors that might be related to vocational choice. However, in Brunkan's (1965) first attempt to apply the instrument to test Roe's theory, no systematic connection between early environment and orientation of occupational choice was found. Brunkan administered the FRI to 298 college undergraduate male students enrolled in psychology courses. As part of this study in which the relationship of parental attitudes and parental identification to "probable," "possible," and "fantasy" vocational choices was analyzed, he hypothesized that: (1) choices in the Service, General Culture and Arts and Entertainment occupations would be accompanied by high scores on parental concentration; (2) choices in the Technological occupations would be accompanied by a high degree of parental acceptance; and (3) choices of Scientific careers would be accompanied by a high degree of parental avoidance. Their vocational choice was obtained from Trow's Vocational Choice Inventory which yielded probable, possible, and fantasy vocational choices. Analysis of variance revealed no overall significant differences among any occupational choices on any of the FRI scales and Brunkan concluded that this study showed no support for Roe's theory. Nevertheless, the choices in scientific careers were accompanied by a high degree of parental avoidance.
More recent studies such as David Smart's (1969) study at the University of Utah, also found no significant differences among occupational groups on any of the FRI scales in a multivariate analysis of variance. Data was gathered from 190 male Ss from seven different occupational categories. These occupational categories corresponded to Roe's classification system and each subject filled out two inventories, (1) the Family Relations Inventory, and (2) a biographical information inventory. The design of the first analysis was a 7 x 2 factorial with seven levels of occupations and two levels of birth order serving as independent variables and the six FRI scales serving as dependent variables. The design of the second analysis was a 7 x 2 x 2 factorial. Among the explanations of the results, the following possibilities were advanced: (1) Roe's predicted occupational choice is too narrow, not taking enough of the factors which influence choice into account; (2) the retrospective technique of data-gathering may not be valid; (3) the range of occupational activities per level that were sampled was too narrow; and (4) a biased sample of Ss may have been obtained by using only Ss who voluntarily returned questionnaires by mail.

Appleton (1969) at the State University of New York at Buffalo also questions the fact that much of the research has been done on a post hoc basis in which the subjects are classified as members of an occupational group and are asked to recall their parent-child relationships. He questions the assumption that a particular occupation is totally either person or non-person oriented. He designed a study to investigate the relationship between early childhood experiences and vocational preferences of eighth grade
school children (N = 425). A measure of person-orientation involved in the occupations as seen by the individual and the students' vocational preferences were obtained. A 2 x 2 multivariate analysis of variance was used to investigate the relationship between early childhood experiences and vocational preference, and the person-orientation aspect through the use of a Pearson Product-moment correlation. Two of the instruments were forms of the Roe-Siegelman Parent-Child Relations Questionnaire for father and mother. The third instrument was designed to measure the perceived person orientation in the subjects' chosen future vocation.

Some of Appleton's conclusions question the usefulness of the Roe-Siegelman questionnaire as a tool with which eighth graders may be questioned; and the classification system on a toward person or towards non-person continuum may be a source of error. Statistically significant support for the theory was not found. Additional information obtained beyond the stated hypotheses through treatment of the data shows that a measure of total family atmosphere may be sufficient when one is dealing with parent-child relationships, and significantly boys choosing occupations classified as toward non-persons do see less opportunity for interpersonal activity than do girls making the same choices. The lack of significance for girls may be attributable to the fact that in the American culture it is difficult for girls to choose occupations which are characteristically "towards non-persons" and when they do their roles involve person-oriented activities (Appleton, p. 72).

Simmons (1975) used the FRI and the Biographical Questionnaire with 296 Texas Community College students, who had selected programs
in five occupational areas, found support for the null hypotheses. Null hypotheses based upon no association between biographical data and family atmosphere were supported. However, these exceptions are notable: (1) subjects who had job experience in their occupational choice perceived fathers as accepting (p < .06), and Ss who had no experience yet with their occupational interest perceived their fathers as avoiding (p < .05); (2) Ss representing different ethnic groups differed as follows--Blacks perceived their fathers as more concentrating (p < .01), Mexican-Americans perceived their mothers as more concentrating (p < .05) and their fathers as avoiding (p < .05), and Caucasians perceived their mothers (p < .05) and fathers (p < .01) as being less concentrating.

The only hint of support for the person-non-person aspect of Roe's theory was in the weighed composite scores on the FRI and expressed occupational choice.

**Supportive Studies**

Nachmann (1960) investigates the process whereby certain groups differ in childhood experiences that might lead to the differences in vocational choice and the personality needs so expressed. The three occupations selected were assumed to meet three very different need systems. Nachmann felt that law required the individual to come to terms with authority and with the roles of society. The three central characteristics of the lawyers' work are: (1) the prominence of verbal aggression, (2) a concern with the human justice, and (3) the exercise of a privileged curiosity about the lives of others. In such a vocation, hostile and aggressive feelings
are acceptable and often admired. The job of the social worker, on the other hand, although permitting acknowledgement of hostile and aggressive feelings, demands that the worker in no way express them. The concern is for the spirit rather than the letter of the law and the social worker's relationship with authority is neither one of open conflict nor yet of submissive acceptance. Curiosity and inquiry into the lives of clients is characteristic of this occupation although this curiosity is renounced as a source of personal gratification. In the third occupation, dentistry, manual skill is of much importance. Verbal aggression is neither required as in law, nor forbidden as in social work. The aggressive quality of the work may be seen in the grinding, drilling, cutting, etc., necessary to the job.

Nachmann set about to test his own series of hypotheses which had been made earlier (Roe, 1956) about differences in childhood experiences of the members of the three groups. Through a series of biographical interviews with twenty student members of each occupational group, the early childhood experiences and parent-child relations were established. The results sustained most of the hypotheses made by Nachmann.

Another study utilizing psychoanalytic theory in job analysis was described by Galinski (1962). Galinski again assumed that occupations provide opportunities for impulse expression and that developmental experiences play a part in predisposing the individual to choose particular occupations. Forty male graduate students in physics and clinical psychology at the University of Michigan were
used as subjects. It was established that, in general, clinical psychologists had more opportunity to be curious about interpersonal relations, had more dominant mothers with whom they had closer and warmer relationships, and had less conventional home environments which were characteristically more flexible and manifested more interest in the opposite sex. Physicists, on the other hand, had more dominant, clearly masculine fathers, whom they took as identity models. They received more intellectual stimulation from their families and experienced more rigid discipline, stressing obedience and meted out by the fathers.

Bordin, Nachmann, and Segal (1963) attempted to present a scheme which identified the gratifications offered by three specific occupations. The importance of early experiences is emphasized inasmuch as the modes of obtaining gratification are assumed to originate in early childhood experience. The theoretical framework for the paper grows out of three studies: Segal (1961), Nachmann (1960), and Galinski (1962). The preliminary assumptions and considerations are:

1. There is continuity in development which links the earliest work of the organism in food-getting, mastery of the body and coping with the stimulations of the environment to the most highly abstract and complex types of intellectual and physical activities that exist.

2. That the complex adult activities retain the same instinctual sources of gratification as simple infantile ones.

3. That although the relative strengths and configurations
of needs are subject to continual modifications throughout the life span, their essential pattern is determined in the first six years of life (Segal, 1963).

The authors were careful to point out that they excluded from consideration all those people who do not derive gratification from their work in and of itself. The occupations of accounting, social work, and plumbing were then analyzed on a number of dimensions. The dimensions were based on psychoanalytic assumptions about the results of childhood experiences. For example, the first two dimensions dealt with nurturance and were labelled feeding and fostering.

Segal (1963) attempted to study the personality of the members of two occupational groups, creative writers and accountants. Inasmuch as the stereotypes of these two occupations carry diametrically opposed ideas with respect to conformity, he felt that the difference between the groups would be related to conforming to social values. Assuming that conformity relates to a willingness to sacrifice individuality in early childhood, the author is able to draw up a number of hypotheses. The instruments used were: Rorschach, Bender-Gestalt, and a brief one-page autobiography written by each of the subjects.

The results of the research were that seventeen variables tested reached the five percent level of significance. Inasmuch as these hypotheses were based on information about the kinds of activities that the members of the two occupational groups perform and the relation of these activities to the satisfaction of the
individual's needs, the role of personality in vocational development was clearly established.

The need to design a longitudinal study eliminating many of the difficulties encountered in post hoc research prompted Roe and Siegelman (1964) to investigate the relationship between antecedent and subsequent variables using a more refined design. Their work, published as an APGA Inquiry Study entitled "The Origin of Interests," made use of one hundred and forty-two Harvard University seniors (class of 1961) and adults in selected occupations (men and women engineers and social workers). The instruments used to define antecedent variables were a biographical questionnaire, an interview, and the Roe-Siegelman Parent-Child Relationship Questionnaire.

The subsequent variables were examined through the use of a Biographical Questionnaire, an interview, and the Person Interest Inventory, in which expressed interests, occupational orientation, and measures of person orientation were obtained. Person orientation versus non-person orientation was considered as a bipolar continuum. It was hypothesized that the degree of person-orientation in later life is generally positively related to the amount of love and attention received in childhood from parents. In this study significant relationships were demonstrated between some antecedent measures. Factor scores called loving-rejecting, overt parental attention, and present social activity were related. As predicted, the factor casual-demanding proved to have little or no effect on the individual's degree of person-orientation. The study concluded with statements to the effect that women engineers have backgrounds
that are generally characterized by discontinuity and difficulties of many sorts but in which they had good parental relations, particularly with their fathers. Both male and female social workers had backgrounds which might be characterized as stressful.

McArthur (1966) describes the results of his work with Roe at the Harvard School of Education Center for Research in Careers in 1966. He reported a longitudinal study in which the hypothesis was tested that men from loving or rejecting, demanding or protective, neglecting or casual homes would develop different values, different interests and, as a result, would pursue different careers. The three variables used to describe the subjects were social class, dominant parent, and reaction to family. When the occupations of the subjects in this study were classified along these dimensions, and the backgrounds of the subjects were analyzed, there appeared to be marked differences in the strength and status of the participant's fathers.

French (1959) made the observation that if we can generalize from this Harvard group, there are forces and factors at work long before entrance into an occupation which tend to direct men towards certain occupations and away from others. Occupational membership can be predicted, he concluded.

Green and Parker (1965) described the results of a study in which the Roe-Siegelman Parent-Child Relations Questionnaire was administered to Seventh graders and related to expected occupational choices. Occupational choices in this study were classified as person-oriented or non-person-oriented.
The results of Green and Parker's study indicated that boys exhibited a person-orientation in their choices of occupations when either parent relationship was positive (that is to say, when parental behavior on the part of either parent would be characterized as positive, casual, and rewarding--direct object). Girls, on the other hand, showed a non-person orientation with negative parent relationships (demanding, rejecting, or punishing--symbolic-love). The influence of the father on the occupational orientation of girls appeared to be much stronger than that of the mothers and the authors concluded "that the effect of the two punishing scales is to apparently mask an already weak relationship (girls-mothers)." If the relationship is strong (girls-fathers), it can overcome the distortion to which the two punishing scales might have contributed.

There was no tendency for girls to select towards-persons occupations as a result of loving, protecting, casual, rewarding (symbolic love or direct object) parent-child relationships. The authors felt that when the occupational choice is dichotomized on a towards person, towards non-person basis, the occupational choice in itself does not yield an effective means of exploring vocational development. This is consistent with the idea that the levels described within the occupational groups may allow for the expression of towards person or towards non-person orientations. The selection of younger subjects by Green and Parker was made to reduce the amount of retrospection used in answering the questionnaire and increase the probability that experiences would be realistically reported. In a later study, Parker, et al. (1967) report that Lambert revised the
Parent-Child Relations Questionnaire and found that a one hundred
items revision was as reliable as the original one hundred and thirty
item questionnaire.

Medinnus (1965) offered some support for the prevalent idea
that in parental interaction the mother exerts the greater influence
on the child's personality in the early years in contemporary American
Society. Using the Parent-Child Relations Questionnaire (PCR) he
tested 44 Ss (mean age 18), and found that the correlations between
the self-regard measures and evaluations of parents' child-rearing
attitudes are higher for males than for females as a provocative
relationship for further study. It suggests that in late adolescence
the boy's self-acceptance is more dependent upon perceived parental
attitudes toward him than is the case of girls. Further occupational
role is an important part of this identity search for the boy in a
time when parental pressures for achievement are exerted on him.

Brunkan and Crites (1964) developed an inventory to measure
Roe's three parental attitude variables: acceptance, concentration,
and avoidance. The Family Relations Inventory (FRI) was developed
for greater reliability and content validity than other instruments
used earlier to test the theory (Grigg, 1959; Hagen, 1960; Utton, 1962;
Roe and Siegelman, 1963; Switzer, et al., 1962). The emphasis in
constructing the FRI was upon perceived parental attitudes, since
Roe's theory implies that it is the individual's interpretation of
his experiences with his mother and father, rather than their actual
behavior, which significantly influences his vocational choice.
The test-retest reliability coefficients for the FRI are quite high,
which indicates that it appears to be an accurate as well as an internally consistent measuring instrument.

One way to establish the validity of a test is to show that it differentiates between two groups which differ on the variable supposedly measured by the test. With respect to parental attitudes, there is increasing evidence that the mothers and fathers of delinquents and criminals either neglect or reject their children. Glueck and Glueck (1959), for example, found that in 70 to 95 percent of the families which produced delinquent boys (1) there was little family cohesiveness (acceptance), (2) both parents were indifferent or hostile toward the child (avoidance), (3) the discipline codings of the father were overstrict or erratic (overdemanding concentration), and (4) the supervision by the mother was unsuitable (overprotective concentration). From these findings, we would expect that prison inmates would generally score higher than college students on the "avoidance" and "concentration" scales of the FRI, if it is a valid measure of these parental attitudes. The Brunkan and Crites study confirmed the predicted differences using inmates and students. It is reasonable to conclude that the prisoners' perception of their parents as more rejecting contributes to the validity of the FRI as a measure applicable to Roe's theory of vocational decision-making.

Lambert (1966) developed a revision of the Parent-Child Relations Questionnaire (PCR) designed to test the Roe hypotheses among adolescent girls. The Lambert-Parker Revision of the PCR (L-PPCR), appears to be an instrument capable of providing reliable information about parent-child relationships, the towards person and
non-person orientation and vocational interests. Lambert's study does not conclusively support Roe's theory but the predominant direction is favorable. For example, girls' relationships with mothers who were cold, rejecting, and demanding, were oriented towards non-person occupations more often than towards person occupations.

Looking at the job changes made by a group of 804 men over a period of 22 years, Roe et al. (1966) gave support to her ordering of occupational groups according to the primary focus of the work activity. Roe and Hutchinson (1968), in analyzing the job changes of these men find that job change is not random. Probability of change from one group to any other varies directly with the nearness of one group to another and decreases as distances between occupational groups increases. If the Roe classification system were unrelated to real categories in the occupational structure, the groups would be random sub-samples of the total population. The General Culture (VII) classification showed highly significant gross stability and external stability.

Roe's classification system has been an alternative focus of research from that of the theory. This interest has been the emphasis in the research of Mier (1970); Moser, Dubin and Shebky (1956); Osipow (1966); Roe et al. (1966); Klos (1967); Borgen and Weiss (1968); and Lunneborg and Lunneborg (1968).

Borgen and Weiss (1968) report data permitting a direct test of the relationship between Roe's occupational categories and several empirically measured characteristics of occupations. Their instru-
ment, the Minnesota Job Description Questionnaire, assesses the differential reward characteristics of occupations. Subjects were 2,976 immediate supervisors of workers in 81 different occupations and several hundred different firms. They conclude that:

The results of this study provide empirical confirmation for several of the dimensions which Roe (1956) postulates as underlying her classification of occupations level. Specifically, these results imply that in higher level occupations in Roe's system, workers are more likely to "make decisions on their own" (Responsibility), "try out their own ideas" (Creativity), "plan their work with little supervision" (Autonomy), and to a lesser degree, "tell other workers what to do" (Authority). In addition to these specific expectations derived from Roe's system the results indicated several other dimensions of reinforcement which are significantly related to Roe's occupational level. Workers at higher Roe levels appear to be more likely to "get a feeling of accomplishment" (Achievement), "make use of their individual abilities" (Ability Utilization), "have the position of 'somebody' in the community" (Social Status), and less like to "have bosses who train their men well" (Supervision-Technical).

... The present results suggest a factual basis for this satisfaction hierarchy, namely that occupations at higher levels are more likely to provide satisfaction simply because there are a greater number of reinforcers present in higher level occupations.

The results of this study provide independent confirmation of some of the variables that Roe hypothesized as the basis for her level classification.

Byers, Forrest, and Zaccaria (1968) utilized a ministerial sample of both theological students (79 junior and 65 senior students) and adult clergymen (127 Ss). A number of significant relations were found in regard to recalled early parent-child relations, inventoried adult needs, and occupational choice utilizing the Edwards Personal Preference Schedule and the Family Relations Inventory (FRI). These Ss fell into the General Culture Group VII. Adult needs as measured by the EPPS were found to be significantly related to certain recalled early parent-child relations as measured by the FRI. Correlated with the ministerial Ss' recall of their fathers' attitude toward them as
concentrating was a significant decrease in their need for change.

According to Roe's theory individuals gravitating toward occupational Group VII (General Culture) should be relatively homogeneous in terms of early parent-child relations and adult needs and should be significantly different from a representative national sample. Although some aspects of Roe's theory received support from this study, the authors indicated that the general correlations were low. Byers, Forrest, and Zaccaria indicate that it would be profitable to pursue how work requirements and work styles differ within any given occupation because of differential dynamics operating with regard to the occupational choice of individuals for any group. Thus, future research might attempt to identify differential work styles within a given occupation group and early parent-child relations.

Arnold M. Medvene (1969) took the above suggestion and analyzed the responses of 461 male graduate students majoring in psychology at the University of Maryland. The occupation of psychology was divided into two groups: one that does not involve a direction relationship to people, e.g., developmental, educational experimental, social and engineering psychology; and one that does involve a direct relationship with people, e.g., clinical counseling, industrial, and school psychology, as established by the 1965 Dictionary of Occupational Titles. Such a procedure takes into account that within occupational groups there may be both person-oriented and non-person-oriented dynamics.

Using a Chi-Square analysis Medvene found that: in the entire sampling population $S$s in both the Son-Father-Concentrating
and Son-Father-Accepting categories did, in significantly greater numbers, enter one of the four person-oriented occupations. The Ss in the Son-Mother-Avoiding category did, in significantly greater numbers, enter one of the five non-person-oriented occupations in psychology. In the doctoral sample population used, the Ss in both the Son-Father-Concentrating and the Son-Father-Accepting categories did, in significantly greater numbers, enter one of the four person-oriented occupations in psychology. Ss in the Son-Father-Avoiding and the Son-Mother-Avoiding categories did, in significantly greater numbers, enter one of the five non-person-oriented occupations in psychology.

In light of this evidence it can be said that a relationship between early parent-child relations and subsequent occupational choice does exist, and that within the occupation of psychology lie both person-oriented and non-person oriented areas (Medvene, 1969).

Appleton and Hansen (1969) used secondary school students uncommitted to an occupation to investigate a single factor (nurturance) in the child's relationship with both parents. The Parent Child Relationship questionnaire was used with 173 randomly selected students in a lower middle-class suburban community in western New York. The students oriented towards persons had significantly higher need-nurturance than the non-person-oriented students. The multivariate F-ratio disclosed that there are significant differences between students choosing person-oriented and non-person-oriented vocations when parental relations and need-nurturance are considered.
together.

Medvene and Shuem (1978) found that previous failures of research to support Roe's theory have been due to global study and classifications of occupational groups.

Three hundred and forty male engineering students (mechanical, aerospace, chemical, electrical) were asked their chosen major job function and were asked to complete the Family Relations Inventory describing their views of their parents' attitudes and behavior toward them. A Chi-Square analysis was used to investigate any significant relationships between the categorization of parents as Accepting, Avoiding, or Concentrating and engineering major or job function (Basic Research, Applied Research and Development, Product and Process Engineering, and Sales and Technical Service). Medvene and Shuem found that engineering students in general are more likely to describe their dominant parent as Avoiding than as either Accepting or Concentrating, which supports Roe's propositions. In addition, students choosing a Sales and Technical Service Job function (defined as person oriented) are more likely to describe their dominant parent as Accepting, while those in the other three function groups (defined as non-person oriented) are more likely to describe their dominant parent as Avoiding. The results offer new support for Roe's (1957) theory that individuals reared in families where the dominant parent is perceived as primarily Avoiding develop spheres of interest centered around non-person-oriented occupations.

The pioneer research on the relationship between vocational satisfaction and needs gratification was conducted by Hoppock in the
early 1930s (Crites, 1969). Hoppock administered his Job Satisfaction Blank to 500 teachers in and around the metropolitan New York area along with other measures. Some of the conclusions were (1935b, pp. 26-40):

1. The satisfied showed fewer indications of emotional maladjustment.
2. The satisfied were more religious.
3. The satisfied earned about the same as the dissatisfied.
4. Familial relationships and social status were more favorable among the satisfied.
5. More of the satisfied actively "selected" their vocations rather than getting into them by "chance."

Kuhlen (1963) has also studied need satisfaction in relation to vocational satisfaction and suggested some hypotheses: (1) those individuals whose measured needs are relatively stronger than the potential of the occupation for satisfying those needs will tend to have more frustration and hence will be less satisfied with their occupation: (2) this relationship will hold to a greater degree among men than among women. Kuhlen collected data from 203 teachers-in-service (108 males, 95 females) and confirmed the first two hypotheses. Two qualifications should be noted. First, the relationship holds only for men, presumably because the occupation (teaching) is more important to them as a source of need satisfaction than it is to women; and, second, vocational satisfaction was correlated with perceived, not actual satisfaction of needs in the occupation (Crites, 1969, p. 512).

Positive expectations of positive attitudes towards teaching seem to stem from gratification of the need for self-actualization in one's work (Tanner and Lindgren, 1971). The cross-cultural applications of this proposition seems evident. A study completed in 1964
by the Socio-Pedagogical Laboratory of the National Pedagogical Institute in Mexico reveals certain insights into the cultural, economic and social life of school teachers in Mexico City (Gill, 1969, p. 100). The researchers concluded that teachers express significantly more love for their profession when it is freely chosen, 86 percent of the teachers sampled expressed high satisfaction with their job, and the chief reason for expected change to another job was economic.

Shappell, Hall, and Tarrier's (1971) study adds findings that support the hierarchical arrangement of needs as postulated by Maslow and Roe as they are revealed in occupational terms (p. 46). Their randomly selected sample was comprised of 1,025 high school students (600 sophomores and 425 seniors) from three suburban public schools in Hawaii, North Carolina, and Florida. The consistently higher scores achieved by seniors on most of the scales indicate that their closer proximity to occupations and maturity were consistent with the higher order level needs measured by Personal Satisfaction, Belongingness, Self-Actualization, and Creativity-Independence on the instrument developed by the author.

Certainly, Roe's model is comprehensive. She states propositions and behavioral implications which have stimulated the numerous attempts to test the theory. The inability of many investigators to put the theory to a rigorous test is recognizable and is probably the result of the basic difficulty of adequately assessing parent-child interactions after they have occurred. Such aspects, according to Osipow's (1968) review of the theory are not easily resolved even
through the use of longitudinal studies. A summary of the research is presented now in order to aid the reader in evaluating and understanding the extensive research that has and still stimulates inquiry into occupational interest and choice based upon Roe's Theory.

Summary of Research on Anne Roe's Theory

Roe's predictions of occupational interest and choice have been studied from many points of view and with references to a variety of antecedents or determinants such as family background, needs, parent-child interaction, sex, birth order, etc. Significant correlations have been reported but research has been plagued with inconsistent findings and partial support for Roe's theory. Roe's theory has focused on person orientation dimensions, needs satisfaction, and parent-child relations as vital antecedents in vocational development. Her work has served as a guide to the study of the interaction between the early childhood experiences and the development of person orientation dimensions, which influence the interest in one or more related general vocational choice groups.

Roe's research into the life and background of eminent male scientists, being an imaginative step forward in an attempt to relate personality factors to occupational choice, has paved the way for her subsequent theoretical statements about the antecedents of vocational choice. However, an appraisal of her work must conclude that the validity of her early studies of eminent scientists is dependent upon the accuracy of the retrospective reports given about their parents' attitudes and behaviors, early preferences and interests, feelings about themselves and other people, and also upon Roe's clinical
interpretations of the interviews given along with the Rorschach and TAT interpretations. Any generalization from her early conclusions to the general population must take this into account.

In order to understand vocational development in general specific studies in different cultural situations are useful in view of the assumption that culture provides a context in which the individual validates his vocational self (Stump, Jordan, & Friesen, 1967).

More recent attempts to test Roe's theory have been done based on objective measures of perceived attitudes in the family emotional attitudes; e.g., PCR, BQ, FRI. These instruments have been used to assess the three basic parental attitudes proposed: Emotional Concentrating, Accepting and Avoiding; these three attitudes reputedly serve as antecedents later towards person or non-towards person orientation and subsequent vocational directions. Emotional Concentration represents over-protective or over-demanding parental attitudes and lead the child to develop a more towards person orientation than not, when compared to the Avoidance category which represents parental attitudes that lead the child to an orientation non-towards persons.

Studies conducted on the theoretical propositions amenable to research with objective measures have reported a variety of findings since 1959. A total of twenty-six different attempts have been made to test both aspects of the general theory: the parental dimensions of this inquiry, or the occupational classification system developed.
Brunkan and Crites (1964) devoted their efforts to developing a statistically reliable instrument (FRI) to assess the parental attitude variables described by Roe. Lambert (1966) developed a revision of the Roe and Siegelman Parent-Child Relations Questionnaire, which was used as the Lambert-Parker Revision (L-PCR) with adolescent girls, and reported that the predominant directions favor Roe's predictions of non-person orientation for the cold, rejecting, and demanding relationship with mothers. Shappell, Hall, and Tarrier (1971) report support for the hierarchical arrangement of needs in occupational satisfaction, as postulated by Maslow and Roe, as they are revealed in occupational terms and they also consider counseling applications for Roe's model.

Seven studies have been devoted to the occupational classification system proposed in the dimensions of activity and levels (Moser, Dubin and Shelsky, 1956; Meir, 1959; Crites, 1962; Osipow, 1966; Kios, 1967; Lunneborg and Lunneborg, 1968; Borgen and Weiss, 1968). Out of these studies only four support the original scheme.

Studies on selected aspects of Roe's general theory have used 9,505 or more Ss and each of the occupational groups have been represented by students or professionals in the fields described. The ages for the Ss range from seventh-graders expressing their "probable," "possible," and "fantasy" choices to adults successfully involved in an occupational group and male doctoral level students with the field of Psychology. Seven studies (Grigg, 1959; Hagen, 1960; Switzer et al., 1962; Utton, 1962; Smart, 1969; Appleton, 1969; Brown, 1971) have found no significant support for the theory, when using the range of occupational classifications or more than
one classification for comparisons. Seven studies have found partial support favoring some of the theory predictions (Hagen, 1960; Roe & Siegelman, 1964; Green & Parker, 1965; Byers, Forrest & Zaccaria, 1968; Appleton & Hasen, 1969; Simmons, 1975). Three studies have found significant support for the theoretical predictions (Bunkan & Crites, 1964; Medvene, 1969; Medvene & Shueman, 1978), when using a selected classification and its inner dimensions of person orientation; e.g., Male Psychologists (Medvene, 1969) and Male Engineers (Medvene and Shueman, 1978) to test the towards person and non-toward person orientation variable in different activities within the same career group.

The FRI has been most valuable in assessing the perceived family emotional relationships described by Roe, and has been used in recent studies that have provided support for Roe's predictions within Psychology and Engineering students. The Sum Relate Score on the PII and the BQ Subtest IV, to identify the dominant parent, are also important instruments in assessing the variables now under consideration. The JSB No. 5 provides a valid measurement of overall job satisfaction (Crites, 1966) and is flexible enough so as to be used for a measure of Expected-Job-Satisfaction among teachers in training. The correlation of the variables Expected-Job-Satisfaction and Orientation Toward Persons (Sum Relate Score) with the raw FRI category scores is an exploratory aspect to be considered alongside the framework of Roe's Theory which could be an asset to the predictive counseling applications of the model. The Chi-Square analysis procedure and the use of a given occupational group suggested
by Medvene (1969) and Medvene and Shueman (1978) was followed in this study.

It does not seem plausible that only one model of career choice would ever be applied to the exclusion of all others. But educational psychologists and vocational counselors could apply pertinent research findings in their counseling goals and strategies whenever possible.

Table 5--Summary of research on Roe's Theory and Occupational Classification System--which follows, represents a review in chronological order of the research on her propositions since 1959.
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Ss</th>
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<tbody>
<tr>
<td>Grigg (1959)</td>
<td>Careers and family atmosphere: a test of Roe's theory</td>
<td>Female graduate students in nursing and science</td>
<td>44</td>
<td>15-item questionnaire designed for this study, no validity or reliability information reported.</td>
<td>&quot;It appears that some variable other than experience of parental reactions during childhood are more pertinent to adult occupational choice.&quot;</td>
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<tr>
<td>Hagen (1960)</td>
<td>Childhood experiences and parental attitude: a test of Roe's theory</td>
<td>Harvard graduates</td>
<td>245</td>
<td>Longitudinal (1938-42), vocational, social, personal and medical data</td>
<td>Roe's theory is not supported by these data. Except in the case of a casual family atmosphere.</td>
</tr>
<tr>
<td>Switzer, Grigg, Miller &amp; Young (1962)</td>
<td>Early childhood experiences and occupational choice: a test of Roe's hypothesis</td>
<td>Graduate and undergraduate students in theology and chemistry</td>
<td>120</td>
<td>questionnaire designed by authors</td>
<td>No consistent relationship between occupational choice and parental attitude. Some results were opposite of theoretical expectations.</td>
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<tr>
<td>Litton</td>
<td>Recalled parent-child relations as determinants of vocational choice</td>
<td>Female social workers, occupational therapists, dietitians, laboratory technicians</td>
<td>127</td>
<td>Allport Inventory of Values, childhood Experience Rating Scale</td>
<td>Findings are not consistent with Roe's theory</td>
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<tr>
<td>Crites</td>
<td>&quot;An Interpersonal relations Scale for occupational groups.&quot;</td>
<td>Students</td>
<td>100</td>
<td>Student ranking of 8 occupational fields for degree of interpersonal relations</td>
<td>Error in Roe's theory in the degree of importance that person orientation has for a career responsible for failure to validate original position. New scale proposed.</td>
</tr>
<tr>
<td>Roe &amp; Siegelman</td>
<td>The Origins of Interests</td>
<td>Male and female engineers and female social workers</td>
<td>235</td>
<td>Biographical Information, Questionnaires, Inventories, 16 P F test</td>
<td>Roe's theory may be valid in accounting for the way that childhood experiences affect adult person orientation among males.</td>
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<td>Author</td>
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<td>Brunkan &amp; Crites (1964)</td>
<td>&quot;An Inventory to measure the Parental Attitude variables in Roe's Theory of Vocational choice.&quot;</td>
<td>College students (1) (100)</td>
<td>342</td>
<td>Family Relations Inventory</td>
<td>High reliability and content validity. High test-retest reliability and internal consistency of instrument supporting the assumption of a positive relationship between perceived and actual family atmosphere.</td>
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<td>College students (2) (142)</td>
<td>Prison Inmates (100)</td>
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<tr>
<td>Brunkan (1965)</td>
<td>&quot;Perceived parental attitudes and parental identification in relation to field of occupational choice&quot;</td>
<td>Male college students</td>
<td>298</td>
<td>Family Relations Inventory (FRI)</td>
<td>No systematic connection for &quot;possible&quot; and &quot;fantasy&quot; choices and family environment. Support only for &quot;probable&quot; choices in scientific career interest and parental avoidance.</td>
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<td>Author</td>
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<td>Lambert (1966)</td>
<td>&quot;A revision of the parent-child Relations Questionnaire to investigate Roe's occupational choice theory with Adolescent girls&quot;</td>
<td>Adolescent girls</td>
<td></td>
<td>Lambert-Parker Revision of the PCR</td>
<td>Girls' relationship with mothers that were cold, rejecting and demanding oriented towards non-person occupations more predominantly than towards person occupations, though without statistical significance.</td>
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<tr>
<td>Osipow (1966)</td>
<td>&quot;Consistency of Occupational Choices and Roe's Classification of occupations</td>
<td>Male and female freshmen at Penn. State University.</td>
<td>193</td>
<td>182 Personal Information Blank prior to enrolment indicating vocational choices.</td>
<td>Results show significant systematic relationship between Roe's classification of occupation and first and second vocational preference (psychological climate similar to that of the first choice).</td>
</tr>
<tr>
<td>Lunneborg &amp; Lunneborg (1968)</td>
<td>&quot;Roe's Classification of occupations in Predicting Academic Achievement.&quot;</td>
<td>College students and High School students</td>
<td>3,918</td>
<td>Biographic Information, SES academic achievement tests, GPA, etc. Intended Vocation Forms.</td>
<td>These occupational codings typically correlate uniquely with academic criteria, contributing to multiple predictors for academic</td>
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<tr>
<td>Byers, Forrest &amp; Zaccaria (1968)</td>
<td>&quot;Recalled Early Parent-Child Relations, Adult Needs, and occupational choice. 'A Test of Roe's Theory.&quot;</td>
<td>Male Theological Students and adult Clergymen.</td>
<td>271</td>
<td>FRI EPPS</td>
<td>Adult needs as measured by EPPS were significantly related to recalled parent-child relations measured by the FRI. Partial support for the person dimensions in Group VII.</td>
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<tr>
<td>Appleton &amp; Hasen (1969)</td>
<td>&quot;Parent-Child Relations Need-Nurturance, and Vocational Orientation.&quot;</td>
<td>Secondary school students (69 males and 104 females)</td>
<td>173</td>
<td>PCR Need-Nurturance instrument designed by authors.</td>
<td>Students oriented toward persons had significantly higher need-nurturance. Partial support for Roe's Theory.</td>
</tr>
<tr>
<td>Medvène (1969)</td>
<td>&quot;Occupational choice of Graduate Students in Psychology as a Function of Early Parent-Child Interactions&quot;</td>
<td>Male Graduate Students</td>
<td>461</td>
<td>BQ (Roe and Siegelman's)</td>
<td>Significant relationships between perceived home atmosphere and vocational choice within the two person dimension in psychology. Support for the Theory.</td>
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<tr>
<td>Smart</td>
<td>&quot;Recalled Family Relations and vocational choice: A Test of Roe's Theory.&quot;</td>
<td>Male adults from 7 occupational categories</td>
<td>190</td>
<td>FRI</td>
<td>No significant differences found for any of the groups.</td>
</tr>
<tr>
<td>Appleton</td>
<td>&quot;A study of Parent Child Relations and vocational choice.&quot;</td>
<td>Male and Female 8th graders</td>
<td>425</td>
<td>PCR</td>
<td>No significant relationships found. Questions theoretical person orientation classification by composite groups.</td>
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<tr>
<td>Meir</td>
<td>&quot;Empirical Test of Roe's Structure of Occupations and an Alternative Structure.&quot;</td>
<td>Israeli boys aged 13-14 in last year of Elementary School</td>
<td>1,114</td>
<td>3 Interest (A, B, C) Questionnaires comprising 117 occupations set up in clusters</td>
<td>The stipulated radex structure of this Roe's classification not confirmed, but occupations in each field found to be in hierarchical order. An Alternative Structure established for use in Israel.</td>
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<tr>
<td>Brown</td>
<td>&quot;A Reconstruction of Roe's Theory: An Examination of Three Vocational Groups--Physical Education, Education, and Fine Arts.&quot;</td>
<td>University Students majoring in Physical Ed., Education, Fine Arts.</td>
<td>100</td>
<td>Roe's Biographical Questionnaire, Blum's Attitudes in Vocational Choice; Maslow's Security-Insecurity Inventory</td>
<td>(1) the reconstructed needs theory is not functional in predicting the relationship of early experiences to selection of college major, (2) the two safety needs</td>
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<td>Shappell, Hael &amp;</td>
<td>&quot;An Application of Roe's Vocational Choice Model.&quot;</td>
<td>High School Students in</td>
<td>1,025</td>
<td>Inventory based on Roe's Model Maslow's need categories developed by author.</td>
<td>Findings support hierarchical arrangement of needs as postulated by Roe and Maslow. Maturation (seniors) does have an effect upon direction and intensity of needs.</td>
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<td>Tarrier (1971)</td>
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<td>Hawaii, North Carolina,</td>
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<td>And Florida</td>
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<td>Martins (1974)</td>
<td>&quot;Anne Roe's Theory in Relation to John Holland's Personality Types and Selected Parent-Child Interaction Variables.&quot;</td>
<td>Males who had participated</td>
<td>65</td>
<td>Case Histories; FR1; Martin's Part II: Family Relations Inventory.</td>
<td>Minimal support was found for Roe's parental attitudes accounting for Realistic, Intellectual, and Enterprising occupational personality types hypothesized by Holland. Parents of Realistic Ss had the highest consistent percentage of &quot;avoiding&quot; ratings.</td>
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<td>High School Graduates.</td>
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<td>Simmons</td>
<td>&quot;Family Atmosphere A Determinant of Occupational Choice--A Test of Roe's Hypotheses&quot;</td>
<td>Texas Community College Students in 5 occupational areas</td>
<td>296</td>
<td>FRI, BQ</td>
<td>Support for the Null hypotheses. Notable exceptions noted among ethnic groups. Weight composite score on the FRI and occupational choice hint support of the underlying hypothesis.</td>
</tr>
<tr>
<td>Medvene &amp; Shueman (1978)</td>
<td>&quot;Perceived Parental Attitudes and choice of Vocational Specialty Area among Male Engineering Students.&quot;</td>
<td>Male engineering Students in their chosen major job function.</td>
<td>340</td>
<td>FRI</td>
<td>The results offer significant support for Roe's theory (individuals reared in families were the dominant parents is perceived Avoiding gravitate to non-person oriented activities).</td>
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CHAPTER III

METHODOLOGY

This chapter includes a description of the methodology followed in the study which was completed in June 1981. Description of subjects, instruments used, procedure followed, and analysis of the data are given with a restatement of the research hypothesis in terms of the null statistical hypothesis tested.

Subjects

The subjects considered were all the students on campus in the teacher training program at the University of Montemorelos, Nuevo Leon, Mexico (1980-81). According to the enrollment figures for the third quarter (Spring 1981) there were 239 students in the two schools of education on campus and 72 students off campus in field service full-time teaching as part of their degree requirements. Field or social service teaching is carried out for one year at schools coordinated by the Seventh-day Adventist Church under the sponsorship: Civil Philanthropic and Educational Association (ACFE). This sample (298 subjects) includes 118 males and 180 females.

Subjects off campus defined under the term "teachers in training" received the questionnaires through the mail with instructions for answering the four instruments. Earlier mail and telephone contacts were made to recruit cooperation. Sixty-four (64) question-
naires were returned and answered, eight (8) were lost in the mail (as confirmed by follow-up letters returned by the school responding to a second inquiry on May 10, 1981). Second mailing to replace lost questionnaires did not produce greater percentages for mail returns. Returns used are representative of fifteen of the sixteen schools contacted off campus, with 93.33 percent male and 85.71 percent female subjects responding. These subjects are completing social service teaching and/or attending summer sessions regularly at the University as part of the degree requirements while working at ACFE schools in North, Northeast, Southeast, South, West, Northwest, and Central regions of Mexico.

Subjects on campus were administered the questionnaires at the regularly schedule Monday morning (Normal School) and afternoon (School of Education Sciences) group assemblies. Permission was granted from the Vice-President of Academic Affairs by telephone conversation following a letter of introduction to the study and letters to the school directors (department chairmen).

Three hundred and three (303) subjects responded to the questionnaires given. One hundred percent returns was obtained for the campus group. This was obtained after administering seven questionnaires in the evening of the same day to subjects who were late or absent from the assemblies mentioned above. Five of the campus questionnaires were rejected, because of incomplete responses or failure to follow the full instructions as written. The total N was 298 for statistical purposes (234 Ss on campus, and 64 Ss off campus). Table 6, Tabulation of Returns, presents in summary
### TABLE 6

**TABULATION OF RETURNS**

<table>
<thead>
<tr>
<th>School</th>
<th>Sex</th>
<th>Number of Teachers in Training</th>
<th>Number of Respondents</th>
<th>Usable Returns</th>
<th>Percentage Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Male</td>
<td>35</td>
<td>35</td>
<td>34</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>86</td>
<td>86</td>
<td>83</td>
<td>100.00</td>
</tr>
<tr>
<td>Education</td>
<td>Male</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>62</td>
<td>62</td>
<td>61</td>
<td>100.00</td>
</tr>
<tr>
<td>Field</td>
<td>Male</td>
<td>30</td>
<td>28</td>
<td>28</td>
<td>93.33</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>42</td>
<td>36</td>
<td>36</td>
<td>85.71</td>
</tr>
<tr>
<td>Totals</td>
<td>Male</td>
<td>121</td>
<td>119</td>
<td>118</td>
<td>98.34</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>190</td>
<td>184</td>
<td>180</td>
<td>96.84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>311</td>
<td>303</td>
<td>298</td>
<td>97.42</td>
</tr>
</tbody>
</table>

From returns as organized by schools, sex, usable returns, and the corresponding percentages of returns. The sample represents 97.42 percent of the target population as shown in table 6. There were 39.59 percent male and 60.41 percent female subjects in the total sample.

The teacher training program is divided into two schools with separate facilities and faculty. One program, the Normal School, is a four-year preparation for Elementary School teachers only and starts...
after completion of Middle or Secondary School (which is 9th grade equivalent). The decision to pursue an occupational choice must be made at the end of ninth grade, at which time the student has other alternatives like entering a technological center or going on to Preparatory School (10th to 12th grades) for a university pre-professional preparation. The School of Education Sciences has a four-year college level (Licenciate Degree) program starting after completion of Preparatory School and prepares teachers for Middle and High School teaching. These students are trained in basic teaching skills as well as in one of five subject area majors which are: Language Arts, Educational Psychology, Natural Sciences (Biology and Chemistry), Physics-Mathematics, and Social Sciences (History and Geography). In this respect the education program at the University of Montemorelos is unique when compared to other Universities in Mexico, which do not offer majors in teacher education. Middle and High School teacher training, in different subject areas, is traditionally part of extra two-year "Superior Normal School" program at the National Pedagogical Institute and not in the University.

These subjects will serve and are serving the special needs of schools sponsored under the Civil Philanthropic and Educational Association (ACFE). ACFE sponsors 141 Elementary Schools, 16 Middle and 7 High Schools, with an enrollment of 13,299 students during the 1980-81 school year. The data obtained from subjects on campus and off campus could prepare the way for the development of educational counseling strategies in the framework of Roe's theory. Conclusions from this study are proposed within the limits of the teacher training sample under consideration in this inquiry.
Instruments

The subjects were asked to answer four inventories taking a mean time of forty minutes. The first was the Person Interest Inventory (PII) developed by Roe and Siegelman (1964) to measure person orientation in two subsets with 17 items (see appendix A1) each for Curiosity and Relate. The latter was used and is the more important for the purposes of this study. This inventory was developed after pilot studies to distinguish between interest in persons on the basis of curiosity about them, and on the basis of desiring close emotional contact with them. The Sum Relate has a correlation of .85 with composite measure of person orientation from (1) factors AEFHQ2 in Cattell's 16 Personality Factor Test; (2) group scores from eight items in the Biographical Questionnaire (Roe and Siegelman, 1964); and (3) Towards- or Not-Towards Person Ratings: An interview scale used by independent clinical investigators for The Origin of Interest study conducted by Anne Roe and Marvin Siegelman (1964). Items 2, 3, 6, 8, 9, 11, 16, 18, 21, 23, 24, 25, 27, 28, 30, 32, and 33 are summed for the relate score. A Sum Relate score (SR) of 41 or below indicates the major Orientation Toward Persons postulated in the general theory. No reliability or validity data was available.

The second instrument was a short version of the Biographical Questionnaire (BQ) also developed by Roe and Siegelman (1964). This subtest was designed to identify the dominant parent in the home. A dominance score is obtained by summing the scores of the BQ Subtest VI (five items). Scores of 20 and above indicate mother
dominance; scores below 20 indicate father dominance (Medvene and Shueman, 1978). The term dominance indicates that parent who has had the greater influence in decision making in general, as perceived by the subject. This measure is proposed to be consistent with Roe's postulation that individuals reared in families where the dominant parent is perceived as Accepting or Concentrating develop interests centered around (and related to) the towards person-oriented occupations (see appendix A2.) No reliability or validity data was available.

The third instrument was the Family Relations Inventory (FRI) developed by Brunkan and Crites (1964) to measure the parental attitudes variables proposed by Anne Roe (see appendix A3). The variables measured are: (1) parental acceptance, (2) parental avoidance, and (3) parental concentration in six subscales: Mother Avoidance, Mother Acceptance, Mother Concentration, Father Acceptance, Father Concentration, and Father Avoidance. The test is administered to subjects who evaluate the truthfulness of statements about their mother's and father's behavior, attitudes, reactions to them, and expectations for them during childhood and adolescence.

Sample items are: Acceptance—"My mother gave me encouragement when I needed it most." Avoidance—"My father spent very little time with me when I was growing up." Concentration—"My father often expected me to do more than I thought I could." The emphasis is on "perceived" parental attitudes since Roe's theory implies that it is the individual's interpretation of his experiences which significantly influences his vocational choice. The evidence of content
validity was obtained in the following manner: an original pool of 313 items was given to three judges—two clinical psychologists and a counseling psychologist—for categorization into the three variables or "questionable." The 187 items on which there was unanimous agreement were selected for the test. The "father concentrating" scale then had only 16 items and to make this scale comparable to the others, fifteen items on which only two judges agreed were added to it. Items in the FRI are applicable to Ss as low as ninth or tenth grade and equally to males and females. Internal consistency coefficients range from \( r = .82 \) to \( r = .90 \) with the exception of one—the "father concentration" with \( r = .59 \). The intercorrelations are consistent with Roe's circumplex and the acceptance and avoidance scales are essentially uncorrelated with the others. The rationale for this is that an attitude of acceptance precludes one of avoidance (and conversely), whereas an attitude of concentration does not necessarily imply either acceptance or avoidance (Brunkan and Crites, 1964, p. 8). For the analysis of scale intercorrelations a sample of college students and prison inmates was used and the findings support the prediction. The results not only agree with Roe's conceptualization but also with the research from the California Growth Study (Schaefer, 1959; Schaefer, Bell and Bayley, 1960). Significant \( r's \) are reported between the FRI scales and Griggs (1959) questionnaire and Utton's (1962) rating scale.

The split half reliabilities reported were \( r: .82, .83, .92, .90, .59 \) for the mother's avoidance, acceptance, and concentration, father's avoidance, acceptance, and concentration, respectively. The
test-retest r's were: .98, .90, .80, 97, .93, .73, as above. The
test-retest r's were obtained on a sample of 72 males and female
college students who took the inventory twice within a month (Straus,
1969).

The fourth instrument was Hoppock's (1970) Job Satisfaction
Blank No. 5 (JSB), with a written statement requesting the subject
to answer the items in terms of his or her perceived Expected-Job-
Satisfaction (EJS) in teaching. This type of blank was first de­
vised by Hoppock in 1933. Through the years other researchers have
used the JSB (Brayfield and Rothe, 1951; Schletzer, 1966; Sherman,
1969) with success in studies related to job satisfaction. The
split-half reliability of the blank, correlated by Spearman-Brown
formula, was .93. The raw correlation was .87.

John O. Crites' (1966) test reviews indicate that Hoppock
experimented with several procedures for scoring responses to the
questions, but none was more effective than computing the arithmetic
sum of the scale values for the answers marked. Thus the range of
raw scores is from four (lowest satisfaction) to 28 (greatest satis­
faction). The JSB is divided into equivalent halves (Questions 1
and 3 vs. Question 2 and 4). Hoppock obtained an odd-even internal
consistency estimate of .93 for a sample of 309 employed adult
workers. The Brayfield Rothe Index of job satisfaction correlated
(r=.92) with the Hoppock JSB. Crites (1966, p. 122) concludes that
the Hoppock JSB is probably the best for most purposes: it is easy
to administer and score, it takes only a couple of minutes to com­
plete, it is applicable to all occupations, it is internally consist­
tent, and it is reasonably valid. Questions are answered along a
seven-point Likert-type scale (see appendix A4).

The JSB developed from a concept of satisfaction as "any combination of psychological, physiological, and environmental circumstances that cause a person truthfully to say, "I am satisfied with my job" (Hoppock, 1935, p. 47). A person may be satisfied with one aspect of his job and dissatisfied with another yet the definition assumes that it is possible for him or her to balance the specific or expected satisfactions against present or future dissatisfactions and thus arrive at a composite satisfaction with the job as a whole. Following Hoppock's Percentile Ranks and Scores three estimated levels of Expected-Job-Satisfaction were used: High EJS = 24 points or more, Moderate EJS = 15 to 23 points, Low EJS = 4 to 14 points.

Harmon (1966), attempting to separate the factors Job Satisfaction and Occupational Satisfaction, used the Hoppock JSB as an instrument, and concluded that they are not separate. Her study contributed to the validity data on the JSB as an overall measure of satisfaction (p. 299). She added that the JSB is an instrument that lends itself to adaptation as an Occupational Satisfaction measure in part because the JSB is tapping global attitudes toward a job based on personal needs and a perceived composite satisfaction which lends itself to adaptation also as a measure of Expected-Job-Satisfaction (EJS).

A Spanish translation of the instruments described was used in the study. The Spanish translation developed by the researcher was pilot tested for language accuracy and adaptation in December
1979 and again in July 1980 with the necessary revisions from the first pilot test with a small sample of the target population. The final version that appears in appendix B was used after revision and approval by the faculty of the Language and Literature Department at the School of Education Sciences of the University of Montemorelos. Instruments were color coded to add visual variety and speed identification. In the group testing arrangement, the subjects took a mean time of 40 minutes to respond to all the instruments.

Written permission was granted by John C. Crites (February 11, 1980), Robert H. Hoppock (November 8, 1980), and Anne Roe (November 12, 1980) for use of the Spanish translation of their instruments and of the evaluation criteria required for the study.

**Procedures**

The procedures followed in this study were the following:

1. Permission was requested to use a Spanish translation of the instruments FRI, BQ Subtest VI, PII-Subscale Relate, and the JSB No. 5 from the authors indicated.

2. Letters of introduction and explanation were sent to teachers, principals, and to ACFE headquarters in Mexico City. Instruments were mailed to subjects off campus. Telephone follow-up calls were made to ACFE headquarters in Mexico City and to the field schools to insure endorsement and speedy return mailing of responses. Answered instruments were sent over land to ACFE headquarters in envelopes provided for this purpose and returned by airmail to the researcher during the months of April and May, 1981.

3. The researcher traveled to the University of Montemorelos
in order to administer the instruments in the Normal School and School of Education Sciences. Confirmation of endorsement and available dates were obtained via telephone communications from the Vice-President of Academic Affairs.

4. A brief explanation was given to the subjects as to the purpose and value of their responses with assurances of confidentiality. Subjects took a mean time of forty minutes to answer all the inventories during the regularly scheduled morning and afternoon Monday assembly periods.

5. Instruments were hand scored and classified into the appropriate category variables from the scores obtained on each instrument used. This task was completed that last week of May 1981.

6. The data was analyzed at the Andrews University Computer Center. Computer programs used for testing the null hypotheses were Chi-Square Tests of Independence and Goodness of Fit and BMD05R for Correlation Coefficients with a Plot of Observed and Predicted Values.

Null Hypotheses

The research hypotheses have been restated and were tested in the form of a statistical proposition which states, essentially, that there is no relation among the variables that cannot be attributed to chance and invites the researcher to disprove that proposition. Such a statistical proposition is called the null hypothesis. Null hypotheses tested in this study were the following:

1. There is no statistically significant difference between the frequency of Ss in the Concentrating, Accepting, and Avoiding
categories of family emotional relationships.

2. There is no statistically significant difference between the frequency of male Ss in the Concentrating, Accepting, and Avoiding categories of family emotional relationships.

3. There is no statistically significant difference between the frequency of female Ss in the Concentrating, Accepting, and Avoiding categories of family emotional relationships.

4. There is no statistically significant relationship between the frequency of Ss in the Orientation Towards Persons category and the family emotional relationship categories.

5. There is no statistically significant relationship between the frequencies of Ss in the Orientation Toward Persons category and in the Expected-Job-Satisfaction categories.

6. There is no statistically significant relationship between the frequencies of Ss by sex category and the family emotional relationship categories.

7. There is no statistically significant correlation between the Sum Relate score and the Accepting, Concentrating, and Avoiding category scores.

8. There is no statistically significant correlation between the Expected-Job-Satisfaction score and the Accepting, Concentrating and Avoiding category scores.

9. There is no statistically significant difference between the frequency of Ss with Orientation Toward Persons for the Accepting and Concentrating categories combined.

10. There is no statistically significant difference between
the frequency of Ss with Orientation Not Toward Persons in the Avoiding category.

Analysis of the Data
The null hypotheses were tested for statistical significance by use of the Chi-Square Test of Goodness of Fit and Test of Independence, and the Product Moment Correlation with Regression Analysis. A Computer file was built with the data, and programs for the analysis of the data were developed by the Andrews University Academic Computer Services.

Hypotheses 1, 2, and 3 were tested using a Chi-Square Test of Goodness of Fit. In this kind of analysis an array of categories of sample frequencies or proportions is tested against an expected normal distribution or prescribed set which comprises the null hypothesis. The probability of occurrence of frequencies for the three parent dominant FRI categories is hypothesized as the same as the expected population ratio or an equal number of observations in each category. The .05 level of significance, for the appropriate degrees of freedom, was used to test the statistical significance of the observed frequencies.

Hypotheses 4, 5, and 6 were tested using a Chi-Square Test of Independence. In this kind of analysis, or particular case of a test of Goodness of Fit (Ferguson, 1976, p. 193), two variables are involved. The data was arranged in the form of a Contingency Table. Hypothesis 4 was tested basically on a Contingency Table with three columns of parent dominant Accepting, Concentrating, and Avoiding categories and two rows for person orientation: Orientation Toward
Persons and Orientation Not Toward Persons. Hypothesis 5 was tested on a Contingency Table with three rows for EJS: High, Moderate, Low; and three columns for the FRI categories. Hypothesis 6 was tested with a Contingency Table with two rows for sex and three columns for the FRI categories.

Hypotheses 7 and 8 were tested for statistical significance by the Product Moment Correlation Coefficient as the indicator of association between the variables selected. When the variables are significantly associated the corresponding regression equations are useful estimates for exploring educational counseling strategies.

Ranges, Means, and Standard Deviations were computed on the data and data subgroups in an endeavor to provide a wide description of the data and to facilitate answers to more specific questions of interest to future researchers.

Hypotheses 9 and 10 were tested using a Chi-Square Goodness of Fit analyses with a 3:1 ratio. These hypotheses endeavored to establish a comparative test of Roe's two person orientation predictions within the General Culture sample. This direction was considered worthwhile for comparing Roe's propositions with Medvene (1969) and Medvene and Shueman (1978) study of the predicted composite nature of an occupational group.
CHAPTER IV

STATISTICAL ANALYSES OF THE DATA

This study endeavored to test Roe's predictions for vocational interest and choice among the General Culture Group using a sample of teachers in training. The sample population was drawn from subjects in the teacher education program at the University of Montemorelos. Two hundred and ninety-eight subjects were used, which constituted 97.42 percent of the population.

Roe's predictions are based on the early family emotional background perceived by the individual and its predicted influence on the later need satisfaction patterns demonstrated by vocational interest and choice. The pattern of needs, according to Roe, develop in the context of the perceived dominant parent in the home. Therefore, the prediction in this study is that a significant frequency of individuals, reporting a predominantly Concentrating home background, would be found in the General Culture Group VII. Also these individuals reporting a predominantly Concentrating background would be significantly characterized by that major Orientation Toward Persons (OTP).

It can be inferred from the theory that individuals in the OTP classification would report High Expected-Job-Satisfaction when contemplating teaching as a career commitment. General Culture occupations have a major focus on people as a means of needs satisfaction.
It has been predicted in an exploratory phase that individual raw Accepting and Concentrating category scores (X) would correlate with the corresponding Orientation Toward Persons (OTP) and Expected-Job-Satisfaction scores (Y) in a linear pattern. It has also been predicted that the individuals' raw Avoiding category score (X) would correlate with the corresponding Orientation Toward Persons and Expected-Job-Satisfaction scores (Y) in a negative linear pattern based on the underlying theoretical propositions. The theoretical propositions would indicate that the more intense the Avoiding home background the greater the Orientation Not Toward Persons therefore the lower Expected-Job-Satisfaction would be in a General Culture occupation like teaching. The more intense the Accepting and Concentrating home background the greater the Orientation Toward Persons therefore the higher Expected-Job-Satisfaction with a General Culture occupation like teaching.

The purpose of this chapter is to present the data findings and the analyses of the data. The following section presents the general data available from the study for the total sample and the male and female samples. The next section presents the findings of the data analyses with respect to the ten Null-hypotheses tested in the study.

**Presentation of the General Findings**

The sample was composed of 118 male and 180 female teachers in training. This sample represents 97.42 percent total returns on the instruments used, as shown on table 6. The sample includes sub-
jects on campus and off campus involved in full-time teaching field service in different regions of Mexico for a total sample of 298 subjects.

Table 7 presents the general distribution of subjects by sex and schools for the three family emotional relationship categories of the Family Relations Inventory (FRI). The frequencies show that 13 subjects reported an Accepting home background, 215 subjects reported a Concentrating home background, and 70 reported an Avoiding home background on the FRI scales. The trend supports Roe's prediction that subjects from a Concentrating home background gravitate to General Culture occupations like teaching. This general prediction was illustrated by Roe in the Circumplex model of occupational interests and choice (see figure 1). The Circumplex model specifically predicts that if the attitudes of the parents indicate over-demanding and overprotecting (Concentrating) relationships the children's orientation will be more Orientation Toward Persons than not and they will choose occupations in the General Culture fields.

Table 8 presents the frequencies of subjects in the six major education areas of concentration and those in field service experience in the Accepting, Concentrating, and Avoiding categories on the FRI. The Chi-Square Test of Goodness of Fit for each of the six major education areas of concentration (Elementary, Language Arts, Educational Psychology, Natural Sciences, Physics-Mathematics and Social Sciences) and Field Service experience are significant at the .05 level of significance. The data therefore supports the theoretical predictions in all the sub areas of teaching interests for subjects on campus in the
<table>
<thead>
<tr>
<th>School</th>
<th>Sex</th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal School</td>
<td>Males (N = 34)</td>
<td>1</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Females (N = 83)</td>
<td>5</td>
<td>57</td>
<td>21</td>
</tr>
<tr>
<td>Education Sciences</td>
<td>Males (N = 56)</td>
<td>6</td>
<td>42</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Females (N = 61)</td>
<td>1</td>
<td>41</td>
<td>19</td>
</tr>
<tr>
<td>Field Schools</td>
<td>Males (N = 28)</td>
<td>0</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Females (N = 36)</td>
<td>0</td>
<td>28</td>
<td>8</td>
</tr>
<tr>
<td>Totals</td>
<td>Males (N = 118)</td>
<td>7</td>
<td>89</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Females (N = 180)</td>
<td>6</td>
<td>126</td>
<td>48</td>
</tr>
</tbody>
</table>

University of Montemorelos' teacher education program, as well as among those subjects in social service teaching field experience in ACFE schools in Mexico.
TABLE 8

FREQUENCIES OF SUBJECTS IN THE SIX MAJOR EDUCATION AREAS OF CONCENTRATION AND THOSE IN FIELD SERVICE EXPERIENCE IN THE ACCEPTING, CONCENTRATING, AND AVOIDING CATEGORIES ON THE FRI
(N = 298)

<table>
<thead>
<tr>
<th>Major Areas</th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
<th>( \chi^2 )</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>6</td>
<td>85</td>
<td>26</td>
<td>117</td>
<td>86.50*</td>
</tr>
<tr>
<td>Language Arts</td>
<td>0</td>
<td>8</td>
<td>3</td>
<td>11</td>
<td>6.74*</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>1</td>
<td>12</td>
<td>5</td>
<td>18</td>
<td>8.45*</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td>3</td>
<td>25</td>
<td>11</td>
<td>39</td>
<td>18.31*</td>
</tr>
<tr>
<td>Physics-Mathematics</td>
<td>2</td>
<td>12</td>
<td>1</td>
<td>15</td>
<td>12.15*</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>1</td>
<td>26</td>
<td>7</td>
<td>34</td>
<td>27.89*</td>
</tr>
<tr>
<td>Field Experience</td>
<td>0</td>
<td>47</td>
<td>17</td>
<td>64</td>
<td>51.13*</td>
</tr>
<tr>
<td>Totals</td>
<td>13</td>
<td>215</td>
<td>70</td>
<td>298</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the .05 level

Table 9 presents the frequency distribution of subjects on the mother and father dominant categories in the Accepting, Concentrating, and Avoiding categories of the FRI for the total sample. One hundred and nine subjects reported mother-dominant parental interaction and 189 reported father-dominant parental interaction for the marginal totals. The dominant parent was reported on the basis of that parent.
TABLE 9
FREQUENCIES OF SUBJECTS IN THE MOTHER DOMINANT AND
FATHER DOMINANT CATEGORIES IN THE ACCEPTING, CONCENTRATING, AND AVOIDING CATEGORIES OF THE FRI -
2 X 3 CONTINGENCY TABLE
(N = 298)

<table>
<thead>
<tr>
<th>Dominant Parent (BQ Subtest IV)</th>
<th>FRI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accepting</td>
</tr>
<tr>
<td>Mother-dominance</td>
<td>6</td>
</tr>
<tr>
<td>Father-dominance</td>
<td>7</td>
</tr>
<tr>
<td>Totals</td>
<td>13</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 1.38 \text{(N.S.)} \ 2 \text{df} \]

N.S. = not significant

d.f. = degrees of freedom

perceived as having the greater weight in decision making in the home

The Chi-Square test of Independence for the Contingency Table
\( (\chi^2 = 1.38 \text{ for } 2 \text{df}) \) is not significant, therefore the two criteria of
parent dominance classification are said to be not contingent. There
seems to be independence between the two parent dominance categories
on the Accepting, Concentrating, and Avoiding categories of the FRI
for the total sample.

Table 10 presents the observed and expected frequencies of
subjects in Orientation Toward Persons (OTP) and Orientation Not
Toward Persons (ONTP) for the total sample, assuming a uniform distribu-
tion in the population. The observed frequencies \( (N = 298) \) were
divided into 271 subjects in OTP and 27 subjects in ONTP. Subjects
were classified on person orientations based on their Sum Relate score.
TABLE 10

OBSERVED AND EXPECTED FREQUENCIES OF SUBJECTS IN ORIENTATION TOWARD PERSONS (OTP) AND ORIENTATION NOT TOWARD PERSONS (ONTP)

<table>
<thead>
<tr>
<th>Person Orientation</th>
<th>OTP</th>
<th>ONTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed Frequencies</td>
<td>271</td>
<td>27</td>
</tr>
<tr>
<td>Expected Frequencies</td>
<td>149</td>
<td>149</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 199.78^* \quad 1df \]

*Significant at the .05 level
df = degrees of freedom

on the PII. The Chi-Square Test of Goodness of Fit (\( \chi^2 = 199.78 \) for 1df) is significant at the .05 level of significance. The data lends substantial confirmation to Roe's prediction that if the child has a background of a Concentrating home his or her orientation will be more toward persons than not he or she and will choose a General Culture occupation.

The observed and expected frequencies of subjects in High Expected-Job-Satisfaction (High EJS), Moderate Expected-Job-Satisfaction (Moderate EJS), and Low Expected-Job-Satisfaction for the total sample are presented in table 11. The Chi-Square Test of Goodness of Fit (\( \chi^2 = 137.11 \) for 2df) is significant at the .05 level of significance. The sample was divided into three categories of EJS following the JSB categories and 160 subjects reported High EJS, 133 subjects reported Moderate EJS, and 5 subjects reported Low EJS. The observed frequencies are not a random distribution of frequencies but support
TABLE 11

OBSERVED AND EXPECTED FREQUENCIES OF SUBJECTS IN HIGH EXPECTED-JOB-SATISFACTION (HIGH EJS), MODERATE EXPECTED-JOB-SATISFACTION (MODERATE EJS) AND LOW EXPECTED-JOB-SATISFACTION

<table>
<thead>
<tr>
<th>EJS</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed Frequencies</td>
<td>160</td>
<td>133</td>
<td>5</td>
</tr>
<tr>
<td>Expected Frequencies</td>
<td>99.3234</td>
<td>99.3234</td>
<td>99.3234</td>
</tr>
</tbody>
</table>

$\chi^2 = 137.11^* \quad 2df$

*Significant at the .05 level and .01 level

The trend inferred from Roe's theory. Therefore the commitment to the general culture occupation (e.g., Teaching) seems to be significantly associated with expectation (High EJS) or positive anticipation of a prospective occupation that will meet the subjects' needs.

Table 12 presents the Range, Mean, and Standard Deviation on the Person Interest Inventory (P11) for the Normal School, the School of Education Sciences and the Field Schools. The Sum Relate score was obtained for the purposes of this study from the P11 items as a measure of person orientations. Comparison of means shows 31.61 for the Normal School, 33.03 for the Education Sciences, and 33.28 for the Field Schools. The Analysis of Variance revealed an $F$ of 1.66, which is not significant at the .05 level of significance. The maximum score on Sum Relate for the Orientation Toward Persons (OTP) category was 41 points. The total mean score (32.63) is well within the limits of the OTP predicted in the theory for the General Culture.

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TABLE 12
PERSON INTEREST INVENTORY (SUM RELATE)
RANGES, MEANS, STANDARD DEVIATION
(N = 298)

<table>
<thead>
<tr>
<th>Schools</th>
<th>Normal School</th>
<th>Education Sciences</th>
<th>Field School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum Relate Score</td>
<td>(N = 117)</td>
<td>(N = 117)</td>
<td>(N = 64)</td>
</tr>
<tr>
<td>Range:</td>
<td>17-69</td>
<td>17-73</td>
<td>18-61</td>
</tr>
<tr>
<td>Mean:</td>
<td>31.61</td>
<td>33.03</td>
<td>33.28</td>
</tr>
</tbody>
</table>

Totals
Range: 17-73
Mean: 32.6376
S.D.: 8.0535

Group. The total range of Sum Relate scores was between 17 and 73 with a standard deviation of 8.05. The data would seem to add a contribution to the general propositions and shows unity among the subgroups (schools) in the sample on the variable OTP.

Table 13 presents the Range, Mean, Mean Percentile Ranks, and Standard Deviation on the Expected-Job-Satisfaction Blank (JSB No. 5) for the Normal School, the School of Education Sciences, and the Field Schools. The Expected-Job-Satisfaction (EJS) score was adapted as a measure of overall expectation or anticipation of satisfaction with one's choice of a job. Thus it can be considered a composite measure of anticipation or specific satisfaction with job training in view of the perceived needs to be met by the job. The comparison of means shows 23.94 for the Normal School, with an N of 117; 23.49 for
TABLE 13
EXPECTED-JOB-SATISFACTION BLANK
RANGES, MEANS, MEAN PERCENTILE
RANKS, STANDARD DEVIATION
(N = 298)

<table>
<thead>
<tr>
<th>Schools</th>
<th>Normal School</th>
<th>Education School</th>
<th>Field School</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJS Score</td>
<td>(N = 117)</td>
<td>(N = 117)</td>
<td>(N = 64)</td>
</tr>
<tr>
<td>Range:</td>
<td>10-28</td>
<td>4-28</td>
<td>17-28</td>
</tr>
<tr>
<td>Mean:</td>
<td>23.94</td>
<td>22.49</td>
<td>24.37</td>
</tr>
<tr>
<td>Mean Percentile Rank</td>
<td>76</td>
<td>67</td>
<td>80</td>
</tr>
</tbody>
</table>

Totals

Range: 4-28
Mean: 23.4866

Mean Percentile Rank: 74
S.D.: 3.6948

the Education Sciences, with an N of 117; and 24.37 for the Field Schools, with an N of 64. The Analysis of Variance revealed an F of 8.13, which is significant at the .05 level of significance. The total mean was 23.48, which is equivalent to a Percentile Rank of 74 for Expected-Job-Satisfaction (EJS). The Range of scores was between 4 and 28 with a standard deviation of 3.69. It can be assumed that there is a difference between/among schools in the level of anticipation of a satisfying commitment to teaching. These general data
TABLE 14
MEANS AND STANDARD DEVIATIONS FOR SUM RELATE (SR) AND EXPECTED-JOB-SATISFACTION (EJS) IN THE ACCEPTING, CONCENTRATING, AND AVOIDING CATEGORIES OF THE FRI (N = 298)

<table>
<thead>
<tr>
<th>FRI</th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean SR</td>
<td>31.30</td>
<td>31.80</td>
<td>35.45</td>
</tr>
<tr>
<td>S.D. SR</td>
<td>5.15</td>
<td>7.18</td>
<td>10.18</td>
</tr>
<tr>
<td>Mean EJS</td>
<td>23.69</td>
<td>23.49</td>
<td>23.42</td>
</tr>
<tr>
<td>S.D. EJS</td>
<td>4.51</td>
<td>3.67</td>
<td>3.64</td>
</tr>
</tbody>
</table>

support the proposition that individuals with the background of a Concentrating home relationship look forward to a highly satisfying commitment when choosing a General Culture occupation like teaching and that this relationship is higher for those with experience in teaching (Table 13).

Table 14 presents the means and standard deviations for the Sum Relate (SR) score and Expected-Job-Satisfaction (EJS) score in the Accepting, Concentrating, and Avoiding categories of the FRI for the total sample. The mean SR score for the Accepting category was 31.30; for the Concentrating category it was 31.80; and for the Avoiding category it was 35.45. The Analysis of Variance on the SR score revealed an F of 5.81 which is significant at the .05 level. The Analysis of Variance on the EJS score revealed an F of .0289, which is not significant at the .05 level. The significance differ-
TABLE 15
MEANS AND STANDARD DEVIATIONS IN SUM RELATE (SR) AND EXPECTED-JOB-SATISFACTION (EJS) FOR SUBJECTS HAVING HAD ONE YEAR OF FULL-TIME TEACHING EXPERIENCE (N = 298)

<table>
<thead>
<tr>
<th></th>
<th>No Experience (N = 234)</th>
<th>Experience (N = 64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean SR</td>
<td>32.36</td>
<td>33.62</td>
</tr>
<tr>
<td>S.D. SR</td>
<td>7.93</td>
<td>8.47</td>
</tr>
<tr>
<td>Mean EJS</td>
<td>23.25</td>
<td>24.32</td>
</tr>
<tr>
<td>S.D. EJS</td>
<td>3.80</td>
<td>3.13</td>
</tr>
</tbody>
</table>

ence obtained on the SR score for the family emotional relationship categories would seem to indicate the tendency of individuals in the Avoiding category to score leading in the direction of Orientation Not Toward Persons. This trend offers some support to Roe's general predictions for individuals from the Avoiding category.

Table 15 presents the means and standard deviations for the Sum Relate (SR) score and Expected-Job-Satisfaction (EJS) score for subjects having no full-time teaching experience and subjects having had one year of full-time teaching experience. The mean SR score for subjects (N = 234) with no experience it was 32.36 and for subjects (N = 64) with one year's experience was 33.62. The mean EJS score for subjects with no experience was 23.25 and for subjects with one year's experience of was 24.32. The Analysis of Variance revealed an F of 1.22 (SR), which is not significant at the .05 level.
These differences between the two groups on SR and EJS, would seem to indicate that the two groups are not significantly different on these means and standard deviations. Therefore, there is no reason to consider these groups different on the variables measured in the study. Having had experience in field service teaching does not reveal an appreciable difference between the groups on Orientation Toward Persons (SR score) but more so on EJS for teaching. This would indicate that even after having had field service teaching experience (in ACFE schools) or due to the experience EJS is higher which suggests that their teaching activities contributed to the satisfaction of those needs that concern them most.

Analyses Relevant to the Hypotheses

The null hypotheses set forth in chapter 3 are now examined. Tests of Goodness of Fit and of Independence have been used with the critical ratio required for significance at the .05 level. Yates' correction for continuity for small observed frequencies (5 and less than 5) has been used. The Null-hypotheses were not retained when the test reached the criteria established for rejection. It was said then that the data lend support to the theory proposition underlying the hypotheses for the General Culture Group among the sample. A Chi-Square computer program was used to explore the data for Goodness of Fit and for Independence.

In the cases when a Product-Moment Correlation coefficient was sought (Hypotheses 7-8), it was considered that because of the exploratory nature of the study the hypotheses should be stated in
the non-directional form. This allows for an examination of the possible existence of relationships in any direction. The null-hypothesis was rejected when a correlation was significant at or beyond the .05 level. Otherwise the null is retained. The effect size of .20 places restrictions on the rejection of the null hypothesis since significance correlations which are less than .20 do not indicate appreciable strength. A regression equation for linear prediction was obtained with the correlation. A BMD05R computer program was used to explore the correlations and obtain a plot of the observed and predicted values.

Hypothesis 1

There is no statistically significant difference between the frequency of Ss in the Concentrating, Accepting and Avoiding categories.

TABLE 16

OBSERVED AND EXPECTED FREQUENCIES OF SUBJECTS IN THE ACCEPTING, CONCENTRATING, AND AVOIDING CATEGORIES ON THE FRI FOR THE TOTAL SAMPLE (N = 298)

<table>
<thead>
<tr>
<th>FRI</th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed Frequencies</td>
<td>13</td>
<td>215</td>
<td>70</td>
</tr>
<tr>
<td>Expected Frequencies</td>
<td>99.333</td>
<td>99.333</td>
<td>99.333</td>
</tr>
</tbody>
</table>

\[ x^2 = 218.39^* \]

\[ 2df \]

*Significant at the .05 level and .01 level
df degrees of freedom

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of family emotional relationships.

Table 16 presents the results of the Chi-Square Test of Goodness of Fit relevant to hypothesis 1. The Chi-Square test ($X^2 = 218.39$, 2 df) was significant at the .05 level of significance. Null-hypothesis one is therefore rejected.

The distribution of frequencies on the family emotional relationships was not random. The distribution of frequencies lends support to Roe's proposition that individuals choosing General Culture occupations like teaching come from a family emotional background characterized by a predominantly Concentrating home. Observed and expected frequencies of subjects ($N = 298$) in the three family emotional relationship categories on the FRI for the total sample, assuming a uniform distribution in the population sample, conforms to the trend in Roe's predictions for the General Culture Group. The distribution was divided into 13 Ss reporting an Accepting family emotional relationship, 215 reporting a Concentrating family emotional relationship, and 70 reporting an Avoiding family emotional relationship.

**Hypothesis 2**

There is no statistically significant difference between the frequency of male Ss in the Concentrating, Accepting and Avoiding of family emotional relationships.

Table 17 presents the observed and expected frequencies of male subjects on the parent dominant FRI categories. Observed frequencies for males ($N = 118$) were divided as follows: 7 subjects in Accepting, 89 in Concentrating, and 22 in Avoiding. The Chi-Square
TABLE 17
OBSERVED AND EXPECTED FREQUENCIES OF MALE SUBJECTS IN THE ACCEPTING, CONCENTRATING
AND AVOIDING CATEGORIES ON THE FRI FOR THE TOTAL SAMPLE
(N = 118)

<table>
<thead>
<tr>
<th></th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
<th>Σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed Frequencies</td>
<td>7</td>
<td>89</td>
<td>22</td>
<td>118</td>
</tr>
<tr>
<td>Expected Frequencies</td>
<td>39.329</td>
<td>39.329</td>
<td>39.329</td>
<td>118</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 96.94^* \]

<table>
<thead>
<tr>
<th></th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees of Freedom</td>
<td>2 df</td>
</tr>
</tbody>
</table>

*Significant at the .05 level and .01 level

df: degrees of freedom

test \( \chi^2 = 96.94, 2df \) is significant at the .05 level. Null-hypothesis two is thus rejected. The distribution of male frequencies is not random. The distribution of male subjects suggests that males in the sample predominantly reported coming from a family emotional background characterized by a Concentrating home. The data significantly supports Roe's theory predictions for individuals in a General Culture occupation like teaching.

Hypothesis 3

This is no statistically significant difference between the frequency of female Ss in the Concentrating, Accepting and Avoiding of family emotional relationships.

Table 18 presents observed and expected frequencies of female
TABLE 18

OBSERVED AND EXPECTED FREQUENCIES OF FEMALE SUBJECTS IN THE ACCEPTING, CONCENTRATING, AND AVOIDING CATEGORIES ON THE FRl FOR THE TOTAL SAMPLE (N = 180)

<table>
<thead>
<tr>
<th>FRI</th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed Frequencies</td>
<td>6</td>
<td>126</td>
<td>48</td>
</tr>
<tr>
<td>Expected Frequencies</td>
<td>59.994</td>
<td>59.994</td>
<td>59.944</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 123.61^* \]
2df

*Significant at the .05 level and .01 level

subjects on the parent dominant FRI categories. The distribution of female subjects (N = 180) were divided as follows: 6 subjects in Accepting, 126 subjects in Concentrating, and 48 subjects in Avoiding. The Chi-Square test \( \chi^2 = 123.61, 2df \) is significant at the .05 level of significance. Null hypothesis three is thus rejected. The distribution of female subjects suggests that females in the sample predominantly reported coming from a family emotional background characterized by a Concentrating parent-child interaction.

The data shown on tables 16, 17, and 18 adds support to Roe's theoretical predictions that male and female subjects from Concentrating homes would be predominantly found in a General Culture Occupation (Roe, 1956, p. 320).

Hypothesis 4

There is no statistically significant relationship between
the frequency of $S$s in Orientation Toward Person category and the family emotional relationship categories.

The 3 x 2 Contingency Table with three columns for the parent-dominant categories on the FRI and the two rows for Person Orientation is presented in table 19. Table 19 presents frequencies of subjects in the Orientation Toward Persons (OTP) and Orientation Not Toward Persons (ONTP) in the parent dominant categories on the FRI for the total sample. Null hypothesis four was rejected based on the Test of Independence ($X^2 = 7.19, 2df$) which was significant at the .05 level. Therefore, the proposition that these two variables are not independent but contingent can be entertained. This would mean that the probability of a given individual falling in any one of the categories is influenced by that particular category of the FRI which the individual

<table>
<thead>
<tr>
<th>FRI</th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person Orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTP</td>
<td>13</td>
<td>200</td>
<td>58</td>
<td>271</td>
</tr>
<tr>
<td>ONTP</td>
<td>0</td>
<td>15</td>
<td>12</td>
<td>27</td>
</tr>
<tr>
<td>Totals</td>
<td>13</td>
<td>215</td>
<td>70</td>
<td>298</td>
</tr>
</tbody>
</table>

$X^2 = 7.19^*$ 2df

*Significant at the .05 level and .01 level

$df = \text{degrees of freedom}$
reported. The distribution of frequencies on the person orientations variable and the FRI categories supports Roe's Theory when it specifically predicts that children from Concentrating homes will be more oriented towards persons than not. This seems evident in the greater number of subjects in Mother and Father Concentrating categories who are also Oriented Toward Persons (OTP).

**Hypothesis 5**

There is no statistically significant relationship between the frequencies of Ss in the Orientation Toward Person category and in the Expected-Job Satisfaction categories (High Expected-Job-Satisfaction, Moderate Expected-Job-Satisfaction, and Low Expected-Job-Satisfaction).

Table 20 presents the frequencies of subjects in the Orientation Toward Persons (OTP) and Orientation Not Toward Persons (ONTP) in High EJS, Moderate EJS, and Low EJS categories for the total sample using a 3 x 2 Contingency Table.

The Test of Independence ($X^2 = 9.66, 2df$) is significant at the .05 level of significance. Therefore, Null-hypothesis five is rejected. The Person Orientations categories and the EJS categories are contingent. This means that the probability of an individual falling in any of the EJS categories is influenced by the particular person orientations category in which the individual falls. The observed frequencies on OTP (High EJS = 147 Ss, Moderate EJS = 212 Ss, and Low EJS = 3 Ss) provide grounds for supporting the proposition that subjects classified in OTP on the Sum Relate score were significantly represented in the High EJS category. Roe (1956, p. 320) has pointed out that if the child comes from a Concentration home
TABLE 20

FREQUENCIES OF SUBJECTS IN THE ORIENTATION TOWARD PERSONS (OTP) AND ORIENTATION NOT TOWARD PERSONS (ONTP) IN HIGH EJS, MODERATE EJS, AND LOW EJS CATEGORIES FOR THE TOTAL SAMPLE - 3 X 2 CONTINGENCY TABLE

<table>
<thead>
<tr>
<th>EJS Categories</th>
<th>OTP</th>
<th>ONTP</th>
<th>(\chi^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High EJS</td>
<td>147</td>
<td>13</td>
<td>160</td>
</tr>
<tr>
<td>Moderate EJS</td>
<td>121</td>
<td>12</td>
<td>133</td>
</tr>
<tr>
<td>Low EJS</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>271</td>
<td>27</td>
<td>298</td>
</tr>
</tbody>
</table>

\(\chi^2 = 9.66^*\)  \(2df\)

*Significant at the .05 level

df = degrees of freedom

background then the General Culture occupations are most satisfactory to him or her.

Hypothesis 6

There is no statistically significant relationship between the frequency of Ss by sex category and the family emotional relationship categories.

The Test of Independence \(\chi^2 = 3.34, 2df\) for null-hypothesis six was not significant at the .05 level of significance. Therefore, the null-hypothesis is retained. This would indicate that the two variables: sex and family emotional relationship category are not
contingent (table 21). The probability of an individual falling in any of the family emotional relationship categories is independent of the subjects sex. The retention of the null-hypothesis is nonetheless compatible with Roe's original propositions, that males and females do not differ greatly in their distribution among the three types of family emotional relationship categories. An examination of the cells in table 21 would indicate that there is a tendency for both male and females to report their family emotional background as predominantly in the Concentrating category. This tendency is also consistent with Roe's theory for the General Culture Group VII.

<table>
<thead>
<tr>
<th>TABLE 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQUENCIES OF MALE AND FEMALE SUBJECTS IN THE ACCEPTING, CONCENTRATING, AND AVOIDING CATEGORIES OF THE FRI - 2 X 3 CONTINGENCY TABLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>Accepting</th>
<th>Concentrating</th>
<th>Avoiding</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>7</td>
<td>89</td>
<td>22</td>
<td>118</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>126</td>
<td>48</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>215</td>
<td>70</td>
<td>298</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 3.34 \text{ n.s.} \quad 2\text{df} \]

n.s. = not significant at the .05 level

df = degrees of freedom
Hypothesis 7

There is no statistically significant correlation between the Sum Relate score and the Accepting, Concentrating, and Avoiding category scores.

The correlation coefficients obtained for null-hypothesis seven were the following: for Accepting scores (X) and Sum Relate scores (Y) $r = -0.1249$; for Concentrating scores (X) and Sum Relate scores (Y) $r = -0.1551$; Avoiding score (X) and Sum Relate scores (Y) $r = -0.0081$. None of these correlation coefficients were significant at the .05 level. Therefore, the null-hypothesis is retained. The bivariate frequency distribution on the variable indicated a random distribution. Figures 2A, 2B, and 2C, illustrate the random plot of observed and predicted values between the Person Orientation score and the raw Accepting, Concentrating and Avoiding category scores.

These correlations indicate further that the linear regression model was a poor fit to the data explored in this hypothesis. In interpreting the correlation coefficient it is assumed that the fitting of a straight line to the data does not distort or conceal the functional relation between the two variables. If the relationship is curvilinear, a coefficient of 0 may be obtained and yet a significant relationship may exist between the two variables. The bivariate frequency distribution plot of the values indicates the random nature of the relationship among the variables considered. Therefore, an individual's score on the variable person orientation (by the Person Interest Inventory-Relate score) alone is not a significant predictor of the individual's predominant family emotional relationship (Accept-
Figure 2A. Bivariate Frequency Distribution of Observed and Predicted Values on Accepting and Sum Relate Scores.
Figure 2B. Bivariate Frequency Distribution of Observed and Predicted Values on Concentrating and Sum Relate Scores.
Figure 2C. Bivariate Frequency Distribution of observed and Predicted Values on Avoiding and Sum Relate Scores.
A positive correlation was expected between the person orientation score (Sum Relate score) and the Accepting and Concentrating category scores. Yet negative correlation coefficients were found, which would indicate that as one variable goes up the other goes down. These negative coefficients could be understood in light of the fact that as the individual's Person Orientation score goes up (beyond 42 points in the Orientation Not Toward Person category), his or her Accepting and Concentrating scores (warm, loving and protecting home attitudes) would go down. The negative correlation trend in these scores is, nevertheless, consistent with Roe's general predictions.

Roe's theory proposes that when the individual comes from a home background characterized by the Avoiding parent-child interactions, he or she demonstrates an Orientation Not Toward Persons (41 or more points on the Person Orientation score). The correlation coefficients found for hypothesis seven point in the same general direction trend suggested in Roe's theory but were not strong enough to be significant with this sample.

**Hypothesis 8**

There is no statistically significant correlation between the Expected-Job-Satisfaction score and the Accepting, Concentrating, and Avoiding category scores.

The correlation coefficients obtained for null-hypothesis nine were the following: for Accepting scores (X) and EJS scores (Y) \( r = -0.0068 \); Concentrating scores (X) and EJS scores (Y) \( r = -0.0251 \); Avoiding scores (X) and EJS (Y) \( r = -0.0266 \). None of these correla-
Figure 3A. Bivariate Frequency Distribution of Observed and Predicted Values on Accepting and Expected-Job-Satisfaction (EJS) Scores.
Figure 3B. Bivariate Frequency Distribution of Observed and Predicted Values on Concentrating and Expected-Job-Satisfaction (EJS) Scores.
Figure 3C. Bivariate Frequency Distribution of Observed and Predicted Values on Avoiding and Expected-Job-Satisfaction (EJS) Scores.
tion coefficients were significant at the .05 level.

This data points out that there was no significant association among the variables and that only a random association exists, which does not allow for significant predictions. The bivariate frequency distribution of the variables studied has been represented, in Figures 3A, 3B, and 3C in this order, to illustrate the random nature of the observed values and not a curvilinear pattern.

Therefore an individual's score on the variable Expected-Job-Satisfaction (as measured by the JSB) is not a significant predictor of the individual's antecedent family emotional relationship background (Accepting, Concentrating or Avoiding). The correlations obtained on hypothesis eight indicate that the linear regression model is a poor fit to the data explored in this study. The null-hypothesis was retained since the relationships were not strong enough to justify a rejection of the hypothesis of no correlation. The positive correlation hypothesized between Expected-Job-Satisfaction and Accepting and Concentrating category scores was not found for this data.

Hypothesis 9

There is no statistically significant difference between the frequency of Ss with Orientation Toward Persons for the Accepting and Concentrating categories combined.

Null-hypothesis nine was tested for Goodness of Fit to a population ratio of 3:1, that is, for every 3 teachers reporting Orientation Toward Persons, it was expected that 1 would report Orientation Not Toward Persons. This ratio was based on the extensive literature describing teachers in different studies (Roe, 1956; Sherman, 1969;
Tanner and Lindgren, 1971), that have consistently indicated their interest in and liking for children and persons. This background strongly suggested a population predominantly characterized by what Roe calls Orientation Toward Persons. Based on the literature available, it is believed that the ratio (3:1) used for the expected frequencies would best serve to uncover any real difference beyond what would be expected in a population of teachers. Table 22 presents the test of this null hypothesis.

**TABLE 22**

OBSERVED AND EXPECTED FREQUENCIES OF SUBJECTS IN ORIENTATION TOWARD PERSONS (OTP) AND ORIENTATION NOT TOWARD PERSONS (ONTP) IN THE ACCEPTING AND CONCENTRATING CATEGORIES OF THE FRI (N = 228)

<table>
<thead>
<tr>
<th>Accepting and Concentrating Categories (Casual, Loving, Protecting and Demanding Home)</th>
<th>Person Orientations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OTP</td>
</tr>
<tr>
<td>Observed Frequencies</td>
<td>213</td>
</tr>
<tr>
<td>Expected Frequencies</td>
<td>171</td>
</tr>
</tbody>
</table>

\[
X^2 = 41.25^* \quad 1df
\]

*Significant at the .05 level and .01 level
df = degrees of freedom

The Chi-Square test \(X^2 = 41.25, 1df\) revealed a value that was a significant value at the .05 level, thus the null-hypothesis is rejected. This would mean that teachers in training in the sample reported greater Orientation Toward Persons and significantly greater
than the expected ratio hypothesized from the literature. This data points to real differences beyond what would be expected in a general sample of teacher and supports one aspect of the predictions made by Roe; that individuals in General Culture occupations are predominantly characterized by a loving, casual, overprotective, and over-demanding family emotional relationships background.

**Hypothesis 10**

There is no statistically significant difference between the frequency of Ss with Orientation Not Toward Persons in the Avoiding category.

This null-hypothesis intended to make an evaluation of Roe's predictions that opposite person orientation would be found in the Accepting and Concentrating homes as contrasted with Avoiding homes. Even when her original propositions hypothesize the eight occupational groups as composite units characterized by one major person orientation, the presence of both person orientations within a narrow group of occupational activity has been considered a worthwhile relationship to investigate as reported by Medvene's (1969) and Medvene and Shueman's (1978) research.

Null hypothesis ten was tested for Goodness of Fit to a population of 3:1; that is, for every 3 teachers reporting Orientation Not Toward Persons (in the Avoiding category), it was expected that 1 would report Orientation Toward Persons. This ratio is inferred from the observation that the direction hypothesized by Roe for individuals with a rejecting and neglecting home background must be tested against the reversed ratio used for hypothesis nine, which evaluated a 3:1
ratio for the relationship between the Accepting and Concentrating home and the Orientation Toward Persons predicted.

Table 23 presents the test of null-hypothesis ten. The Chi-Square Test of Goodness of Fit ($X^2 = 124.96, 1\text{df}$) was significant at the .05 level of significance, but in the opposite direction hypothesized. A study of the cells reveals that subjects reporting an Avoiding family background for the dominant parent were characterized by an Orientation Toward Persons. Roe's prediction that most individuals reporting a background of an Avoiding home in the general population would demonstrate that major Orientation Not Toward Persons when considering their vocational commitment.

**TABLE 23**

OBSERVED AND EXPECTED FREQUENCIES OF SUBJECTS IN ORIENTATION TOWARD PERSONS (OTP) AND ORIENTATION NOT TOWARD PERSONS (ONTP) IN THE AVOIDING CATEGORY OF THE FRI (N = 70)

<table>
<thead>
<tr>
<th>Person Orientation</th>
<th>OTP</th>
<th>ONTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding Category (Neglecting and Rejecting Home)</td>
<td>58</td>
<td>12</td>
</tr>
<tr>
<td>Observed Frequencies</td>
<td>17.5</td>
<td>52.5</td>
</tr>
<tr>
<td>Expected Frequencies</td>
<td>124.96*</td>
<td>1\text{df}</td>
</tr>
</tbody>
</table>

*Significant at the .05 level

\(\text{df} = \text{degrees of freedom}\)
The findings on hypothesis ten would indicate that this sample represents more a composite unit than those studied by Medvene. It is interesting then that even subjects from an Avoiding family emotional background reported an interest and concern for intense interaction with people. The data therefore does not support Medvene's (1969) and Medvene and Shueman's (1978) general proposition for both types of person orientation in the occupational groups outlined by Roe. The comparison of opposite predictions made by Roe for the general population, based on the family emotional relationship background, was not supported by this sample, but the data shows those characteristics that would describe teachers in training in Mexico as representing a composite group in contrast to male psychologist and engineers studied by Medvene and Shueman (1978).

It has been indicated above that a significant number of subjects reporting a background in the parent dominant Avoiding category of family emotional relationships have also reported OTP contrary to the expected ONTP for these subjects. The fact that this finding was made in a teacher training group, would indicate (1) that the researcher and the counselor must not overlook those factors that can influence vocational choice and needs. Some of these factors are socioeconomic opportunities, socialcultural expectations, personality variables and religious commitment to service. Further research could entertain a study of the influence of the above factors as particularly significant for subjects from an Avoiding (neglecting and rejecting) home background. Another (2) aspect to be considered is the commitment to redemptive service to others in all areas of professional training pursued in the objective of the University and
a part of the religious commitment professed by the great majority of these subjects as a real influence on the vocational choice of teaching along with a high expectation to satisfy those needs that concern them most in the dynamics of vocational commitment.

Study of a comparative nature is evidently needed in an endeavor to identify other composite occupational groups in the Mexican socioeconomic vocational scheme which could add further support for Roe's predictions. This study with teachers in training has pointed out new avenues of research and constitutes a first step in the endeavor to explore Roe's theory and its possible contributions to educational psychology in Mexico.
CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This study sought to evaluate aspects of Anne Roe's theory of vocational interest and choice within a General Culture occupation like teaching. On the basis of information which Roe and other researchers have made available, it was thought that the null hypotheses would constitute a test of some of Roe's ideas. Accordingly, 298 Ss in the teacher training program at the University of Montemorelos, N. L., Mexico (1980-81) and in social service teaching were used for the statistical test of the ten hypotheses proposed.

Teachers in training are representative of the General Culture Group VI--Level 2 in Roe's Two-Way Classification of Occupations. It was assumed at the outset that the data on Roe's propositions within the limits of the sample would be an important first step in testing the cross-cultural applications of some of her propositions. The data would make available for future research a unique source for establishing local norms when using the FRI and comparing other occupational groups defined by Roe. It was also assumed that this study, when combined with the methodology suggested by Medvene's (1969) and Medvene and Shueman's (1978) studies, could add support to their observation that lack of earlier support for Roe's theory regarding vocational choice was due to the fact that
Summary

In 1966, Roe presented a theory of the origin of interest in connection with the determination of vocational choice. This theory, presented in her book *The Psychology of Occupations* (Roe, 1956), was a general one and vocational interests were considered a special case of the more general personality pattern. A revised statement of the theory was presented by Roe and Siegelman (1964) after further study. Her propositions focused on family emotional relationships, major person interest dimensions and subsequent vocational interests. Because early satisfactions and frustrations occur chiefly in the home, and are usually particularly related to the dominant parent, the early relations between parents and children are an obvious focus of Roe's work. She proposed a circular model of parent-child relations, person orientation dimensions, and vocational interest groups which is called the "Circumplex" (Figure 1, p. 5).

Osipow (1968) maintained that Roe's original work reflects a strong psychoanalytic tone. Her use of concepts of unconscious motivations with antecedents in early childhood and of psychic energy are evidence of such a bias. She also makes use of Maslow's (1964) motivational concepts as a framework in accounting for and relating to basic human needs and their expression in the vocational dimensions of life. Roe's use of Maslow's motivational system accounts for vocational choice as an expression of the self-actualizing tendency. Hoppock (1963), like Roe, proposed that occupations that we choose are the ones that we believe will best meet the needs
that most concern us. Consequently, "satisfaction can result from a job which meets our needs today or from a job which promises to meet them in the future" (Hoppock, 1963, p. 115).

Studies which have failed to support Roe's hypotheses have generally been conducted with subjects who had been committed to an occupation many years and then asked to recall antecedent parent-child relationships. Green and Parker's (1965) study is an exception to that general observation in that they used a sample of seventh grade students. The failure of these studies has been attributed to low validity of instruments used, false assumptions about the adequacy of the samples to represent extremes in the Orientation Toward Persons and Orientation Not Toward Person groups, and too global classification of occupational groups when studying a large number of occupations. The fact that Roe has attempted to account for a very complex behavior (choice of an occupation) from the basis of family emotional relationships and person orientations narrows the theory to the point that it may exclude many important variables.

Early studies which generally support Roe's hypotheses are characterized by more complete data and better methodology. Later studies used objective tests with samples of students in differing fields of academic concentration and adults in the diverse occupations. While many researchers viewed an entire occupation classification as either person oriented or non-person oriented, yet more recent studies support the idea that within major occupational groups like both person orientations. These supportive studies have focused on one major occupational group and have compared the two person
orientations within that one group with family emotional relationships categories as a test of Roe's theory using male student samples.

One of the major hurdles which made a test of Roe's theory difficult was that of measuring her constructs of parent dominant acceptance, concentration, and avoidance. This task was made more rewarding by Brunkan and Crites' (1964) Family Relations Inventory, which is an improvement over previous instruments in reported reliability and validity.

The sample used in this study of a General Culture group consisted of 118 male and 180 female teachers in training from three teacher education levels: Normal School--Elementary Education (N = 117), Education Sciences--Secondary Education (N = 177), and Field Training Schools (N = 64). The percentage of returns constituted 97.42% of the population and 95.81% constituted the usable returns. The instruments used were the Spanish language translation of the FRI, the PII, the BQ-Subtest VI, and the JBS No. 5 (Expected-Job-Satisfaction) with written permission from the authors. The concept of Expected-Job-Satisfaction as defined for use in this study was an exploratory variable to be studied within the context of Roe's theory.

Statistical evaluation of the data was concluded at the Andrews University Academic Computer Services in June 1981. Ten null hypotheses were tested on the basis of Roe's propositions (Circumplex Model) that those individuals gravitating to the General Culture Occupations (like teachers in training) are characterized by a major Orientation Toward Persons and come from a background of predominantly Concentrating homes. This prediction was set against a theoretical assumption of a uniform distribution in the three
family emotional relationship categories (1:1:1) for hypotheses one, two, and three using a chi-square test of Goodness of Fit.

During its standardization the FRI was administered to 314 college students (Iowa Sample). The distribution of scores on the parent dominant family emotional relationship categories indicated that this group reported a definite tendency to see both parents as Accepting rather than Concentrating or Avoiding (Brunkan and Crites, 1964). The authors add that "the implications are that there may be institutional or subcultural differences in perceived parental attitudes" (p. 7). Simmons (1975), using the FRI found that Mexican-American students in Texas Community Colleges perceived their mothers as Concentrating (p < .05) and their fathers as Avoiding (p < .05). When these studies are combined with Medvene's (1969) results with 290 male psychology students the population ratio obtained is Accepting: .27, Concentrating: .41, Avoiding: .32. Medvene and Shueman's study with male engineering students revealed a population ratio of Accepting: .29, Concentrating: .27, and Avoiding: .44. These norms served as a base for selecting the criteria of a uniform distribution (1:1:1) as an acceptable theoretical norm for this explanatory study. Local norms are important in order to establish a solid experience-based norm for future research using the FRI to test Roe's constructs of parental acceptance, concentration, and avoidance in Mexico.

Conclusions

It does not seem plausible that only one model of career choice would ever be applied to the exclusion of others. However,
Roe's theory constitutes a challenging formulation when it states that early needs satisfaction patterns learned in the home as a result of the early parent-child interactions, predict later occupational choice. More cross cultural studies along these lines would be of interest in order to deepen our understanding of the role of theory and educational counseling strategies in different vocational settings. The questions asked at the outset of this study were directed to the following issues:

1. Is Roe's prediction that Concentrating parent-child interaction background is characteristic of the General Cultural Group VI supported by the distribution of subjects in the family emotional relationship categories?

2. Is Roe's prediction that Concentrating parent-child interaction background is characteristic of the General Culture Group VI supported by the distribution of male and female subjects in the family emotional relationship categories?

3. Is Roe's prediction that individuals choosing General Culture occupations (like teaching) would be characterized by a major Orientation Toward Persons (OTP) supported by the frequencies of subjects falling in this category?

4. Are there significant differences between the frequencies of male and female subjects in the family emotional relationship categories?

5. Are there significant differences between the frequencies of subjects in the Expected-Job-Satisfaction levels and the family emotional relationship categories to the extent that these variables
could be considered contingent?

6. Is there a significant correlation between the Sum Relate score and the parent dominant Accepting, Concentrating, and Avoiding scores?

7. Are there significant correlations between the Expected-Job-Satisfaction scores and the parent dominant raw Accepting, Concentrating, and Avoiding scores?

8. Are Roe's predictions that Person Orientation is a function of an antecedent family emotional relationships supported by the frequency of subjects from these types of homes in the Orientation Toward Persons and Orientation Not Toward Persons categories?

An answer to these questions was sought by way of the null hypotheses proposed as an exploratory test of some of Roe's predictions using a sample of teachers in training in Mexico.

Null hypothesis one stated that there is no statistically significant difference between the frequency of Ss in the family emotional relationship categories of the FRI. This null-hypothesis one was rejected at the .05 level. The analysis of data lends initial support to Roe's predictions of that trend in which individuals choosing an occupations in the General Cultural Group are significantly characterized by a family relations background in the Concentrating category. Concentrating parents devote a disproportionate amount of time and energy to the direction and control of the child, either by encouraging dependence and restricting exploration or by making demands upon the child to perform beyond his or her capacities.

Assuming a uniform distribution of subjects in the three FRI
Categories the Chi-Square Test of Goodness of Fit did not support a random distribution of subjects. Subjects in the parent dominant Concentrating category formed 72.15 percent of the total sample.

Null-hypotheses two and three, directed to the male and female respectively, stated that there is no statistically significant difference between the frequency of Ss in the family emotional relationship categories of the FRI by sex. Both hypotheses were rejected at the .05 level of significance. Thus both male and female samples reported a significant background of family relationships in the Concentrating category, thus supporting Roe's theory prediction.

Null-hypothesis four stated that there is no statistically significant relationship between the frequency of Ss in the Orientation Toward Persons and in the family emotional relationship categories. Null-hypothesis four was rejected at the .05 level of significance. This would seem to support Roe's theory that individuals choosing General Culture occupations are also characterized by a major Orientation Toward Persons (OTP). In the total sample 90.94 percent of the subjects were classified in OTP based on their Sum Relate scores. Roe believes that if the child is reared in a home in which the dominant parent is perceived as either primarily Accepting or primarily Concentrating he or she develops a needs satisfaction pattern which serves as an antecedent to person-oriented occupational interests. Evidence was shown in the Test of Independence that the two variables Persons Orientations and family emotional relationships are not independent but highly correlated.

Null-hypothesis five stated that there is no statistically significant difference between the frequency of Ss in the Orientation
Toward Persons and in the Expected-Job-Satisfaction categories. Null-
hypothesis five was rejected at the .05 level, which means that the
two variables, Person Orientation and Expected-Job-Satisfaction, are
not independent. Thus the individual's Orientation Toward Persons is
also correlated with the level of Expected-Job Satisfaction. These
findings were consistent with Roe's use of Maslow's (1954) motivational
framework applied to vocations and Hoppock's (1963) view that when a
particular job offers a promise of satisfaction in those needs that
concern us most, the individual expresses high job satisfaction with
the vocational choice.

Null-hypothesis six state that there is no statistically
significant relationship between the frequency of male and female
Ss in the family emotional relationship categories of the FRI.
Null-hypothesis six was retained because the relationship of the
two variables was not significant at the .05 level of significance.
This Test of Independence showed that the two variables are inde­
pendent. Therefore, sex has not been shown to be a significant
moderator variable in the distribution of scores in the Accepting,
Concentrating, and Avoiding family emotional relationships.

Interestingly enough, Roe's original propositions did not
single out sex as a significant factor in the development of speci­
cific parent-child interaction attitudes and needs satisfaction
patterns. Recently Roe (1979) has called for researchers to develop
insights into the unique role and development of women as pertains
to vocational aspects.

Null-hypotheses 7 and 8 stated that there is no significant
correlations between the Person Orientation scores and the raw FRI category scores, and between the Expected-Job-Satisfaction score and the raw FRI category scores. The relationship found was not a good fit to the linear regression model. This permitted the null-hypotheses to be retained. The bivariate frequency distribution of values illustrated the random nature of the relation for each of the hypotheses.

The correlation coefficients for prediction sought between the scores on Person Orientation (Sum Relate Score) and the scores on perceived family emotional relationships and between Expected-Job-Satisfaction scores (EJS) and the scores on perceived-family emotional relationships would be useful in developing exploratory counseling strategies from Person Orientation data. Thus it would seem plausible that from the individual's Sum Relate score on the Person Interest Inventory, the counselor could infer a counselee's family emotional background and relate it to the vocational guidance endeavor. Therein offering the educational counselor one more insight relevant to the framework of Roe's theory. Expected-Job-Satisfaction score was also thought to be a potential measure from which to predict the individual's Accepting, Concentrating, and Avoiding category on the FRI. But these correlations were not strong enough to reject the null-hypotheses 7 and 8, therefore no predictive statements could be made when using only the PII and/or the JSB to explore Roe's theory.

Several hypotheses were offered to explain the retention of the null-hypotheses: (1) The scores used for prediction (Sum Relate score and Expected-Job-Satisfaction score) of the raw Accepting,
Concentrating, and Avoiding parent-child relationships were too narrowly conceived and do not take other important variables into consideration; (2) The Sum Relate scores and Expected-Job-Satisfaction scores do not take the place of the FRI scales for assessing the vast array of behaviors encompassed within the parent-child interaction inventories; (3) At best, it remains questionable that the subtle nuances of parent-child interactions could be accurately predicted from instruments not intended for that purpose. Ideally, a combination of additional objective test information, interview data, and longitudinal observations of on-going behaviors should be gathered in an attempt to test the proposed relationships.

Null-hypotheses 9 and 10 tested the effect of the two person orientations forming the core of Roe's theory. Hypothesis 9 was statistically supported by the date. Thus those individuals with a background of Accepting and Concentrating homes report an Orientation Toward Persons. But hypothesis 10 was not supported. In fact, those individuals from an Avoiding home also report a major orientation Toward Persons. These results do not offer support for Medvene's (1969) and Medvene and Shueman's (1978) contention. But they do support the trends proposed in Roe's theory for the General Culture classification as a composite group.

Implications

First, the findings in the present study would imply that:

a. Roe's theory of vocational interest and choice holds
some promise for helping educators understand the kind of parent-child interaction background and person orientation that influence vocational commitment to a General Culture occupation like teaching.

b. Roe's postulations that occupations are chosen to meet and satisfy the major person orientation, associated with the predominant parent-child interaction pattern, needs further study in Mexico with cross group comparisons.

c. The Mexican family cultural context, which consists of a variety of forces, each influencing vocational development to some degree would seem to offer support for those relevant aspects of Roe's theory studied here within the General Culture Group.

Secondly, the findings and the random relationships inferred from the correlation coefficients found in analyzing the data on the sample of teachers in training would imply that:

a. The development of counseling strategies from Roe's theory for the General Culture Group should include additional objective test information, interview data, and longitudinal observations of on-going experiences to quantify the array of variables that influence expected job satisfaction, as well as vocational interest and choice.

b. The Person Orientation score and the Expected-Job-Satisfaction score alone do not serve as significant exploratory measures by themselves for assessing the vast antecedents of parent-child interaction and do not take the place of the Family Relations Inventory in overcoming the hurdles of measuring Roe's constructs of parental acceptance, concentration, and avoidance.

Shappell, Hall, and Tarrier (1971) have noted that most studies...
investigating Roe's model were designed to predict selected types of vocational events from Propositions of her formal model; and very little research has been reported on applied studies with her model as it might relate to counseling. It is appropriate to add, along the lines suggested by Shappell, Hall, and Tarrier, that educators and counselors might set goals to assist people in identifying and understanding their psychological needs in the choice of an occupation. Assessment of the individual's major person orientation in the context of the antecedent parental relationships might help the individual explore with new insights those occupational groups which appear to have the best potential for satisfying his or her most important needs. Meaningful dialogue between the counselor and the counselee concerning person orientations and the vocational expectations in teaching can be a very useful encounter.

Recommendations for Further Study

1. Further research in testing Roe's theory should include comparative study across the eight occupational group classifications in order to test the wider group predictions of the theory within the Mexican socioeconomic vocational setting.

2. To date, research with Roe's theory has concentrated on the upper occupational levels and there is a need for closer investigation of the lower level occupational groups in Mexico, as well as in other countries. Cross-group comparisons should include the full range of occupational levels as well.

3. Collection of more normative data on the Family Relations Inventory for age, sex, socioeconomic levels, and in various social-
cultural groups is recommended.

4. In depth analyses of the correlation patterns existing between parent-child interaction attitudes, job satisfaction, and person orientations on a longitudinal basis.

5. The development of more Spanish language instruments to assess the parent-child interaction patterns in the Mexican family life will be useful for further research with Roe's theory, as well as other theories in educational psychology.

6. Longitudinal study of the factors that contribute to vocational interest and choice and the satisfying vocational life in Mexico and in other countries.
APPENDIX A
A 1  PERSON INTEREST INVENTORY (P11)
A 2  BIOGRAPHICAL QUESTIONNAIRE-SUBSET VI FOR PARENT DOMINANCE
A 3  FAMILY RELATIONS INVENTORY (FRI)
A 4  JOB SATISFACTION BLANK NO. 5 (JSB)

APPENDIX B
SPANISH TRANSLATIONS OF THE
B 1  PERSON INTEREST INVENTORY (P11)
B 2  BIOGRAPHICAL QUESTIONNAIRE-SUBSET VI FOR PARENT DOMINANCE
B 3  FAMILY RELATIONS INVENTORY (FRI)
B 4  JOB SATISFACTION BLANK NO. 5 (JSB)
APPENDIX

A 1 PERSON INTEREST INVENTORY (PII)

A 2 BIOGRAPHICAL QUESTIONNAIRE-SUBSET VII FOR PARENT DOMINANCE

A 3 FAMILY RELATIONS INVENTORY (FRI)

A 4 JOB SATISFACTION BLANK NO. 5 (JSB)
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