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AN EXPLORATORY STUDY OF WOMEN IN TRADITIONALLY MALE  
PROFESSIONS AND TRADITIONALLY FEMALE PROFESSIONS  
AND THE ROLE OF CREATIVITY IN THEIR  
CAREER CHOICES

by

Miriam Yu

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
(Education)  
in The University of Michigan  
1972

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Professor Allen Menlo

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## CHAPTER I

### INTRODUCTION TO THE STUDY

#### Background and Need for the Study

In almost every field creativity is recognized to be the most important and distinguishing characteristic of outstanding individuals. Without creativity, the possession of intelligence, special talent, and technical skills is not enough for great success in the sciences and the arts. Thus the discovery and enhancement of creativity are of great concern to some contemporary psychologists and educators.

In the psychological study of creativity, there are four emphases: products, process, measurement, and personality. The approach of utilizing personality and stylistic modes as criterion variables to judge the creative person holds promise for providing a fundamental and developmental understanding of creativity (Golann, 1963).

Empirical studies concerning personality characteristics of creative individuals and the factors that motivate them are many, but few (Getzels and Csikszentmihaly, 1964, Casldan, 1966, Helson, 1967b, 1968, 1969) differentiate the characteristics between men and women. A reader would get the impression from creativity studies that creativity is

only found in men, and that women are much less creatively productive. Is this impression distorted? Or is it true? The provision for a correct answer requires an investigation of creativity in women.

The only writer who conducted a series of studies on creativity of women is Helson (1959, 1961, 1965, 1966, 1967a, 1967b, 1968, 1969, 1970) of the Institute of Personality Assessment and Research at the University of California, Berkeley. She studied the cognitive style, personality traits, and developmental history of college women who were nominated by faculty members as high in creative potentials in the arts, sciences, and humanities. Her initial subjects for inquiry were senior students at Mills College. Her later studies included women students from the University of California. Helson also studied women mathematicians who held Ph.D. degrees throughout the country. Comparisons of creative style and sex differences of these mathematicians with less creative women mathematicians and with creative men mathematicians were made.

The major findings of Helson's studies indicate that creative college women are potentially very similar to creative men. They are independent in judgment, original, flexible, sensitive, intuitive, open, and intellectually assertive and effective. They are receptive to their own inner life, and free from over-conventionality. They are interested in the different, complex, and uncrystallized rather than in the simple and practical. They are generally more "masculine"

and have a strong need for accomplishment and a strong motivation to take the creative role.

The creative college women were reported to have more solitary and imaginative and artistic interests in childhood, whereas the less creative college women commonly preferred social plays or group activities.

Even brothers and sisters of the creative college women were found to score higher on measures of cognitive traits related to creativity. The creative women and their brothers both gave evidence of a productive achievement orientation whereas the sisters of the creative women did not. The creative college women were found to be either first-born or second-born with an elder brother. The father of the creative girl was a man of high educational level and moral seriousness.

Other studies on creativity of women include those by Anastasi and Schaefer (1969) and Schaefer (1970), and the one by Bachtold and Werner (1970).

Anastasi and Schaefer (1969) found the creative girls to have had more absorbing interests and to have had a variety of experiences. They participated in more extracurricular activities in school, and have developed a more fully and ambitious college plan. The father, rather than the mother, had more influence on the creative adolescent girls. The common personality characteristics related to creativity found in the adolescent boys (Schaefer and Anastasi, 1968) were also found in the creative adolescent girls.

Schaefer (1970) studied ten exceptionally creative girls and found his subjects very similar to the creative adolescent boys in personality traits.

Bachtold and Werner (1970) studied women psychologists and reported that their successful academic creative women resembled much the same personality characteristics as those of successful men. A comparison of personality characteristics of creative women and less creative women of the same field has been made, but no differences were found between different fields or between male-dominated professions and female-oriented professions thus far.

Indeed, "a search of the literature revealed that studies of the personality characteristics of creative women have been exceedingly rare" (Bachtold and Werner, 1970). The question whether women are potentially as creative as men, or whether their creativity development is being inhibited, or whether women who choose sex-typed professions are different from those who invade the men's territory, is of urgent concern. The nature and nurture of creativity in women should receive the same attention as has been given to creativity in men.

#### Purpose of the Study

This proposed study was exploratory in nature. It aimed:

- (1) to present two personality profiles in general. One is of women who choose traditionally male professions, and the other is of women who choose traditionally female professions.

(2) to select a group of women whose personality profiles resemble those of people judged to be creative and to compare the differences in personality characteristics and background experiences between the "creative" group of women who choose traditionally male professions and the "creative" group of women who choose traditionally female professions.

(3) to propose hypothetical models for the nurturance of creativity of women.

In recent years, publications (Farber and Wilson, 1963; Epstein, 1970) concerning women's potentials, women's education, women's status, percentage of women in the work market, percentage of women in various professions, and their role conflicts, indicate that socialization has influenced a great deal the developmental process of girls. Bardwick's (1971) theory on dependency of girls, and Horner's (1968) finding of the fear of success in college women reveal the negative results of stereotypic, traditional child rearing and expectations for women. Lacking the personality trait of independence, which is found to be very important for creativity by many psychologists (Oden, 1968; MacKinnon, 1962a; Drevdahl, 1964; MacKler, 1967; Barron, 1963); and having a fear of success make it impossible for women to demonstrate creative achievement. This may be the salient reason why women are less creatively productive.

The present study is relevant to the socialization of girls. The family environment that nurtures creativity of girls, the activities that creative girls prefer, and the parent, either the same sex or the cross sex, who has the

most influence on the girls concerning development of their creativity and their choice of profession are variables which will be explored. It is also hoped that ultimately, the discovery of personality traits that characterize creative women will help women be aware of their potentiality, and choose professions in which they are most capable and interested in order to make long-term planning for their work in the future.

### Limitations

There are several limitations of the present study which will restrict the degree to which the findings might be generalized. First, women in the same sex-typed profession may differ widely or resemble each other very much on certain personality characteristics. Therefore the degree of discrepancy or similarity of a certain personality trait varies within the group. Secondly, the sensitivity of the instruments used is another limitation. Although a pilot study was tried out before the actual research, yet the fineness of the possible classifications of categories and variables is still questionable. Thirdly, the reliability of instruments (16 PF and Adjective Check List) used for measurement of creativity is again another limitation. It is hoped that they are highly reliable and that the creative scores obtained from both instruments agree satisfactorily when correlations are made.

### Definition of Terms

(1) Traditionally male profession is defined as a profession in which women have been underrepresented according to the U.S. Census, 1960.

(2) Traditionally female profession is defined as profession in which women have been over-represented according to the U.S. Census, 1960.

(3) Creativity is defined in terms of the particular contribution of 16 Personality Factors found by Cattell and associates and of the 27-item creativity scale developed from the Adjective Check List by Gough. Creativity is thus described in terms of personality rather than product or behavior.

(4) Personality is defined in terms of the patterning of factors on the 16 Personality Factor Questionnaire by Cattell and Eber (1968). The 16 PF Questionnaire is a factor analytically developed personality questionnaire, designed to measure the major dimensions of human personality.

(5) The creative woman is defined in terms of the characteristic pattern of factors on the 16 PF for highly creative people as described by Cattell and Drevdahl (1955) and Cattell and Butcher (1968). The degree of similarity is based on a weighted creativity score. The creative woman is therefore one whose personality pattern is similar to that of creative people.

(6) Masculine personality characteristics is defined in terms of characteristics commonly considered as typically masculine--" objective, analytic, active, tough-minded, rational, unyielding, intrusive, counteracting, independent, self-sufficient, emotionally controlled, and confident" (Bardwick, 1971, p. 100).

(7) Feminine personality characteristics is defined in terms of characteristics commonly considered as typically feminine--"subjective, intuitive, passive, tender-minded, sensitive, impressionistic, yielding, receptive, empathic, dependent, emotional, and conservative" (Bardwick, 1971, p. 100).

### Questions to be Explored

This research is exploratory in nature and aims to explore the following questions:

#### Question 1

An exploration of similarities and differences in personality characteristics and background experiences between women who choose traditionally male professions and women who choose traditionally female professions.

#### Question 2

An exploration of similarities and differences in personality characteristics and background experiences between creative women who choose traditionally male professions and creative women who choose traditionally female professions.

### Experimental Design and Procedures

The total sample consisted of two groups of professional women. One group represented those in traditionally male professions (engineering, pharmacy, architecture, medicine, law, natural sciences, college tutoring, business administration, etc.); the other group represented the traditionally female professions (social work, elementary school

teaching, nursing, library science, home economics, dietetics, etc.). Three research instruments--the 16 PF Questionnaire, the Adjective Check List, and the Biographical Questionnaire were administered. The selection of creative subjects was based on the creativity scores obtained from the 16 PF and the Adjective Check List. A t-test for the reliability in the two respective distributions of creative scores obtained from the 16 PF and the Adjective Check List was computed.

The data derived from the personality variables and the biographical variables were statistically computed and analyzed.

Details of the procedures and the instruments used for conducting this research are provided in Chapter III.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### Personality Characteristics of Creative Individuals

(1) Creative individuals in different fields and at different levels investigated by various psychological methods.---Much of the experimental work on creativity has been inspired by the pioneering efforts of Guilford. The primary goal of his work was to understand human intelligence in general, including the thinking processes of individuals when they are in the act of creative production. He and his associates began to search for the psychological process of thinking in the early 1950's. Guilford's factor analyses and the three-dimensional model for the structure of the intellect have been proposed as a model to evaluate intelligence as well as creative thinking.

Of all the factors embodied in the Guilford's theoretical system, it has been the distinction between convergent and divergent thinking that has had the most important research consequences. The ingenious tests that Guilford and his associates constructed in divergent thinking, as contrasted with convergent thinking, calling for the production of multiple possible solutions rather than single correct answers, appeared promising in the measurement of creativity.

After several comprehensive factor analyses had been made, Guilford (1959) reported that the factors most clearly involved in creative thinking were those that had been labeled originality, redefinition, adaptive flexibility, spontaneous flexibility, associational fluency, expressional fluency, word fluency, ideational fluency, elaboration, and probably some evaluation factors. This analysis made it possible to produce batteries of creativity tests for use in industrial and educational settings.

The conception of divergent abilities is a key concept in the work of Getzels and Jackson (1962), Cline et al. (1962), Torrance (1962), Yamamoto (1964) and in a considerable number of related inquiries.

The best known investigation to produce systematic evidence that creativity and intelligence might be independent traits was the work of Getzels and Jackson (1962). The chief result of their study with school children was that there was a relatively low relationship between IQ and measures of creativity. They found that creativity is a function of intelligence and that intelligence is a necessary condition, but not a sufficient condition for creative development. Torrance (1962), using eight different samples, arrived at a similar conclusion; that is, there were low coefficients of correlation between creativity measures and various IQ measures for people of various age levels.

In their studies, Getzels and Jackson (1962) found that the highly creative children were more stimulus-free,

more fanciful and humorous, more independent, more domineering, more ambitious, and more divergent in thinking, either in innovation or in experiment. They held less conformist values, and were prone to overachieve in school work relative to their IQ.

Another pioneer in the psychological study of creativity is Anne Roe who used another approach in the study of personality traits of scientists in various fields. In her studies (1951a, 1951b, 1953) of physicists, biologists, psychologists and anthropologists, Rorschach, TAT, Verbal-Spatial-Mathematical test were administered individually to each of her subjects. Roe found that personality differences were more crucial than differences in intelligence. She concluded that fairly high intelligence with a very high degree of persistence and motivation was more characteristic of the most eminent scientists rather than very high intelligence with less persistence. In her psychological study of eminent biologists (1951a), in addition to persistence and intensity of devotion to work, her subjects were found somewhat retarded in psychosexual development. Most of them were rather conventional.

Her study of physical scientists (1951b) revealed that her subjects developed an early independence and intense private interest which were shared with very few others. They tended to read widely. They bore responsibility for the social repercussions of their work, and making a social contribution was a source of great satisfaction to them. They were

very high in intellectual functioning, capable of doing tremendous amount of work with high concentration, but they were asocial and anxious.

The group of eminent psychologists and anthropologists in her study (1953) showed greater productivity and creativity, more originality but less control. They possessed the traits of independence and curiosity. They had the feeling of separateness from others, and the sense of being socially useful and happy in their work. Their preference for working on their own and the certainty of their worth in their work undoubtedly made them successful.

Eiduson (1958) administering Rorschach and selected TAT cards to all subjects observed that the artists showed most marked differences from non-artists. The artists looked for ways of thinking that were original and unusual. Their interests were broad and more theoretical and abstract than realistic and practical. Elaborate fantasy was marked in their thinking. The motivations of the artists included both the desire for personal recognition and for self-expression.

Barron (1963) studied the relation between creativity and independence of group judgment and found that 25% of the subjects held firmly to their own opinions. The "independents" differed quite markedly from the "yielders" in their self-image as elicited by the Gough Adjective Check List. The "independents" had a strong positive valuation of originality, a high degree of emotional reactivity and excitability. They were open-minded, but lacked social ease, and the social virtue such as tact and prudence. They were

more able to deal comfortably with complex and contradictory phenomena. They also preferred imperfection and contradiction that challenged their understanding and imagination. They were more inner-directed and were more tolerant of uncertainty.

The method of investigation that MacKinnon (1962a, 1963b, 1965a, 1965b, 1967) applied cast further light on our limited knowledge of personality and creativity. It is, however, not so much one method as it is a multiplicity of methods, techniques, and procedures so designed and chosen as to yield the fullest possible picture of those persons who are chosen for assessment. It involves an intensive study of individuals singly and in interaction with others. His assessment program yields for each participant a multiplicity--literally hundreds--of measures, scores, ratings, and recorded impressions. All of these can be intercorrelated to reveal what goes with what in the life histories and structural personalities of the assessees, and each can, in turn, be correlated with independently obtained best estimates of the subject's professional creativity.

His well-known research is the study of 124 architects. The personality traits of his creative architects were dominance, poise, spontaneity, self-confidence, both in personal and social interaction, intelligence, aggression, self-centeredness, self-assurance, verbal-fluency, and independence in thought and action. They were relatively uninhibited in expressing their worries and complaints, less inclined to strive for achievement in settings where conformist behavior

is expected or required. They were efficient and steady of intellectual effort. They were definitely more psychologically minded, more flexible, and possessed of more femininity of interests than architects in general.

The use of the Cattell's 16 PF Questionnaire has contributed considerable knowledge to our understanding of personality and creativity. The following three studies using this technique have yielded consistent results, although the samples of subjects differed rather widely.

Cattell and Drevdahl (1955), comparing the scientists with the general population, found the former to be more intelligent, more dominant, less impulsive, more adventuresome, more sensitive, and more lacking in paranoid trends and free-floating anxiety than the latter. In addition, they possessed more ego strength, or stability; they adopted less standard moral goals; and they had more will control and exacting demands on the self. They were at a higher level in radicalism and self-sufficiency.

Using an age correction factor in comparing the scientists with an undergraduate population, they found that the scientists were decidedly more reserved, more intelligent, more self-sufficient. They were serious, radical and probably more paranoid and of higher somatic anxiety.

Compared to teachers or administrators, the scientists were found to be reserved, self-sufficient, emotionally unstable, Bohemianly unconcerned, and radical. They were also significantly more dominant, paranoid, withdrawn, but lower on compulsive super-ego than teachers and administrators.

Drevdahl (1956), in his study of graduate and advanced undergraduate students in the sciences and the arts, found the creative group scored high on radicalism and self-sufficiency, low on outgoing and impulsiveness. The creative group was characterized as somewhat withdrawn and quiescent, more concerned with ideas and things than with people. It seems that suspiciousness and interest in the internal mental life is associated with creativity in the arts, and that a trusting attitude and interest in external things is associated with creativity in the sciences.

The third study of this kind was concerned with the personality profiles of creative artists and writers. Drevdahl and Cattell (1958) found quite similar results on the factors characteristic of creativity. The creative group differed significantly from the general population. They were dominant, emotionally sensitive, Bohemian and self-sufficient.

Other researches, administering Cattell's 16 PF technique obtained quite similar results. The creative scientists in Chamber's study (1964) were also found to score higher on self-sufficiency and lower on impulsiveness.

With consistent findings obtained by other investigators who studied creativity with different theoretical attitudes, Cattell concluded that four of the sixteen personality factors could be used to predict creativity of individuals in various professions. These four factors are:

A--Reserved vs. Outgoing

F--Serious vs. Impulsive

H--Threat-Sensitive vs. Venturesome

Q<sub>2</sub>--Social-Approved vs. Self-sufficient

That is, a creative individual scores high on Reserve (A-), high on Seriousness (F-), high on Venturesomeness (H+), and high on Self-sufficiency (Q<sub>2</sub>+). A more extensive review of the subject is provided by Cattell and Butcher (1968).

Schaefer and Anastasi (1968), using the biographical inventory studied 400 high school boys. The creative subjects were found to be intellectual and goal oriented. They were academically superior, pervasive, and enthusiastic in their pursuit of studies. They had a variety of hobbies, and exhibited a stronger drive toward novelty and diversity in their activities and interpersonal relations.

In studying the self-concept of creative adolescents, Smith and Schaefer (1969) found the creative subjects scored high on the Adjective Check List scales of autonomy, aggression, dominance and self-confidence. They were independent in thought and action, took leadership roles in social situations, and continuously strove for novelty in their environment, both by impulsive expression and more deliberate creative work.

Cited above are some of the more impressive psychological studies on creativity and personality in different specialty fields and at different age levels. These studies are investigated with different methods and yield consistent findings on creative personality. Nevertheless, none of them

provides information concerning sex differences in creativity, although sex differences seem to be among the most interesting variables. Searching the related literature, some studies are found, though few, that shed light on the subject.

(2) Sex differences in creativity.--Hammer (1964) in a study of male high school students who had won art scholarships, found that the differences distinguishing the truly creative students were high in feminine characteristics, in addition to being high in confidence, determination, ambition, and power.

Getzels and Csikszentmihaly (1964) studied the students in the Art Institute in Chicago, and found greater differences between the art students and the students of other colleges than between the male and the female art students. The art students were more socially reserved, avoided close personal contact, and scored high in radicalism. They were non-conformists and felt less of a need to adhere to the stereotyped cultural norms. In comparison to other college women, the female art students were more dominant, whereas the male art students were more timid and sensitive.

Casldan and Welsh (1966) found that creative adolescents and adults were similar in their independence, non-conformity, and their desire for change and variety. There was more of a difference between the highly creative individual and the low creative individual than there was between the highly creative male and the highly creative female.

Helson (1966a) in a study of creative college women found the creative subjects possessed certain masculine traits

such as independence of judgment, stronger need for accomplishment, stronger need for autonomy and stronger motivation to take the creative role. These creative women with imagination and artistic interest differed from the less creative in intelligence, originality, and in "masculine" characteristics such as assertiveness and analytical ability.

Schaefer et al. (1970) found their creative subjects shared more of the traits commonly associated with the opposite sex than did the non-creative ones.

MacKinnon's (1962a) creative architects were also found to be more open to their own feelings and emotions, and have wider range of interests that were typically thought of as feminine.

From the above findings, it is possible to conclude that creative males and creative females differ slightly. However, there seems to be a wider range of differences between the creative and the non-creative individual in personality characteristics. A truly creative individual, regardless of sex, is one who possesses both masculine and feminine, personality traits. The chief reason is that creativity, by its very nature, requires both sensitivity and independence. Sensitivity is definitely a feminine virtue and independence a masculine one (Bardwick, 1971).

The question, then, of differences between the personality traits of creative women and non-creative women is the next one to be considered.

### (3) Studies of creativity using female subjects.---

It is surprising that very few studies have investigated the

creativity of women except those by Helson who reported a series of research findings in creative college women. Her initial subjects of inquiry, about 15% of the senior class, were nominated to be creative and original by the Mill's faculty. Her two follow-up studies conducted a few years later indicated that the creative women showed more growth than the non-creative women in personality traits that characterized them as creative.

It is interesting that the creative college women studied by Helson (1964) exhibited in childhood a tendency toward divergent thinking and a rejection of conventional feminine adjustment. They differed significantly from the less creative women in childhood activities such as reading, writing poems and stories, painting, drawing, working with clay, creating complex imaginary situations and acting in them. The creative girl preferred the complex unstereotyped symbolic activities whereas the non-creative girl more commonly preferred social play.

With regard to the effects of sibling characteristics and parental values on creative interest and achievement, Helson (1968) reported that all of the creative women and most of their brothers were first or second children, while all of the sisters were third, fourth, or the younger of two. Questionnaire data from siblings and parents indicated that the creative women and their brothers had both felt grievances from sibling competition in a context of demanding and idealistic parental values. The sisters had been more congenial with the mother, had lacked self-confidence, and had not

perceived parental values in a way that distinguished them from comparison subjects. The parents of the creative women, especially the father, were persons of intellectual and moral seriousness.

Helson (1966b) found that her creative subjects had imaginary and artistic interests, were interested in the complex and potential, receptive to their own inner life, and were free from overconventionality, and were restless or anxious in situations of personal intimacy. They had original thought processes which were more strongly demonstrated in expressive writing than in problem solving. They were independent-minded and were interested in the difficult and uncrystallized rather than in the simple and practical. They were more assertive and logical, and generally more "masculine." They had a stronger need for accomplishment and autonomy. They had a disposition not to discharge impulses in social, scattered, or impulsive behavior, and they showed a stronger motivation to take the creative role. They had a pattern of goal-directed effort, conducted in a feminine rather than a masculine intellectual style, along with "masculine" attributes appropriate to professional work (identity in work, integrity, autonomy). In terms of their own needs and values, this pattern brought satisfaction and personality growth.

The masculine influence in the background of the creative women with imaginative and artistic interest was the father with a positive intellectual orientation placing "moral integrity" highest among traits valued for his daughter.

Helson (1961) found the creative women mathematicians to be greater in intensity of symbolic interests. They had stronger need for autonomy, and cathexis of the role of research mathematician than they did in originality or in masculine traits. Their fathers were higher in professional status and educational level, and the creative women mathematicians had more identification with their fathers.

In a study of sex differences in creative style of mathematicians, Helson (1967b) found the creative women mathematicians to be less self-acceptant, less sociable, and less motivated to achieve by a conformist pattern than the comparison women. Both creative subjects, men and women combined, differed from comparison subjects in having higher scores on Flexibility and lower scores on Achievement by conformity.

Helson (1968) found that a combination of receptivity and a need for autonomous self-expression would appear to be a necessary part of the creative syndrome, regardless of the field. Creative women, in comparison with other women, showed a pattern of receptivity to emotional stimuli, intellectual direction and control, "brooding," need for autonomous self-expression, and resistance to outer expression of femininity.

Helson's research findings make it quite clear that creative women are potentially very similar to creative men in the ways in which they differ from less creative people. It appears that before career and marriage choices are made, there is little difference in the important personality traits between creative women and creative men.

Anastasi and Schaefer (1969), in a study of adolescent girls, found the creative girls to have had more absorbing interests which were rewarded and reinforced early in life by parents or teachers; to have had a variety of unusual experiences, such as daydreaming about unusual things, collecting things of unusual nature, and experiencing either imagery or imaginary companions in childhood. In high school and in college the creative subjects participated more in extracurricular activities. Their college plans were more fully developed and ambitious. It was the father rather than the mother who had more parental influence on the creative girls. Common characteristics of creative adolescent boys were also found in these creative adolescent girls: continuity and pervasiveness of interest in chosen field; prevalence of unusual, novel, and diverse experiences; and educational superiority of familial background.

Bachtold and Werner (1970) studied women psychologists who held doctoral degrees, affiliated with a college or university, and were born in 1910 or earlier. They found that creative successful academic women showed much the same personality characteristics of successful academic men. Compared with adult women in general and women college students, the creative successful academic women were found to be more intelligent, socially aloof, dominant, serious, adventuresome, sensitive, flexible, imaginative, insightful, unconventional, secure, self-sufficient, and less anxiety prone.

### Environmental Influences on Creativity

To what extent can creativity be influenced by environmental factors? We are still a long way from being able to ascertain the manipulability of creativity. Although considerable information has been accumulated as to personality factors related to creative ability, and although there is an abundance of personal testimony regarding the nature of the creative process, we also have much positive information about the relative influence of environmental factors on creativity. Indeed, much evidence indicates that dividends in creativity may be attained most rapidly through proper adjustment of environmental factors once they are identified.

Roughly, we might divide our attention here to two environmental factors: family influence, and educational influence. Family influence, coming as it does at the earliest period of life, may be the most decisive.

Considering family influence and training, Oden (1968), MacKinnon (1962a), Drevdahl (1964), Barron (1963), and MacKler (1967) concur in the importance of early training in autonomy and independence. Thus a child can develop confidence in his own judgment and less need for approval from others. He will feel less pressure from the external world and be less fearful of authority.

The creative individual is likely to have a significantly closer attachment to his mother early in life (Drevdahl, 1964; Schaefer and Anastasi, 1968) which may in part account for the significantly higher feminine orientation of male creative person in general. The mother in these studies

tended to place high restrictions on her child, but allowed him to question authority. She also permitted him freedom to encounter a wide variety of stimuli. Respect for the child and confidence in his ability to do what is appropriate were given. The child, therefore, had freedom to explore his universe and to make decisions for himself. The father-son relationship was not found important. Conversely, the reversal of role model and greater influence of the opposite-sex parent upon the female creatives was found (Helson, 1966a, Schaefer and Anastasi, 1969).

The way in which discipline is handled seems also to be a key factor. There seemed to be a distinct tendency to place responsibility for behavior on the individual (Drevdahl, 1964). Non-authoritarian child rearing attitudes on the part of the parents (Nichols and Holland, 1963) who tolerated ambiguity, encouraged self-direction for discipline, and reduced the contingency of the child's behavior upon expectations and reaction of others. When actual discipline was needed, reward tended to be used more than punishment.

There may be a factor of slight emotional coolness in the creative child's family, with respect being more important than strong emotional attachment (MacKinnon, 1963; Drevdahl, 1964). Affection may tend to be given intensively to the creative child earlier, but he is able to intellectualize emotionality at an earlier age. The higher educational level of the parents may be part of the influence (Oden, 1968; Roe, 1955; Schaefer and Anastasi, 1968), though total social economic influences on the family seem to be less important than other factors.

There is an indication of family pressure for educational achievement, and a family valuing of knowledge for the sake of knowledge (Oden, 1968; Schaefer and Anastasi, 1968). There seemed to be no indication of influence of sibling rivalry as a factor (MacKinnon, 1960) and no relationship between family size and tested creativity (Cicirelli, 1967).

Roe (1953) and Helson (1968) found that most of their creative subjects were first born, whereas Datta (1967) stated that being first born was not related to unusual attainment in a sample of 536 young scientists. The finding on birth order of the creative individual is inconclusive.

With regard to the health of the creative individual, MacKinnon (1962) and Oden (1968) reported little childhood illness or accident. Contrary, Roe (1953) found her eminent scientists had endured long periods of relative isolation during childhood as a result of a serious illness. Helson (1966a) noted that her creative subjects with imaginative and artistic interest were more frequently reported by their mother to have suffered from chronic allergy or respiratory illness in childhood.

Considerable evidence has been amassed concerning the influence of education on creative development, and indications are that it is decidedly influential. In the face of this evidence, as reviewed by Christie (1970), it is a sad commentary to find that the unfavorable climate in the classroom is more often a hindrance to creativity than a help. The overburdened teacher, the over-crowded classroom and the conventional method of teaching do little to nurture the

creative spark. Creative school children, as found by studies conducted by Getzels and Jackson (1962) and Torrance (1959), are more unruly, more independent, and more domineering. They are more self-directed and non-conforming, and are overtly talkative. None of these characteristics are desired by the conventional teacher. It is creative teaching, both in program and method, to be the chief remedy. Christie (1970) concluded that:

It appears that creative development can be enhanced through the use of discovery methods in a subject matter course....These methods may even lead to superior performance in subject matter as well as gains in creative productivity. The nurturant environment both at home and in school is one which gives a free reign and a ready response to the explorations of the child.

#### Summary of Related Literature

A creative individual, as summarized by Taylor (1964, pp. 27-28), is "more autonomous than other, more self-sufficient, more independent in judgment (they go against group opinion if they feel it is incorrect), more open to the irrational in themselves, more stable, more feminine (if they are male) in interests and characteristics (especially in awareness of their impulses), more dominant and self-assertive, more complex, more self-accepting, more resourceful and adventurous, more radical (Bohemian), more self-controlled, and possibly emotionally sensitive, and more introverted but bold.

This image of the individual will be more vivid if we view at Crutchfield's description as in Golann's article (1963): In cognitive sphere he is more flexible and fluent; his perceptions and cognitions are unique. In approach to

problems he is intuitive, empathic, perceptually open, and prefers complexity. In emotional-motivational sphere, he demonstrates freedom from excessive impulse control, achieved through independence rather than conformity. He is individualistic, and has a strong, sustained, and intrinsic motivation in his field of work."

Of all the studies of the male creative individual there is the indication that he possesses both masculine and feminine personality traits. So does a creative female individual. The important masculine personality traits that a female individual possesses are independence, autonomy, non-conformity, assertion, and self-sufficiency. There is more differences in personality traits between creative individuals and non-creative individuals than there is between creative women and creative men.

It is a general agreement that a supportive and stimulating environment, both at home and in school, that encourages independence and autonomy, enhances creative development. A creative individual perceives his environment in quite a novel way. He has the ability to toy with elements and concepts. He is relatively more spontaneous and expressive, and has a more direct route to his own pre-conscious. Therefore, in a favorable and creative situation he can learn more economically and rapidly.

## CHAPTER III

### RESEARCH PROCEDURES

This chapter describes the study's sample, research instruments, scoring, coding, and key punching practices, treatment of data, and sequence of procedures for data analysis.

#### Description of the Sample

In the early research design, consideration was given to using graduate women students at The University of Michigan as subjects for the study in view of the difficulty of persuading professional women to participate. It was felt, however, that the use of graduate women students might constitute a limitation for the study. Graduate women students were still preparing for their professions; few had had actual experience in the world of work and thus had not fully developed a professional personality in their specialty fields.

Fortunately, the investigator, with the help of a woman professional who is the District Governor of an international women's professional club, was able to correspond with the presidents of the thirty Michigan branches of the club (See Appendix A). Members of this club are business executives and professional women. Upon request, membership rosters of the branches were sent to the investigator. An

invitation (See Appendix B) to participate in this study was sent to 489 selected professional women who were in either traditionally male professions or in traditionally female professions. The selection of subjects was based on whether women were underrepresented or overrepresented as stated in the 1960 U.S. Census. A reply slip and a self-addressed, post-paid envelope were enclosed to indicate willingness to participate. Two hundred seventy-eight women returned the reply slip, thus expressing an affirmative response, and 46 returned the reply slip, but indicated a negative answer. Twenty-one returned the reply slip indicating no positive or negative answer. Three research instruments--the 16 PF Questionnaire, the Adjective Check List, and the Biographical Questionnaire (See Appendix C)--were then sent with a letter (See Appendix D) to those indicating a willingness to participate and also those responding either positively or negatively. A total of 299 subjects were mailed the research instruments; of this total, 221 completed and returned them, of this number, 2 completed the Adjective Check List and the Biographical Questionnaire but not the 16 PF Questionnaire. Therefore only 219 were available for selection when selecting creative subjects. The total sample consisted of 221 women, of which 109 were in traditionally male professions and 112 were in traditionally female professions.

#### Selection of Creative Subjects

The selection of creative subjects was based on the two research instruments used--the 16 PF Questionnaire and the Adjective Check List.

Raw scores derived from the 16 PF were converted into sten scores following instructions in the Tabular Supplement No. 1 to the 16 PF Handbook, 1970. Thus a sten score of every personality factor ranging from 1 to 10 was obtained for each subject. Among the 16 PF personality factors, 10 of them were highly related to creativity. They are:

Factor A (Reserved vs. Outgoing)

Factor B (Less intelligent vs. More intelligent)

Factor E (Humble vs. Assertive)

Factor F (Serious vs. Impulsive)

Factor H (Threat-sensitive vs. Venturesome)

Factor I (Realistic vs. Sensitive)

Factor M (Practical vs. Imaginative)

Factor N (Forthright vs. Shrewd)

Factor Q<sub>1</sub> (Conservative vs. Experimenting)

Factor Q<sub>2</sub> (Social-approved vs. Self-sufficient)

A different weight was given to each of these 10 personality factors (See Appendix E) as instructed in the creativity scale by the IPAT Information Bulletin, No. 10, 1963. A total of these sten scores indicated the creativity sten score a subject held. Those who scored from 1 to 4 were classified as low creatives; those who scored from 5 to 7 were classified as medium, and those who scored from 8 to 10 were classified as high creatives. The low creatives were given a scale of 1; the medium, 2; and the high creatives, a scale of 3.

Since a 27-item Creativity Scale was developed from the Adjective Check List, and the maximum creativity adjectives

checked by the total sample was 23, creativity scales of low, medium, and high were assigned to those who checked 0 to 7, 8 to 15, and 16 to 23 adjectives out of the 27-item Creativity Scale. The low, medium, and high were given the same weight, i.e., 1, 2, and 3 as was done to the low, medium, and high in the 16 PF creativity sten scores.

A subject with a total scale of 2 or 3 from both the 16 PF and the Adjective Check List was finally put into the low creative category. Those with a total scale of 4 were considered as medium, and those with a total scale of 5 or 6 were selected as high creatives (See Table 1).

Frequency distributions of creative subjects in 16 PF, in Adjective Check List, and in the correlated scales (16 PF and Adjective Check List) are shown on Table 2, Table 3, and Table 4, and Graph 1, Graph 2 and Graph 3.

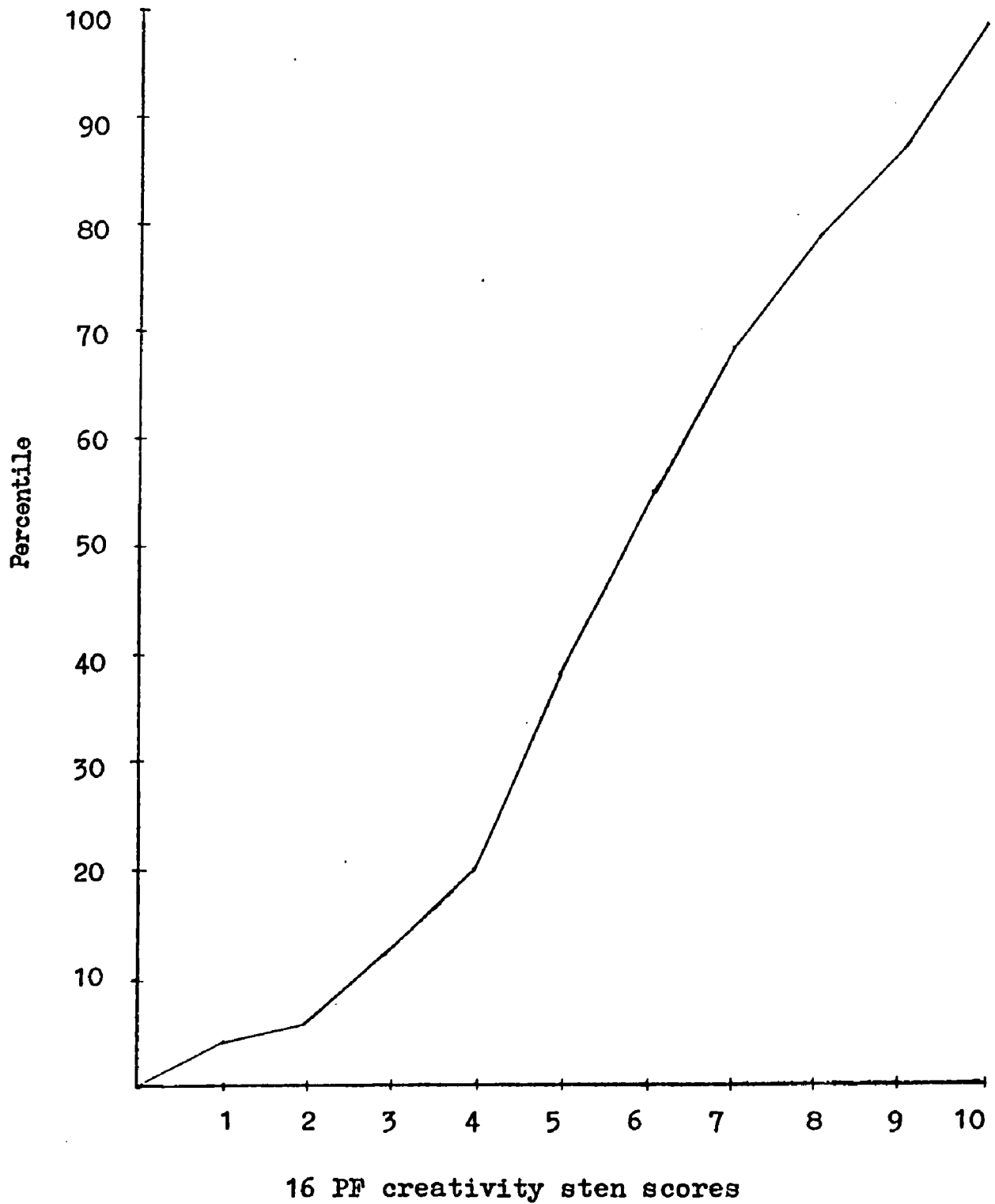
#### The 16 PF Questionnaire

The 16 PF Questionnaire, Form A (1967-68 Edition), was administered to the total population. A source-trait score (in standard scores--sten--ranging from 1 to 10) on each of the sixteen factors was assigned to each subject. The profile matching technique described in the Handbook for the 16 PF (Cattell, Eber, and Tatsuoka, 1970) was used in plotting all the personality profiles in this study. The resulting profile of the 16 source-trait scores is potentially usable in an almost infinite number of specific behavior predictions.

The Sixteen Personality Factor Questionnaire is an objectively scorable test, a factor-analytically developed

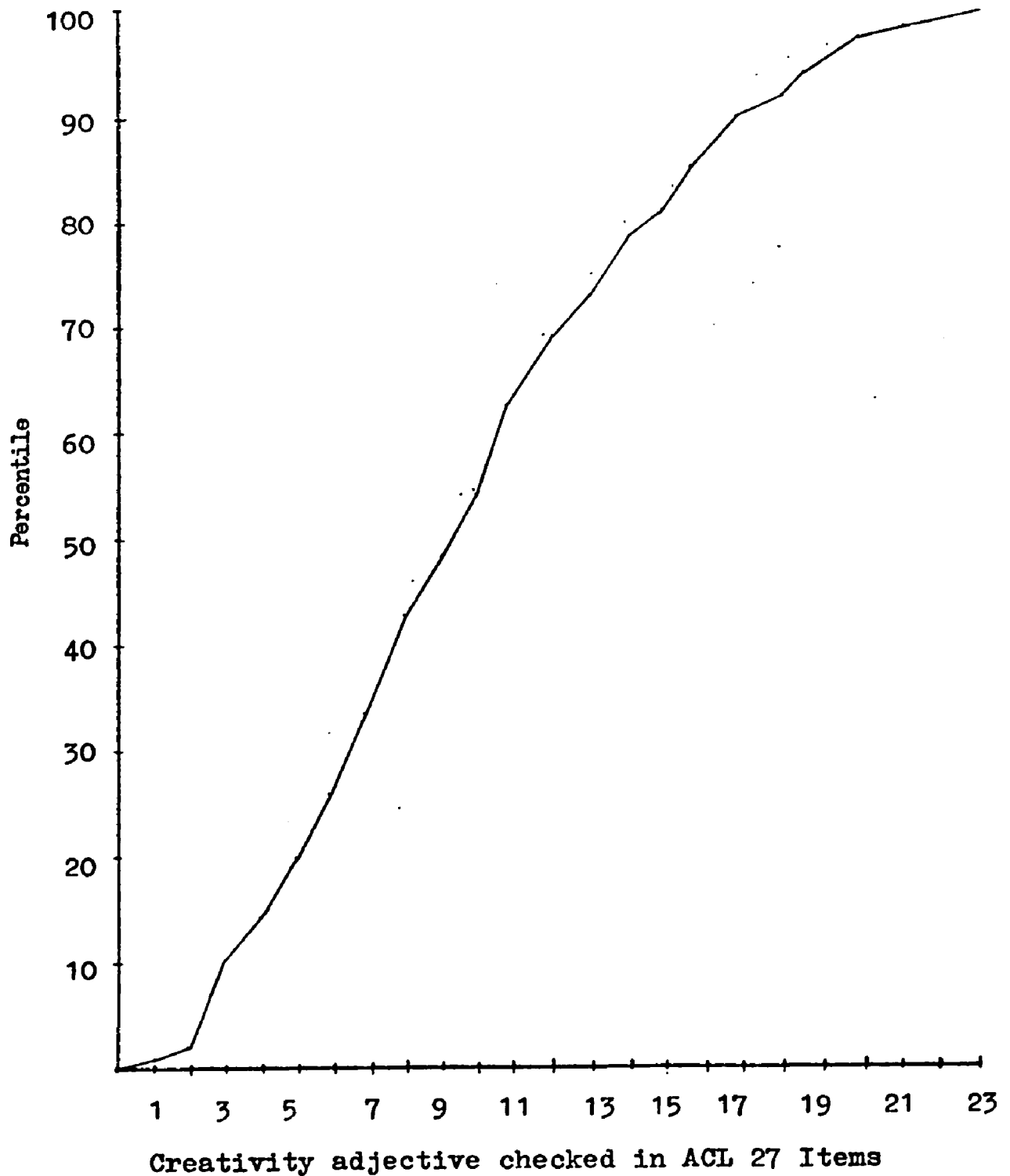
GRAPH 1

FREQUENCY, RANK ORDER, AND PERCENTILE OF 16 PF  
CREATIVITY STEN SCORES



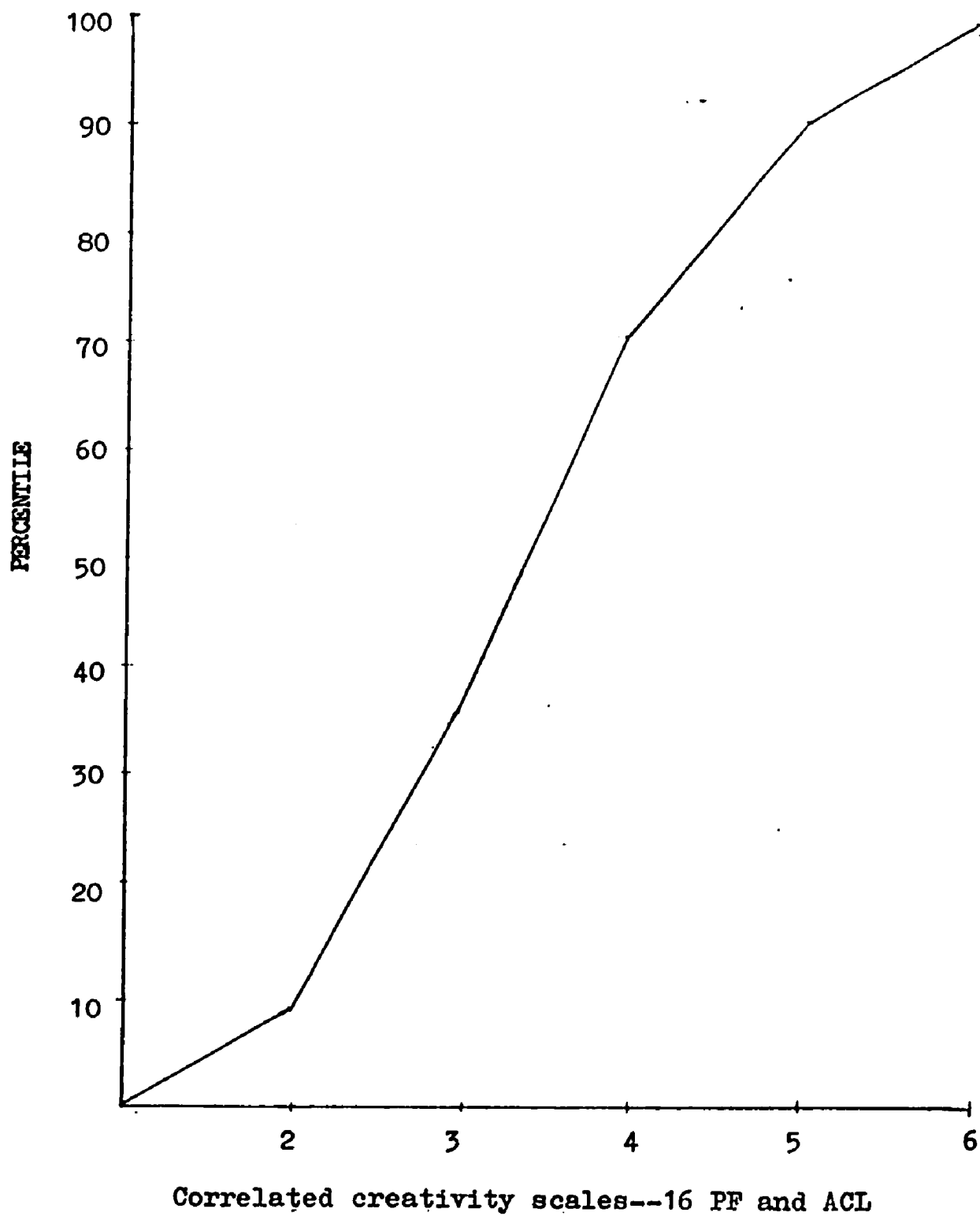
GRAPH 2

FREQUENCY, RANK ORDER, AND PERCENTILE OF  
ADJECTIVE CHECK LIST CREATIVITY SCORES



## GRAPH 3

FREQUENCY, RANK ORDER, AND PERCENTILE OF CORRELATED  
CREATIVITY SCORES--16 PF AND ADJECTIVE CHECK LIST



personality questionnaire, designed to measure the major dimensions of human personality comprehensively in young adults and persons age seventeen through the mature age range. The test is based on some twenty-five years of published research. It is viewed as the best personality test thus far developed to meet stringent requirements of clinical, educational, industrial, and research psychologists for accuracy, usefulness and brevity. The reliability of the test has steadily advanced and continuously increased. The split-half reliability for each of the factor scales range from  $+ .71$  to  $+ .93$ . Internal construct validities range from  $+ .73$  to  $+ .96$ .

The test measures 16 basic traits--15 dynamic source traits of a temperamental nature and Factor B, which is a measure of practical intelligence corresponding to the "g" factor of general mental capacity. The personality factors measured have been established as unitary, and psychologically meaningful entities in many researches in various life situations. They enter into general psychological theory and into tests used at other ages and in other cultures.

In addition to the sixteen primary factors, the test can be used as a measure of four secondary dimensions--anxiety, extraversion, alert poise, and independence.

In the present study, the 16 PF Questionnaire served as the basis for group description--the professional groups and the creative groups. It also served as the basis for selection of creative subjects in correlation with the Adjective Check List.

### The Adjective Check List

The Adjective Check List has been employed with increasing frequency in psychological research. The particular value of this instrument is that it offers words and ideas commonly used in describing a person. Its format is systematic and standardized and the approach is fully idiographic and non-technical. No special knowledge or competence is presumed. Words which an individual or group of individuals has checked as self-descriptive may accrue from noting, pondering, and analyzing both empirically and rationally.

This instrument is currently employed for research on creativity. A creative person tends to score high on certain adjectives (MacKinnon 1962, 1963, 1965, 1967; Schaefer, 1967; Smith and Schaefer, 1969; Welsh, 1967). As a result of numerous studies on creativity, the 8-item creativity scale and the 27-item creativity scale were developed from the Adjective Check List. A high level of validity found with a number of Adjective Check List scales in the investigation of creative person was confirmed. It is reported (Smith and Schaefer, 1969) that the 27-item creativity scale of the Ajective Check List served best as criteria for identification of creative subjects.

In this study, the Adjective Check List was administered to the total sample. The 27-item creativity scale of this instrument served as the basis for selection of creative subjects in correlation with the 16 PF Questionnaire.

### The Biographical Questionnaire

The Biographical Questionnaire employed in this study was specifically constructed by the investigator (See Appendix C). Most questions were for the total population. But there were some questions for the married professionals, others for the divorcees, and there were a few for the single professionals to express their opinions and attitudes toward the professions and marriage.

The Work experience section, unfortunately, was not included in this study because of the excessive amount of data. A glimpse of this data revealed the degree of professional development and success attained by most of the subjects. Answers to these questions could serve as the basis for studies, e.g., the developmental patterns of women in traditionally male professions or in traditionally female professions; or the vocational development of teen-aged girls and young women.

### Scoring, Coding, and Key Punching Practices

The investigator undertook the task of scoring the 16 PF Questionnaire and the Adjective Check List; coding the Biographical Questionnaire; and key punching three decks of data cards for each subject--two for the biographical variables and one for the personality variables.

Codes for the Biographical Questionnaire were developed by the investigator. The completed Biographical Questionnaires were edited before coding took place so as to ensure a correct research sequence.

### Treatment of the Data

All data were statistically computerized. A file was created at The University of Michigan Computing Centre using the Fortran IV, which is one of the most widely used programming languages for communicating with computers.

The PSCF BLITZ computer program was employed for analysing biographical data derived from the Biographical Questionnaire. This computer program is designed to mass produce bivariate frequency tables which compare all spread variables with all control variables.

The PSCD computer program was applied to analyze the data derived from the personality questionnaires—16 PF and the Adjective Check List. Comparisons between groups and within groups were based on the personality variables analyzed using Fisher's t-ratio with respect to mean values.

The CONSTAT is a console-oriented statistical computing program. It sets up data structure which is common to many statistical problems; provides a set of sub-routines to manipulate data within this structure; and furnishes a set of sub-routines to perform statistical analyses on the data. This computing program was applied to find the Percentile and Rank Order of the creativity scores distributed among the total sample in the 16 PF Questionnaire, in the Adjective Check List, and in the correlated creativity scores obtained from 16 PF and Adjective Check List weighted scales (See Tables 2, 3, and 4).

TABLE 1

CREATIVITY SCALES (16 PF QUESTIONNAIRE AND  
ADJECTIVE CHECK LIST) AND NUMBER OF HIGH, MEDIUM,  
AND LOW CREATIVE SUBJECTS

| Test  | Score    | N   | Creativity scale assigned |
|-------|----------|-----|---------------------------|
| 16 PF | 1 to 4   | 46  | 1--Low                    |
|       | 5 to 7   | 108 | 2--Medium                 |
|       | 8 to 10  | 67  | 3--High                   |
| ACL   | 1 to 7   | 77  | 1--Low                    |
|       | 8 to 15  | 107 | 2--Medium                 |
|       | 16 to 23 | 37  | 3--High                   |

TABLE 2

FREQUENCY, RANK ORDER, AND PERCENTILE OF CORRELATED  
CREATIVITY SCORES (16 PF AND ADJECTIVE CHECK LIST)

| N         | Sten score | Rank  | Percentile |
|-----------|------------|-------|------------|
| 26        | 10         | 209.5 | 99         |
| 20        | 9          | 186.5 | 88         |
| 21        | 8          | 166   | 79         |
| 30        | 7          | 140   | 69         |
| 40        | 6          | 105.5 | 56         |
| 38        | 5          | 66.5  | 38         |
| 18        | 4          | 38.5  | 21         |
| 12        | 3          | 23.5  | 13         |
| 8         | 2          | 13.5  | 7          |
| 6         | 1          | 6.5   | 4          |
| 2         | 0          | 2.0   | 1          |
| Total 221 |            |       |            |

TABLE 3  
FREQUENCY, RANK ORDER, AND PERCENTILE OF  
ADJECTIVE CHECK LIST CREATIVITY SCORES

| N         | Adjectives checked | Rank  | Percentile |
|-----------|--------------------|-------|------------|
| 2         | 23                 | 220.5 | 99         |
| 1         | 21                 | 219   | 98         |
| 7         | 20                 | 215   | 97         |
| 2         | 19                 | 210.5 | 94         |
| 4         | 18                 | 207.5 | 93         |
| 11        | 17                 | 200   | 91         |
| 10        | 16                 | 190   | 86         |
| 8         | 15                 | 181.5 | 82         |
| 11        | 14                 | 172   | 79         |
| 11        | 13                 | 161   | 74         |
| 12        | 12                 | 149   | 69         |
| 18        | 11                 | 134.5 | 63         |
| 17        | 10                 | 117   | 55         |
| 11        | 9                  | 103   | 48         |
| 19        | 8                  | 88    | 43         |
| 16        | 7                  | 70    | 34         |
| 15        | 6                  | 55    | 27         |
| 14        | 5                  | 40.5  | 20         |
| 6         | 4                  | 30.5  | 14         |
| 20        | 3                  | 17.5  | 11         |
| 5         | 2                  | 5     | 2          |
| 1         | 1                  | 2     | 1          |
| 0         | 0                  | 1     | 0          |
| Total 221 |                    |       |            |

TABLE 4

FREQUENCY, RANK ORDER, & PERCENTILE OF CORRELATED  
CREATIVITY SCALE (16 PF AND ADJECTIVE CHECK LIST)

| N         | Correlated creativity scale | Rank | Percentile |    |
|-----------|-----------------------------|------|------------|----|
| 18        | 63 High                     | 6    | 213.5      | 99 |
| 45        |                             | 5    | 182        | 91 |
| 78        | Medium                      | 4    | 121        | 71 |
| 62        | 78 Low                      | 3    | 51.5       | 36 |
| 16        |                             | 2    | 12         | 9  |
| Total 219 |                             |      |            |    |

TABLE 5

T-STATISTICS FOR BETWEEN GROUP COMPARISON IN  
CREATIVITY SCORES

| Variable              | High creative group mean | Low creative group mean | t-statistics | DF  | Probability |
|-----------------------|--------------------------|-------------------------|--------------|-----|-------------|
| 16 PF                 | 7.9697                   | 4.4230                  | 10.1733      | 139 | .001        |
| ACL                   | 13.8636                  | 6.7179                  | 9.8538       | 139 | .001        |
| 16PF & ACL correlated | 5.0454                   | 2.7820                  | 15.6519      | 139 | .001        |

TABLE 6

DISTRIBUTION OF SUBJECTS IN TRADITIONALLY MALE PROFESSIONS AND  
TRADITIONALLY FEMALE PROFESSIONS

| Traditionally Male Professions | N   | Traditionally Female Professions       | N   |
|--------------------------------|-----|----------------------------------------|-----|
| Accountant & Auditor           | 4   | Elementary school principal            | 11  |
| Architect                      | 1   | Elementary school teacher              | 16  |
| Attorney                       | 6   | School counselor                       | 6   |
| Engineer                       | 1   | Supervisor, adult vocational education | 1   |
| Physician                      | 5   | Librarian, head                        | 3   |
| Chiropractors                  | 3   | Librarian, division head               | 6   |
| Veterinarian                   | 1   | Librarian                              | 26  |
| Pharmacist                     | 3   | Director of nursing                    | 10  |
| Department head in university  | 3   | Assistant director of nursing          | 1   |
| Associate dean of students     | 4   | Nurse                                  | 8   |
| Professor                      | 2   | Director of social service             | 4   |
| Associate professor            | 3   | Deputy director of social service      | 1   |
| Assistant professor            | 4   | Social worker                          | 12  |
| Division director in college   | 3   | Director of dietitian                  | 1   |
| College lecturer/instructor    | 4   | Dietitian                              | 3   |
| Registrar, college             | 1   | Home economist                         | 3   |
| College counselor              | 3   |                                        |     |
| Director, executive            | 16  |                                        |     |
| Assistant director             | 2   |                                        |     |
| President, business enterprise | 6   |                                        |     |
| Vice president                 | 6   |                                        |     |
| Manager, office                | 21  |                                        |     |
| Manager, banking               | 2   |                                        |     |
| Manager, real estate           | 2   |                                        |     |
| Professional pilot             | 1   |                                        |     |
| Deputy Sheriff                 | 1   |                                        |     |
| Minister                       | 1   |                                        |     |
| Total                          | 109 |                                        | 112 |

The Student's T-Tests between groups in the 16 PF creativity scores, in the Adjective Check List creativity scores, and in the correlated creativity scores obtained from 16 PF and Adjective Check List weighted scale were statistically computerized by the CONSTAT (See Table 5).

All chi square statistics provided from the PSCF BLITZ program were reconstructed into tables by using the CHITAB computing program written by the Statistic Laboratory of The University of Michigan. The CHITAB computing program yields frequency, row percentage, column percentage, chi square value, degree of freedom, and level of significance in each analysis of the variance.

#### Sequence of Procedures for Data Analysis

The total sample consisted of 221 professional women throughout the state of Michigan. Of this total 109 worked in professions underrepresented by women, and 112 worked in professions overrepresented by women as stated in the 1960 U.S. Census. The former was classified as women in traditionally male professions, and the latter women in traditionally female professions (Table 6).

Raw scores of the 16 PF were statistically computed by the PSCD program. Mean values and standard deviations of each variable were thus obtained. The Fisher's t-ratio comparison between the group means were computed for the level of significance of difference. Within-group differences and between-group differences were reported in terms of significant levels between raw score means. Sten scores were converted

from raw scores based on the norms table for the general adult female population, Form A, provided in the Tabular Supplement no. 1 to the 16 PF Handbook, 1970. Personality profiles were plotted in terms of sten scores ranging from 1 to 10, with a mean of 5.5 and a standard deviation of 1.

The biographical data were computed by the PSCF BLITZ program, which yielded frequency tables, chi square values, degrees of freedom, cramer's statistics and t-test between columns of the spread variables. The chi square tables provided in the dissertation were reconstructed by computer using the CHITAB program of the Statistical Research Laboratory at The University of Michigan.

The selection of creative subjects, as described previously in this chapter was based on the 16 PF Questionnaire and the Adjective Check List.

The creativity score derived from the 16 PF was computed from ten of the sixteen personality variables (Factors A, B, E, F, H, I, M, N,  $Q_1$ , and  $Q_2$ ) in the 16 PF Questionnaire as suggested in the Institute for Personality and Ability Testing Information Bulletin (1963). A weighting system was applied as instructed in the Creativity Scale (Appendix E).

Weighted raw scores on these ten factors were totalled and were converted into sten scores ranging from 1 to 10. A subject with a creativity sten score of 8 or higher was classified into the creative group.

Another instrument, the Adjective Check List, was used together with the 16 PF for final selection of a subject into the creative group. Numbers of adjectives checked in the

Adjective Check List were scored depending on the number of creativity adjectives checked out of the 27 Items Creativity Scale. The creativity adjectives checked out of the 27 Items Creativity Scale were then divided into 3 scales: the Low, the Medium, and the High. Since the maximum number of creativity adjectives checked by subjects was 23, a score from 0-7 was considered Low, a score from 8-15, Medium, and a score from 16-23, High.

Creativity sten scores of the 16 PF were also classified into the scales of Low (a sten score from 1-4), Medium (a sten score from 5-7), and High (a sten score from 8-10).

The scales of Low, Medium, and High from both instruments were presently added after a weight of 1 was given to the Low, 2 to the Medium, and 3 to the High. This yielded a total score from 2 to 6. A subject with a total score of 2 or 3 was considered to be Low creative; with a total score of 4, Medium; and with a total score of 5 or 6, High creative.

Of the total sample, except two subjects who did not return the 16 PF, 63 were selected high creative, 78 medium, and 78 low creative. Of the 63 high creative subjects, 27 were in traditionally male professions, and 36 were in traditionally female professions.

The student's T-Test between groups in the correlated creativity scores obtained from 16 PF and Adjective Check List was conducted by means of the CONSTAT for testing of reliability.

The personality variables and biographical variables of creative subjects were treated in the same manner as those of the whole population in this study.

## CHAPTER IV

### ANALYSIS OF THE DATA - I

#### COMPARISON OF WOMEN IN TRADITIONALLY MALE PROFESSIONS WITH WOMEN IN TRADITIONALLY FEMALE PROFESSIONS

##### Introduction

The description and analysis in this chapter is basically focused on the first question to be explored, namely:

Similarities and differences in personality characteristics and background experiences between women who choose traditionally male professions and women who choose traditionally female professions.

Personality variables derived from the 16 PF Questionnaire and the biographical questionnaire will be described and discussed in relation to the personality characteristics and background experiences of the sample.

##### Personality Variables

The personality variables were based on scores from the Sixteen Personality Factor Questionnaire (16 PF). The division into male professions and female professions was based upon the percentage of women in those professions in the 1960 U.S. Census, whether women are underrepresented or overrepresented in the profession.

Graph 4

Profiles for 16 Personality Factor Questionnaire Scores  
 Traditionally Male Professional Group and Traditionally Female Professional Group  
 TMP Group TFP Group

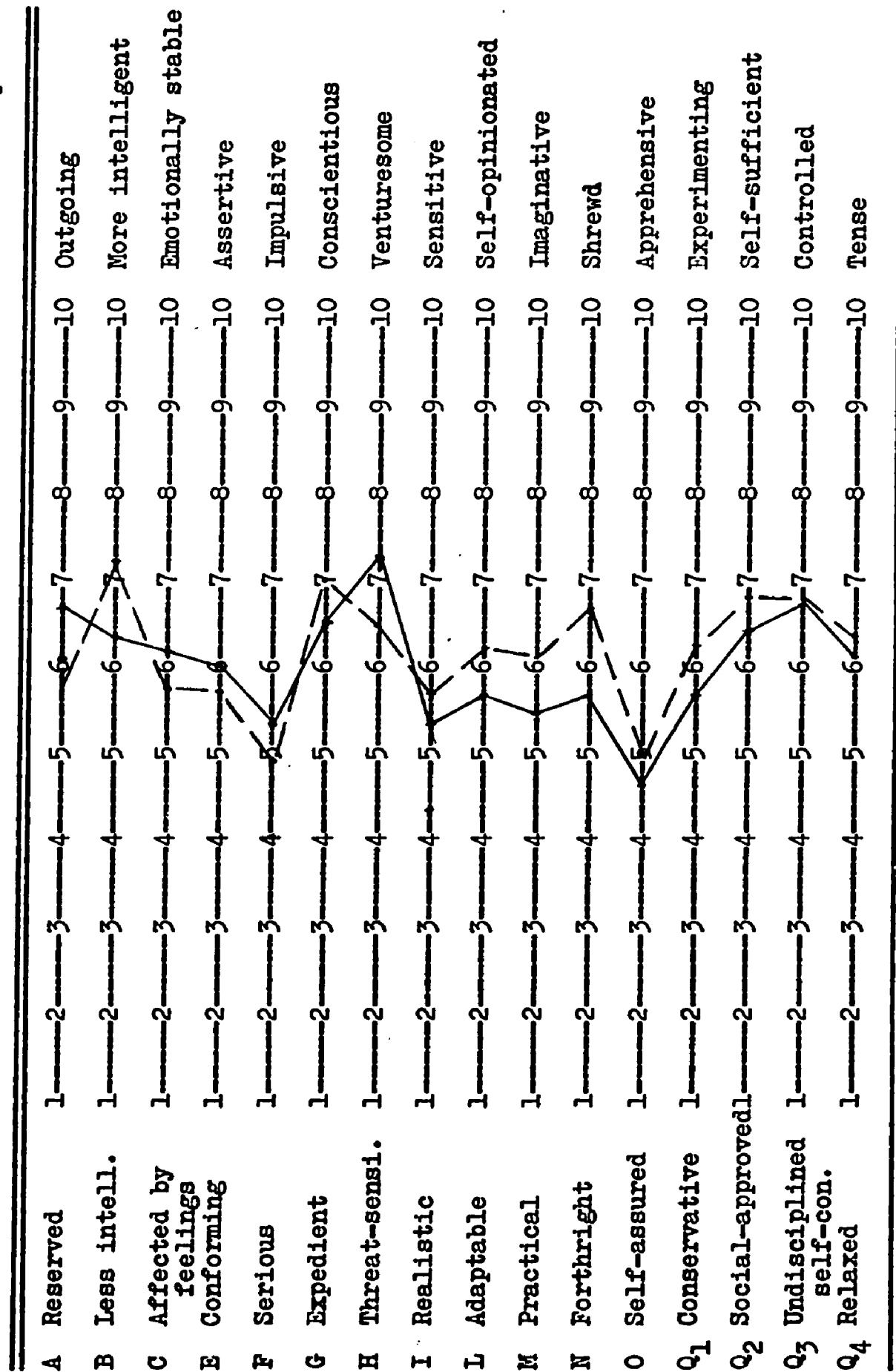


TABLE 7

RAW SCORE MEANS, STANDARD DEVIATION, T-STATISTICS FOR  
TRAITS MEASURED BY THE 16 PF QUESTIONNAIRE

| Variable                              | TMP Group<br>Mean | S.D. | TFP Group<br>Mean | S.D. | t     | DF  | Proba-<br>bility |
|---------------------------------------|-------------------|------|-------------------|------|-------|-----|------------------|
| Reserved vs.<br>Out-goning            | 12.43             | 3.02 | 11.07             | 3.17 | 3.25  | 217 | .001             |
| Less intell. vs.<br>More intelligent  | 8.43              | 1.81 | 9.07              | 1.65 | -2.74 | 217 | .05              |
| Affected by feel.<br>vs. Emot. stable | 16.26             | 3.75 | 15.56             | 3.86 | 1.35  | 217 | NS               |
| Conforming vs.<br>Assertive           | 11.02             | 4.82 | 10.52             | 4.12 | 0.83  | 217 | NS               |
| Serious vs.<br>Impulsive              | 12.75             | 4.49 | 11.97             | 4.14 | 1.34  | 217 | NS               |
| Expedient vs.<br>Conscientious        | 14.17             | 3.18 | 13.95             | 3.19 | 0.51  | 217 | NS               |
| Threat-sensitive<br>vs. Venturesome   | 16.54             | 5.39 | 14.30             | 5.51 | 3.03  | 217 | .001             |
| Realistic vs.<br>Sensitive            | 12.72             | 3.63 | 13.69             | 3.22 | -2.10 | 217 | NS               |
| Adaptable vs.<br>Self-opinionated     | 5.75              | 2.87 | 6.29              | 2.74 | -1.37 | 217 | NS               |
| Practical vs.<br>Imaginative          | 12.96             | 3.80 | 14.18             | 3.52 | -2.46 | 217 | .05              |
| Forthright vs.<br>Shrewd              | 10.17             | 3.04 | 11.65             | 3.04 | -3.58 | 217 | .001             |
| Self-assured vs.<br>Apprehensive      | 8.34              | 4.23 | 9.00              | 4.12 | -1.17 | 217 | NS               |
| Conservative vs.<br>Experimenting     | 7.34              | 3.23 | 8.12              | 4.45 | -1.48 | 217 | NS               |
| Social-approved<br>vs. Self-suffi.    | 10.83             | 3.11 | 11.76             | 3.53 | -2.08 | 217 | NS               |
| Self-conflict<br>vs. Controlled       | 14.38             | 3.14 | 14.55             | 7.07 | -0.24 | 217 | NS               |
| Relaxed vs. Tense                     | 13.17             | 4.63 | 14.14             | 5.40 | -1.43 | 217 | NS               |

Table 7 shows that women in traditionally male professions and women in traditionally female professions were different in their overall personality patterns, but not significantly different on a number of basic personality variables. The groups differed significantly on only five of the sixteen factors, suggesting a certain degree of overlap, as well as differences between the groups.

Women in traditionally male professions differed ( $P < .001$ ) from women in traditionally female professions on Factor A (Reserved vs. Outgoing). The traditionally male professional group was more outgoing, adaptable, and casual, whereas the traditionally female professional group was more reserved, rigid, and precise. In comparison with the population in general, the traditionally female professional group tended to be closer to the average range on Factor A. A sten score falling between 5 and 6 is regarded as average. Since half of the subjects in the traditionally male professional group were business executives and managers, a higher score on Factor A in this group seemed to be justified. (Cattell, Eber, Tatsuoka, 1970.)

The sten scores on Factor B (Low intelligence vs. High intelligence) indicate that both professional groups were high in intelligence in comparison with the general population. The traditionally female professional group was however significantly higher ( $P < .05$ ) than the traditionally male professional group. This suggests that traditionally female professional women were superior in intelligence to traditionally

male professional women. They were inclined to have more intellectual interests, to be more intellectually adaptable and persevering.

No significant difference appeared on Factor C (Emotionally stable), Factor E (Assertiveness), and Factor F (Seriousness). In general, women in traditionally male professions tended to be slightly more emotionally stable and calm. They did not let emotional needs obscure a situation's realities. They adjusted to facts and were more assertive and aggressive, competitive and independent-minded. They tended to be more talkative and cheerful, frank and expressive. The traditionally female group tended to be affected more by feelings and become frustrated and perturbed easier. They were more submissive, dependent, and mild. Yet they were also more serious, introspective and careful. Since the sten scores of both groups in these factors (Factors C, E, and F) fall in the average range, they were not much deviant from the general population.

Although women in traditionally male professions did not differ significantly from women in traditionally female professions in Factor G (Expedient vs. Conscientious), they tended to be less persevering, less conscientious, and less concerned about moral standards and rules.

Significant differences emerged ( $P < .001$ ) between the two groups in Factor H (Threat-sensitive vs. Venturesome). Women in traditionally male professions were definitely much more adventurous, socially bold, and less inhibited by environmental threat. They tended to be more impulsive and

responsive, friendly and carefree, while women in traditionally female professions tended to be slightly withdrawn, emotionally cautious, restrained and careful.

Similarity was again found on Factor I (Sensitivity) and Factor L (Adaptability) between the two groups. They did not differ much from the general population in their sensitivity and adaptability. Comparatively speaking, women in traditionally female professions were slightly aesthetic-minded and unrealistic, dogmatic and self-opinionated, and tended to be more suspicious.

Women in traditionally female professions differed significantly ( $P < .05$ ) from women in traditionally male professions on Factor M (Practical vs. Imaginative). They were found to be significantly more imaginative and unconventional. They had a higher degree of subjectivity and inner mental life. Conversely, they might have a greater degree of internal anxiety and conflict, tension and ideas, and sentiments than women in traditionally male professions whose sten score falls in the norm. Women in traditionally male professions tended to be more practical and conventional.

A high score on Factor N (Forthright vs. Shrewdness) indicates a person's flexibility in viewpoint, alertness to manners and social obligations, and to the social reactions of others. It also indicates whether a person is more polished and artful than others. Women in traditionally female professions were revealed as much more shrewd in tactical skills dealing with people and situations ( $P < .001$ ), while women in traditionally male professions were more natural, contented and trustful.

Little difference was found between the two groups on Factor O (Self-assured vs. Apprehensive). Both groups were slightly below the average of the general population in terms of apprehension. This suggests that both groups were all less self-reproaching, less guilt-prone, and less inclined to worry than the general population. The groups differed little; both groups were self-confident, having a feeling of adequacy in their work and in meeting the demands of daily life. There was a tendency for the traditionally male professional group to possess these personality qualities in a higher degree. This trait may provide additional evidence that a high ego strength helps the women in traditionally male professions to be braver in resisting less acceptable situations in the professional world.

Women in traditionally male professions resembled the general population on Factor  $Q_1$  (Conservative vs. Liberal) whereas women in traditionally female professions tended to be more free and analytical in their thinking. These women were inclined to experiment more in problem solving and be more skeptical. They tended to be more interested in breaking the crust of custom and tradition. They were more independent in thinking.

Again, there was no significant difference on Factor  $Q_2$  (Social-approved vs. Self-sufficient) between the traditionally male professional group and the traditionally female professional group. They were above average compared with people in general. They showed a strong tendency to be self-sufficient, especially in decision making. They definitely

depended much less on social approval. Women in traditionally female professions were revealed to be more resourceful and unconventional in their critical thinking.

Incidentally, the closeness of the sten scores on Factor  $Q_3$  (Controlled vs. Uncontrolled) indicate that women in either traditionally male professions or traditionally female professions were well above average in comparison with people in general in emotional maturity and will power. Persons scoring high on this factor show "socially approved character responses, self-control, persistence, foresight, considerateness of others, conscientiousness, and regard for etiquette and social reputation". (Cattell, Eber, Tatsuoka, 1970). This description from the Handbook of the 16 PF aptly describes the cooperative participants in this study.

A high score on Factor  $Q_4$  (Relaxed vs. Tense) indicates a high energetic tension. The sten score of women in traditionally female professions showed that they were more tense and anxious while women in traditionally male professions were more composed and relaxed in situational or environmental frustration and difficulty. Nevertheless, this difference was not significant. There was a wider difference between women in traditionally female professions and the general population than the difference between women in traditionally male professions and the general population. Women in traditionally male professions tended to be more average in this particular personality trait.

### Summary of Personality Variables

In general, based on the sten scores of the 16 PF, the groups differed significantly on five personality variables namely: Factor A (Reserved vs. Outgoing), Factor B (Less intelligent vs. More intelligent), Factor H (Threat-sensitive vs. Venturesome), Factor M (Practical vs. Imaginative) and Factor N (Forthright vs. Shrewd). Women in traditionally male professions were more outgoing, adaptable, and casual, whereas women in traditionally female professions were more reserved, rigid and precise. Both professional groups were high in intelligence compared with women in general. However, the traditionally female professional group was superior in intelligence to the traditionally male professional group. Women in traditionally male professions were definitely more adventurous, socially bold, and less inhibited by environmental threats than women in traditionally female professions. Women in traditionally male professions were found more practical and less sentimental while women in traditionally female professions were more imaginative, and had a higher degree subjectivity and inner mental life. They were more shrewd in tactical dealings with people and in various situations, whereas women in traditionally male professions were more natural, contented, and trustful.

The two professional groups, with a larger number of personality variables insignificantly different, showed much similarities in personality characteristics. The most similar ones were found in Factor C (Emotionally stable), Factor E (Assertive), Factor F (Serious), Factor G (Conscientious),

Factor I (Sensitive), Factor L (Adaptable), Factor O (Self-assured), Factor  $Q_1$  (Experimenting), Factor  $Q_2$  (Self-sufficient), Factor  $Q_3$  (Self-controlled), and Factor  $Q_4$  (Tense). This suggested that they were all emotionally stable, assertive, serious, conscientious, sensitive, adaptable, self-assured, experimenting, self-sufficient, self-controlled, and more tense than women in general.

### Biographical Variables

The biographical variables were defined as the data obtained from the biographical questionnaire. All data were computerized and were analyzed by means of the chi square statistics.

Responses from participants varied. A large majority responded completely to the questionnaire. A few neglected some of the questions. This might indicate that the poor respondents were self-opinionated, or inhibited by psychological reasons. On the whole, responses were more than adequate. Spaces provided for additional comments from participants were occasionally filled with enthusiasm.

It is difficult to believe that only one-third of women in traditionally male professions had their collegiate major in male-oriented professions, and obtained their B. A. degree or M. A. degree in the male professions, whereas more than 90% of women in traditionally female professions took a female major field and earned their B. A. degree or M. A. degree in female professions. This finding strongly indicated the shifting of professions, mainly from female professions

to male professions. The switch did not occur in graduate school, but after college.

Table 8

Frequency Table and Chi Square Statistics for  
College Major Field

|                     | TMP Group* |        | TFP Group**         |       | Total |
|---------------------|------------|--------|---------------------|-------|-------|
|                     | N          | %      | N                   | %     |       |
| Male-oriented       | 32         | 38.6   | 9                   | 8.8   | 41    |
| Female-oriented     | 51         | 61.4   | 93                  | 91.2  | 144   |
| Total               | 83         | 100.0  | 102                 | 100.0 | 185   |
| Chi square = 21.757 |            | DF = 1 | Sig. level = 0.0000 |       |       |

Table 9

Frequency Table and Chi Square Statistics for  
B. A. Degree/Certificate

|                      | TMP Group |        | TFP Group           |       | Total |
|----------------------|-----------|--------|---------------------|-------|-------|
|                      | N         | %      | N                   | %     |       |
| In male profession   | 36        | 37.5   | 7                   | 6.4   | 43    |
| In female profession | 60        | 62.5   | 103                 | 93.6  | 163   |
| Total                | 90        | 100.0  | 110                 | 100.0 | 206   |
| Chi square = 28.234  |           | DF = 1 | Sig. level = 0.0000 |       |       |

\*TMP group refers to traditionally male professional group.

\*\*TFP group refers to traditionally female professional group.

Table 10

Frequency Table and Chi Square Statistics for  
M. A. Degree

|                      | TMP Group<br>N % | TFP Group<br>N %    | Total |
|----------------------|------------------|---------------------|-------|
| In male profession   | 12 30.0          | 1 1.4               | 13    |
| In female profession | 28 70.0          | 68 98.6             | 96    |
| Total                | 40 100.00        | 69 100.0            | 109   |
| Chi square = 17.026  | DF = 1           | Sig. level = 0.0000 |       |

The tendency for high proportion of female professional M. A. degrees may suggest that the need for affiliation is still strongly imbedded in some women even if they have successfully completed their B. A. degrees in male-oriented fields. Women who switched their majors in working toward a female professional M. A. degrees were motivated toward academic achievement, but they were less resistant to the cultural pressure to them.

Table 11

Frequency Table and Chi Square Statistics for  
Describing One's Own Personality

|                              | TMP Group<br>N % | TFP Group<br>N %    | Total |
|------------------------------|------------------|---------------------|-------|
| Traditionally feminine       | 74 31.5          | 45 40.9             | 79    |
| More independent & assertive | 73 67.5          | 60 54.5             | 133   |
| Between                      | 1 0.9            | 5 4.3               | 6     |
| Total                        | 108 100.0        | 110 100.0           | 218   |
| Chi square = 5.451           | DF = 2           | Sig. level = 0.0655 |       |

Evidence of a gradual development in masculine personality traits of women in traditionally male professions is provided by their own statements of being more independent and assertive.

In fact both women in traditionally male professions and women in traditionally female professions shared the tendency toward the development of increasing independency and assertiveness. This development suggests that age leads a woman, either in a traditionally male profession or a female profession, to become more masculine, and that their increase in masculinity correlates with their achievement needs at the age of forty.

Table 12

Frequency Table and Chi Square Statistics for  
Reaction to Children Who Are Grown and Have Left Home

|                                       | TMP Group<br>N % | TFP Group<br>N %    | Total |
|---------------------------------------|------------------|---------------------|-------|
| Feel free and relieved                | 3 9.7            | 2 6.3               | 5     |
| Feel lonely, lost, depressed          | 7 32.6           | 3 9.7               | 10    |
| Happy, proud, duty fulfilled          | 8 25.8           | 12 38.7             | 20    |
| Still care for them as before         | 2 6.5            | 3 9.7               | 5     |
| Take up other interest and activities | 4 12.9           | 6 19.4              | 10    |
| Start to work again                   | 3 9.7            | 1 3.2               | 4     |
| Become more absorbed at work          | 4 12.9           | 4 12.9              | 8     |
| Total                                 | 31 100.0         | 31 100.0            | 62    |
| Chi square = 4.200                    | DF = 6           | Sig. level = 0.6496 |       |

Sixty-two out of 82 married professional women in reacting to the question about grown-up children who have left

home, 20% of the women in traditionally male professions and 16% of the women in traditionally female professions stated that they returned to work at that point, or that they became more absorbed at work. Those who returned to work might be the ones who placed the role of motherhood foremost. Motherhood is valued and identifies femininity in any society.

Those whose response showed them to be more absorbed at work after their children had grown and left home, might find more time to devote to their work and might find freedom from guilt feelings that a working mother might have. (Garland and Poloma, 1972).

More women in traditionally male professions reported that they felt lonely, lost, and depressed after their children had grown and left home. This might be due to the fact that they were more ambivalent about the female role.

Because of the small numbers in different responses to this question, this table could only serve a tentative purpose.

Table 13

Frequency Table and Chi Square Statistics for  
Like Being a Mother and Enjoy Raising Children

|              | TMP Group |        | TFP Group           |       | Total |
|--------------|-----------|--------|---------------------|-------|-------|
|              | N         | %      | N                   | %     |       |
| Very much    | 35        | 79.5   | 34                  | 91.9  | 69    |
| Fairly much  | 8         | 18.2   | 3                   | 8.1   | 11    |
| Not at all   | 1         | 2.3    | 0                   | 0.0   | 1     |
| Total        | 44        | 100.0  | 37                  | 100.0 | 81    |
| <hr/>        |           |        |                     |       |       |
| Chi square = | 2.702     | DF = 2 | Sig. level = 0.2589 |       |       |

In response to the question of whether they like being a mother and enjoy raising children, almost all the working mothers, either in male professions or female professions, reported that they did. Only one out of 44 working mothers in the traditionally male professions provided a negative answer. These women feel successful in motherhood as well as in a profession.

Table 14

Frequency Table and Chi Square Statistics for  
Like Being a Mother and Enjoy Raising Children

(Professional Women at Different Age Levels)

|                                                                                         | Below 30 |       | 31-40 |       | 41-55 |       | 56 & older |       | Total |
|-----------------------------------------------------------------------------------------|----------|-------|-------|-------|-------|-------|------------|-------|-------|
|                                                                                         | N        | %     | N     | %     | N     | %     | N          | %     |       |
| Very much                                                                               | 1        | 33.3  | 7     | 77.8  | 29    | 87.9  | 31         | 88.6  | 68    |
| Fairly much                                                                             | 2        | 66.7  | 2     | 22.2  | 3     | 9.1   | 4          | 11.4  | 11    |
| Not at all                                                                              | 0        | 0.0   | 0     | 0.0   | 1     | 3.0   | 0          | 0.0   | 1     |
| Total                                                                                   | 3        | 100.0 | 9     | 100.0 | 33    | 100.0 | 35         | 100.0 | 80    |
| Chi square = 9.744                      DF = 6                      Sig. level = 0.1359 |          |       |       |       |       |       |            |       |       |

There was some tendency for younger mothers, to respond more ambivalently, whereas more mature women reported more positively.

Table 15 -

Frequency Table and Chi Square Statistics for  
Professions Considered at Junior High School

|                                                                                         | TMP Group |       | TFP Group |       | Total |
|-----------------------------------------------------------------------------------------|-----------|-------|-----------|-------|-------|
|                                                                                         | N         | %     | N         | %     |       |
| Male profession                                                                         | 13        | 21.7  | 5         | 7.6   | 18    |
| Female profession                                                                       | 43        | 71.7  | 60        | 90.9  | 103   |
| Glamour/Entertaining                                                                    | 4         | 6.7   | 1         | 1.5   | 5     |
| Total                                                                                   | 60        | 100.0 | 66        | 100.0 | 126   |
| Chi square = 7.894                      DF = 2                      Sig. level = 0.0193 |           |       |           |       |       |

The desire to join a profession in the male domain seemed to increase from junior high school age through college. This tendency continued even after college age.

Table 16

Frequency Table and Chi Square Statistics for Professions Considered at Senior High School

|                      | TMP Group |        | TFP Group           |       | Total |
|----------------------|-----------|--------|---------------------|-------|-------|
|                      | N         | %      | N                   | %     |       |
| Male profession      | 25        | 28.7   | 7                   | 7.1   | 32    |
| Female profession    | 54        | 62.1   | 85                  | 86.7  | 139   |
| Glamour/Entertaining | 4         | 4.6    | 2                   | 2.0   | 6     |
| Male and female      | 2         | 2.3    | 3                   | 3.1   | 5     |
| Religious            | 2         | 2.3    | 1                   | 1.0   | 3     |
| Total                | 87        | 100.0  | 98                  | 100.0 | 185   |
| Chi square = 17.647  |           | DF = 4 | Sig. level = 0.0014 |       |       |

Table 17

Frequency Table and Chi Square Statistics for Professions Considered in College

|                     | TMP Group |        | TFP Group           |       | Total |
|---------------------|-----------|--------|---------------------|-------|-------|
|                     | N         | %      | N                   | %     |       |
| Male profession     | 31        | 41.3   | 8                   | 8.8   | 39    |
| Female profession   | 44        | 58.7   | 83                  | 91.2  | 127   |
| Total               | 75        | 100.0  | 91                  | 100.0 | 166   |
| Chi square = 22.447 |           | DF = 1 | Sig. level = 0.0000 |       |       |

This finding suggests that a teen-aged girl must have already experienced femininity anxiety and conflict.

Table 18

Frequency Table and Chi Square Statistics for  
Professions Considered after College

|                     | TMP Group |       | TFP Group           |       | Total |
|---------------------|-----------|-------|---------------------|-------|-------|
|                     | N         | %     | N                   | %     |       |
| Male profession     | 32        | 61.5  | 4                   | 5.4   | 36    |
| Female profession   | 20        | 38.5  | 70                  | 94.6  | 90    |
| Total               | 52        | 100.0 | 74                  | 100.0 | 126   |
| <hr/>               |           |       |                     |       |       |
| Chi square = 44.441 | DF = 1    |       | Sig. level = 0.0000 |       |       |

The participants in this study must have been very persistent, for a large percent of them eventually shifted to the male profession in spite of internal conflict and ambivalence in femininity and achievement success.

Table 19

Frequency Table and Chi Square Statistics for  
Gave Priority to Marriage in Early 20's

|                    | TMP Group |       | TFP Group           |       | Total |
|--------------------|-----------|-------|---------------------|-------|-------|
|                    | N         | %     | N                   | %     |       |
| Yes                | 33        | 30.8  | 47                  | 42.7  | 80    |
| No                 | 74        | 69.2  | 63                  | 57.3  | 137   |
| Total              | 107       | 100.0 | 110                 | 100.0 | 217   |
| <hr/>              |           |       |                     |       |       |
| Chi square = 2.801 | DF = 1    |       | Sig. level = 0.0942 |       |       |

When asked whether they did give priority to marriage in their early 20's, the majority of participants in this study responded negatively. Although there is not significant difference between the two groups, their large negative answer suggested that they viewed college achievement, followed by a professional career, as more important.

Table 20

Frequency Table and Chi Square Statistics for  
Reasons for Choosing Present Profession

|                                                          | TMP<br>N | Group<br>% | TFP<br>N | Group<br>% | Total |
|----------------------------------------------------------|----------|------------|----------|------------|-------|
| Good salary                                              | 6        | 5.7        | 7        | 6.5        | 13    |
| Secure future                                            | 8        | 7.5        | 5        | 4.6        | 13    |
| Fits own ability and skill                               | 45       | 42.5       | 32       | 29.6       | 77    |
| Freedom to work independently                            | 10       | 9.4        | 9        | 8.3        | 19    |
| Opportunity for personal<br>growth                       | 9        | 8.5        | 7        | 6.5        | 16    |
| Most interesting to do                                   | 18       | 17.0       | 40       | 37.0       | 58    |
| Can be creative and original                             | 10       | 9.4        | 8        | 7.4        | 18    |
| Total                                                    | 106      | 100.0      | 108      | 100.0      | 214   |
| Chi square = 11.816      DF = 6      Sig. level = 0.0662 |          |            |          |            |       |

Neither groups thought that a good salary and a secure future were the reasons they chose their present profession. Women in traditionally male professions seemed to think it more important for the professions they were in to fit their own ability and skill, whereas women in traditionally female professions stressed both ability and skill as well as interest in their work.

Similarity in responses again was found in respondents' opinion of whether their co-workers were supportive or not. Ninety-nine percent of both groups thought their co-workers' attitude toward them was supportive, although there was a very slight difference in the degree of supportiveness.

Table 21

Frequency Table and Chi Square Statistics for  
Supportive Attitude of Co-workers

|                                                         | TMP Group |       | TFP Group |       | Total |
|---------------------------------------------------------|-----------|-------|-----------|-------|-------|
|                                                         | N         | %     | N         | %     |       |
| Very much                                               | 77        | 74.8  | 89        | 84.8  | 166   |
| Some                                                    | 25        | 24.3  | 15        | 14.3  | 40    |
| Not at all                                              | 1         | 1.0   | 1         | 1.0   | 2     |
| Total                                                   | 103       | 100.0 | 105       | 100.0 | 208   |
| Chi square = 3.349      DF = 2      Sig. level = 0.1872 |           |       |           |       |       |

Table 22

Frequency Table and Chi Square Statistics for  
Attitude of the Public Toward One's Own Profession Changing

|                                                          | TMP Group |       | TFP Group |       | Total |
|----------------------------------------------------------|-----------|-------|-----------|-------|-------|
|                                                          | N         | %     | N         | %     |       |
| Yes                                                      | 45        | 43.7  | 32        | 30.5  | 77    |
| Somewhat                                                 | 43        | 41.7  | 32        | 30.5  | 75    |
| No                                                       | 15        | 14.6  | 41        | 39.0  | 56    |
| Total                                                    | 103       | 100.0 | 105       | 100.0 | 208   |
| Chi square = 15.862      DF = 2      Sig. level = 0.0004 |           |       |           |       |       |

More women in traditionally male professions (84%) believed that the attitude of the public toward women in their profession was changing, while fewer of the women in traditionally female professions (61%) held the same opinion.

About half of the women in traditionally male professions said that they would advance further, faster, or be more productive if they were men, while three-fifths of the women in traditionally female professions denied this.

Table 23

Frequency Table and Chi Square Statistics for  
Would Advance Further, Faster, or be  
More Productive if Were Men

|                                                         | TMP Group |       | TFP Group |       | Total |
|---------------------------------------------------------|-----------|-------|-----------|-------|-------|
|                                                         | N         | %     | N         | %     |       |
| Yes                                                     | 55        | 51.9  | 43        | 40.2  | 98    |
| No                                                      | 51        | 48.1  | 64        | 59.8  | 115   |
| Total                                                   | 106       | 100.0 | 107       | 100.0 | 213   |
| Chi square = 2.482      DF = 1      Sig. level = 0.1151 |           |       |           |       |       |

Table 24

Frequency Table and Chi Square Statistics for  
Reasons that Enabled or Hindered Oneself to Advance  
Further, Faster or be More Productive if One Were Man

|                                                          | TMP Group |       | TFP Group |       | Total |
|----------------------------------------------------------|-----------|-------|-----------|-------|-------|
|                                                          | N         | %     | N         | %     |       |
| Men get promotion to be administrative faster            | 16        | 25.0  | 30        | 57.7  | 46    |
| All energy could be focused on career                    | 2         | 3.1   | 3         | 5.8   | 5     |
| Would succeed the same through hard work                 | 16        | 25.0  | 8         | 15.4  | 24    |
| Men got more advantages and benefits                     | 7         | 10.9  | 1         | 1.9   | 8     |
| Were accepted and given equal opportunity                | 6         | 9.4   | 1         | 1.9   | 7     |
| Men received higher salary in the same position          | 5         | 7.8   | 1         | 1.9   | 6     |
| Women were recognized as contributing something unique   | 3         | 4.7   | 7         | 13.5  | 10    |
| Personality, determination and dedication to work        | 9         | 14.1  | 1         | 1.9   | 10    |
| Total                                                    | 64        | 100.0 | 52        | 100.0 | 116   |
| Chi Square = 24.891      DF = 7      Sig. level = 0.0008 |           |       |           |       |       |

Twenty-five percent of the women in traditionally male professions believed that they would succeed all the same through hard work. Almost 58% of the women in traditionally female professions felt sex discrimination. These respondents felt that men were promoted faster and received higher salary than women in similar positions, although they believed that women were more productive. These conditions tended to be true in professions such as teaching, library services, and social work. Only 25% of the women in traditionally male professions reported unequal treatment between the sexes. Eleven percent of the women in traditionally male professions admitted that if they were male they would have a wider choice of places to work and more public acceptance. Another difference in their different opinion was that women in traditionally male professions held the belief that certain personality qualities, such as determination and dedication to work were facilitators for advancement. This statement supports the belief held by 25% of their counterparts, that success can be achieved through hard work. About nine percent of women in traditionally male professions thought that they were accepted and were given equal opportunities. A few viewed themselves as well adapted to their professions and receiving recognition as unique contributors.

The age levels of the professional women revealed significant differences. The younger the women, the more certain they were that prejudice existed against them, and that they could advance further and faster and be more productive if they were of the opposite sex.

Table 25

Frequency Table and Chi Square Statistics for  
Would Advance Further, Faster, or be  
More Productive if Were Men

(Professional Women at Different Age Levels)

|                     | Below 30 |       | 31-40 |       | 41-55  |       | 56 & older          |       | Total |
|---------------------|----------|-------|-------|-------|--------|-------|---------------------|-------|-------|
|                     | N        | %     | N     | %     | N      | %     | N                   | %     |       |
| Yes                 | 13       | 86.7  | 12    | 63.2  | 38     | 49.4  | 33                  | 33.3  | 96    |
| No                  | 2        | 13.3  | 7     | 36.8  | 39     | 50.6  | 66                  | 66.7  | 114   |
| Total               | 15       | 100.0 | 19    | 100.0 | 77     | 100.0 | 99                  | 100.0 | 210   |
| Chi square = 18.992 |          |       |       |       | DF = 3 |       | Sig. level = 0.0003 |       |       |

Table 26

Frequency Table and Chi Square Statistics for  
Have Made Contribution to Community/Society

|                    | TMP Group |       | TFP Group |       | Total               |
|--------------------|-----------|-------|-----------|-------|---------------------|
|                    | N         | %     | N         | %     |                     |
| A great deal       | 45        | 41.3  | 32        | 28.8  | 77                  |
| Average amount     | 59        | 54.1  | 68        | 61.3  | 126                 |
| Little             | 5         | 4.6   | 11        | 9.9   | 16                  |
| Total              | 109       | 100.0 | 111       | 100.0 | 221                 |
| Chi square = 5.065 |           |       |           |       | DF = 2              |
|                    |           |       |           |       | Sig. level = 0.0795 |

More women in traditionally male professions believed that they had contributed a great deal to the community or society while the majority of women in traditionally female professions thought that they had contributed only an average amount. Ten percent reported that they had contributed very little.

From their responses to the above question, it seemed that women in traditionally male professions had higher self-esteem related to their work.

Table 27.

Frequency Table and Chi Square Statistics for  
Nouns Identifying Self as a Person

|                     | TFP Group |        | TFP Group |                     | Total |
|---------------------|-----------|--------|-----------|---------------------|-------|
|                     | N         | %      | N         | %                   |       |
| Mother              | 15        | 14.7   | 7         | 6.5                 | 22    |
| Wife                | 17        | 16.7   | 31        | 29.0                | 48    |
| Woman               | 11        | 10.8   | 9         | 8.4                 | 20    |
| Scholar             | 1         | 1.0    | 3         | 2.8                 | 4     |
| Professional        | 56        | 54.9   | 45        | 42.1                | 101   |
| Friend              | 2         | 2.0    | 10        | 9.3                 | 12    |
| Citizen             | 0         | 0.0    | 1         | 0.9                 | 1     |
| Single              | 0         | 0.0    | 1         | 0.9                 | 1     |
| Total               | 102       | 100.0  | 107       | 100.0               | 205   |
| Chi square = 16.614 |           | DF = 7 |           | Sig. level = 0.0201 |       |

It is interesting to note that more women in traditionally male professions identify themselves as professional, while at the same time more of them identified themselves as a mother than a wife than did the women in traditionally female professions.

In a previous question both the women in traditionally male professions and the women in traditionally female professions reported that they liked being a mother and enjoyed raising children. The discrepancy found in identifying themselves as a wife or a mother raise the question of whether a woman engaged in a male profession has a greater femininity ambivalence and feeling of guilt toward her children. Working in a setting where, masculinity has to be demonstrated, a woman

would find it difficult to shift to femininity at home when she has to be affectionate and loving toward her children and husband if she wants to be successful in the feminine role.

Table 28

Frequency Table and Chi Square Statistics for  
Additional Comments on Being a Woman in Own Profession  
(Positive Comments)

|                                                          | TMP<br>N | Group<br>% | TFP<br>N | Group<br>% | Total |
|----------------------------------------------------------|----------|------------|----------|------------|-------|
| Good for personal growth                                 | 3        | 9.1        | 6        | 21.4       | 9     |
| No problem, normal                                       | 2        | 6.1        | 6        | 21.4       | 8     |
| Let men & women all do a good job                        | 2        | 6.1        | 1        | 3.6        | 3     |
| Success gave encouragement & satisfaction                | 4        | 12.1       | 2        | 7.1        | 6     |
| Proud & enjoy being a woman in own profession            | 3        | 9.1        | 1        | 3.6        | 4     |
| Sex is not important, but personality is                 | 13       | 39.4       | 3        | 10.7       | 16    |
| Most rewarding                                           | 5        | 15.2       | 9        | 32.1       | 14    |
| Woman can go as far as she wants in any profession       | 1        | 3.0        | 0        | 0.0        | 1     |
| Total                                                    | 33       | 100.0      | 28       | 100.0      | 61    |
| Chi square = 13.071      DF = 7      Sig. level = 0.0704 |          |            |          |            |       |

Additional comments were provided by one-fourth of the participants in the study. Sixty-one participants expressed positive comments on their professions whereas 36 conveyed negative comments.

Among the positive comments, 39.4% of the women in traditionally male professions believed that sex was not important in their work but personality was. Two of the respondents

in this category even reported that when at work, they forgot their sex. They did not think that they were women, but professionals. Thirty-two percent of women in traditionally female professions felt that their profession was most rewarding, providing fulfillment, satisfaction, and appropriate compensation. The same number of women in traditionally female professions thought that it was normal to be in their profession and that their profession was good for personal growth. Far fewer of women in traditionally male professions had the same opinion on this matter. Twelve percent of the respondents in traditionally male professions demonstrated that challenge gratified them by saying that success gave them encouragement and satisfaction. Nine percent expressed pride and joy in being in a male profession.

Table 29

Frequency Table and Chi Square Statistics for  
Additional Comments on Being a Women in Own Profession  
(Negative Comments)

|                                                              | TMP Group<br>N | %     | TFP Group<br>N | %     | Total |
|--------------------------------------------------------------|----------------|-------|----------------|-------|-------|
| Progress for women is still slow                             | 1              | 5.9   | 3              | 15.8  | 4     |
| Still some sex bias & unacceptance                           | 8              | 47.1  | 1              | 5.3   | 9     |
| No chance to advance                                         | 1              | 5.9   | 2              | 10.5  | 3     |
| Men have come increasingly to female prof. and get top jobs  | 0              | 0.0   | 13             | 68.4  | 15    |
| Working in a man's world is both challenging and frustrating | 3              | 17.6  | 0              | 0.0   | 3     |
| Required many adjustments                                    | 3              | 17.6  | 0              | 0.0   | 3     |
| Women are considered secondary                               | 1              | 5.9   | 0              | 0.0   | 1     |
| Total                                                        | 17             | 100.0 | 19             | 100.0 | 36    |
| Chi square = 26.749      DF = 6      Sig. level = 0.0002     |                |       |                |       |       |

Contrarily many women in traditionally male professions felt frustrated and inferior when working in a man's world. Forty percent of the respondents reported that they were both challenged and frustrated by the great adjustment required at work and that women were considered secondary. If we direct our attention to the top three responses, it is evident that the other half of the women in traditionally male professions also expressed the same frustration. They felt that there was no chance for them to advance, that progress for women was still slow, and that sex bias as well as non-acceptance were still prevalent.

Speaking of women in traditionally female professions what concerned them most was that their territory was being invaded by men. Sixty-eight percent said that even in a traditionally female profession, men invaders were appointed to administrative positions faster and enjoyed higher salaries.

On examining the biographical data, such as the personality variable data, similarities and discrepancies were found between the traditionally male professional group and the traditionally female professional group. Data described hereafter are those in which the least differences were found and in which the differences were of no significance.

There was no significant difference in favorite subjects in grade school, junior high school, and high school between the two professional groups. Both groups showed poor responses to these questions. The lapse of time might have dimmed their memories. To a small degree, more women in

traditionally male professions reported that science was their favorite subject while women in traditionally female professions preferred arts.

Again no significant difference was found in fathers' education. There seemed a slight tendency for mothers of women in traditionally female professions to have a slightly higher educational level than the mothers of women in traditionally male professions.

The same findings prevail with respect to the fathers' occupation, achievement, and monetary success. Both groups thought their mothers more successful in terms of achievement but not in monetary rewards.

Table 30

Frequency Table and Chi Square Statistics for  
Mother's Education

|                              | TMP Group<br>N | %     | TFP Group<br>N      | %     | Total |
|------------------------------|----------------|-------|---------------------|-------|-------|
| Completed grade school       | 6              | 5.9   | 11                  | 10.7  | 17    |
| Some high school             | 33             | 32.7  | 26                  | 25.2  | 59    |
| Completed high school        | 33             | 32.7  | 21                  | 20.4  | 54    |
| Some college                 | 18             | 17.8  | 22                  | 21.4  | 40    |
| College graduate             | 8              | 7.9   | 18                  | 17.5  | 26    |
| Advanced/Professional degree | 3              | 3.0   | 5                   | 4.9   | 8     |
| Total                        | 101            | 100.0 | 103                 | 100.0 | 204   |
| Chi square = 9.695           | DF = 5         |       | Sig. level = 0.0843 |       |       |

Table 31

Frequency Table and Chi Square Statistics for  
Father's Leisure Activities

|                                                         | TMP<br>N | Group<br>% | TFP<br>N | Group<br>% | Total |
|---------------------------------------------------------|----------|------------|----------|------------|-------|
| Reading                                                 | 30       | 31.3       | 42       | 40.8       | 72    |
| Music and art                                           | 7        | 7.3        | 7        | 6.8        | 14    |
| Sports, gardening, travel                               | 33       | 34.4       | 26       | 25.2       | 59    |
| Family activities                                       | 8        | 8.3        | 16       | 15.5       | 24    |
| Games required mental ability                           | 8        | 8.3        | 6        | 5.8        | 14    |
| Church/Community activities                             | 3        | 3.1        | 4        | 3.9        | 7     |
| Social activities                                       | 7        | 7.3        | 2        | 1.9        | 9     |
| Total                                                   | 96       | 100.0      | 103      | 100.0      | 199   |
| Chi square = 8.468      DF = 6      Sig. level = 0.2058 |          |            |          |            |       |

Table 32

Frequency Table and Chi Square Statistics for  
Mother's Leisure Activities

|                                                         | TMP<br>N | Group<br>% | TFP<br>N | Group<br>% | Total |
|---------------------------------------------------------|----------|------------|----------|------------|-------|
| Reading                                                 | 23       | 23.5       | 34       | 31.5       | 57    |
| Music and art                                           | 12       | 12.2       | 12       | 11.1       | 24    |
| Sports, gardening, travel                               | 6        | 6.1        | 6        | 5.6        | 12    |
| Domestic work                                           | 31       | 31.6       | 38       | 35.2       | 69    |
| Games required mental ability                           | 8        | 8.2        | 6        | 5.6        | 14    |
| Church/Community activity                               | 5        | 5.1        | 6        | 5.6        | 11    |
| Social activity                                         | 13       | 13.3       | 6        | 5.6        | 19    |
| Total                                                   | 98       | 100.0      | 108      | 100.0      | 206   |
| Chi square = 5.316      DF = 6      Sig. level = 0.5040 |          |            |          |            |       |

No significant difference between the two groups was found in fathers' or mothers' leisure activities. There might be a slight tendency for fathers of women in traditionally male professions to take delight in outdoor activities, i.e., sports, gardening, and travel in addition to social activities. Fathers of women in traditionally female professions enjoyed more reading and family activities. Mothers of women in traditionally male professions tended to be more sociable while mothers of women in traditionally female professions tended to enjoy reading during their leisure time.

No significant difference was found with respect to being active in extra-curricular activities in grade school, junior high school, and senior high school, although both groups of professional women tended to participate more in extra-curricular activities with the advancement of educational levels. An increase in attitudes occurred in college. Eighty-eight and one-half percent of women in traditionally male professions reported that they were active in collegiate extra-curricular activities. More than half of them said that they

Table 33

Frequency Table and Chi Square Statistics for  
Being Active in Extra-curricular Activities in College

|               | TMP Group |        | TFP Group           |       | Total |
|---------------|-----------|--------|---------------------|-------|-------|
|               | N         | %      | N                   | %     |       |
| Very active   | 35        | 44.3   | 32                  | 31.0  | 67    |
| Fairly active | 27        | 34.2   | 35                  | 34.0  | 62    |
| Not active    | 17        | 21.5   | 36                  | 35.0  | 53    |
| Total         | 79        | 100.0  | 103                 | 100.0 | 182   |
| <hr/>         |           |        |                     |       |       |
| Chi square =  | 4.898     | DF = 2 | Sig. level = 0.0864 |       |       |

were very active. Only 21.5% of the total group reported that they were not active. The distribution among the traditionally female professional group was more even. Thirty-one percent reported that they were active in extra-curricular activities in college. Thirty-four percent reported being fairly active, 35% no activity at all.

Neither groups thought popularity important in high school. More than 69.3% of women in traditionally male professions and 72% of women in traditionally female professions stressed the importance of academic achievement. Percentages for both groups increased when they were asked about the importance of academic achievement in college.

There was no significant difference between the two groups concerning mothers working outside the home. Very close percentage of both groups (32% and 30%) reported that their mothers were working full-time or part-time. Sixty-seven percent of women in traditionally male professions and 70% of women in traditionally female professions reported that their mothers were not working.

There was a very significant difference in the nature of working mothers' work. Almost sixty-six percent of the mothers of women in traditionally male professions were non-professional, while 56% of the mothers of women in traditionally female professions were in traditionally female professions. This might suggest that having a mother working outside the home provided an incentive for the daughter to work in the

Table 34

Frequency Table and Chi Square Statistics for  
Nature of Mother's Work

|                                                         | TMP<br>N | Group<br>% | TMP<br>N | Group<br>% | Total |
|---------------------------------------------------------|----------|------------|----------|------------|-------|
| Traditionally male profession                           | 4        | 11.4       | 2        | 5.9        | 6     |
| Traditionally female profession                         | 8        | 22.9       | 18       | 55.9       | 27    |
| Non-professional                                        | 23       | 65.7       | 13       | 38.2       | 36    |
| Total                                                   | 35       | 100.0      | 34       | 100.0      | 69    |
| Chi square = 7.913      DF = 2      Sig. level = 0.0191 |          |            |          |            |       |

traditionally male profession, whereas a mother who worked in a traditionally female profession might influence her daughter to take up the same kind of work in future.

Table 35

Frequency Table and Chi Square Statistics for  
Conflict between Being a Housewife and a Working Woman

|                                                         | TMP<br>N | Group<br>% | TFP<br>N | Group<br>% | Total |
|---------------------------------------------------------|----------|------------|----------|------------|-------|
| A strong conflict                                       | 2        | 4.7        | 6        | 10.5       | 8     |
| Some conflict                                           | 10       | 23.3       | 19       | 33.3       | 29    |
| No conflict                                             | 31       | 72.1       | 32       | 56.1       | 63    |
| Total                                                   | 43       | 100.0      | 57       | 100.0      | 100   |
| Chi square = 2.906      DF = 2      Sig. level = 0.2339 |          |            |          |            |       |

Seventy-two percent of women in traditionally male professions reported no conflict in being a housewife and a working woman. A much greater percentage of women in traditionally female professions reported having either strong conflict or some conflict. One may question whether there is a certain self-denial

in the traditionally male professional group. In reality, they find more challenge at work and a greater demand in their feminine role.

Table 36

Frequency Table and Chi Square Statistics for  
Conflict between Being a Housewife and a Working Woman

|                                                                                          | Below 30 |       | 31-40 |       | 41-55 |       | 56 & older |       | Total |
|------------------------------------------------------------------------------------------|----------|-------|-------|-------|-------|-------|------------|-------|-------|
|                                                                                          | N        | %     | N     | %     | N     | %     | N          | %     |       |
| A strong conflict                                                                        | 1        | 11.1  | 2     | 18.2  | 2     | 4.7   | 2          | 5.6   | 7     |
| Some conflict                                                                            | 5        | 55.6  | 0     | 0.0   | 15    | 34.9  | 9          | 25.0  | 29    |
| No conflict                                                                              | 3        | 33.3  | 9     | 81.8  | 26    | 60.5  | 25         | 69.4  | 63    |
| Total                                                                                    | 9        | 100.0 | 11    | 100.0 | 43    | 100.0 | 36         | 100.0 | 99    |
| Chi square = 10.757                      DF = 6                      Sig. level = 0.0962 |          |       |       |       |       |       |            |       |       |

When analysing this particular datum at different age levels, it was found 55.6% of the professional women below the age of 30 admitted some conflict. In fact only three out of the nine women at this age level had children between ages one to five years old. Their major problem was taking care of preschool children. One might wonder whether their conflict was caused psychologically by anxiety in femininity and uncertainty in their new marriage. A surprisingly few (18%) of the professional women between the age of 31 to 40 admitted marriage conflict and the 82% reported no conflict. At this age level, married women actually have children in school. Their responses might reflect self-denial or that women successful in traditional female role were most likely to be fulfilled. The more mature women, with older children in college or having left home, naturally would respond "No conflict" in large numbers.

Table 37 .

Frequency Table and Chi Square Statistics for  
Single Women's Feeling of Conflict between Marriage and Work  
(Professional Women at Different Age Levels)

|                     | Below 30 |       | 31-40  |       | 41-55 |                     | 56 & older |       | Total |
|---------------------|----------|-------|--------|-------|-------|---------------------|------------|-------|-------|
|                     | N        | %     | N      | %     | N     | %                   | N          | %     |       |
| Some conflict       | 4        | 57.1  | 1      | 20.0  | 5     | 16.7                | 3          | 6.0   | 13    |
| No conflict         | 3        | 42.9  | 4      | 80.0  | 25    | 83.3                | 47         | 94.0  | 79    |
| Total               | 7        | 100.0 | 5      | 100.0 | 30    | 100.0               | 50         | 100.0 | 92    |
| Chi square = 13.698 |          |       | DF = 3 |       |       | Sig. level = 0.0033 |            |       |       |

Datum on single women's feeling of conflict between marriage and work again suggested femininity anxiety and fear of success in younger women, for they, contrarily to older single women, visualized some conflict, whereas the older women reported no conflict.

Table 38

### Frequency Table and Chi Square Statistics for Care of the House and Children

(Professional Women at Different Age Levels)

|                          | Below 30 |       | 31-40  |       | 41-55               |       | 56 & older |       | Total |
|--------------------------|----------|-------|--------|-------|---------------------|-------|------------|-------|-------|
|                          | N        | %     | N      | %     | N                   | %     | N          | %     |       |
| Self                     | 1        | 14.3  | 5      | 45.5  | 16                  | 41.0  | 13         | 43.3  | 35    |
| Husband and self         | 6        | 85.7  | 5      | 45.5  | 23                  | 59.0  | 14         | 46.7  | 48    |
| Mother-in-law/<br>Mother | 0        | 0.0   | 1      | 9.1   | 0                   | 0.0   | 2          | 6.7   | 3     |
| Hire some one            | 0        | 0.0   | 0      | 0.0   | 0                   | 0.0   | 1          | 3.3   | 1     |
| Total                    | 7        | 100.0 | 11     | 100.0 | 39                  | 100.0 | 30         | 100.0 | 87    |
| <hr/>                    |          |       |        |       |                     |       |            |       |       |
| Chi square =             | 8.594    |       | DF = 9 |       | Sig. level = 0.4755 |       |            |       |       |

Almost eighty-six percent of the young wives in either traditionally male professions or traditionally female professions reported sharing housework with their husband while wives above the age of thirty did more housework by themselves.

The less appreciating of being a mother and raising children, and the greater desire to share housework and child care with the husband, plus the feeling of having a stronger marriage conflict, indicates that the new ideology has infiltrated into the generation of young wives and even single women.

#### Summary of Biographical Variables

To summarize, the statistically significant findings are as follows:

(1) There was a great percentage (61.4%) of women who shifted their professions from the female-oriented ones to the male-oriented ones after college years.

(2) The aspiration to join a profession in the male domain increased from junior high school age through college, and this continued even after college years.

(3) There is a great increase in M. A. degrees in traditionally female professions compared with the percentage of female professional B. A. degrees.

(4) More of the women in traditionally male professions believed that the attitude of the public toward their profession was changing. Fewer of the women in traditionally female professions held the same opinion.

(5) In comparison among age levels, the younger the women, the more certain they were that prejudice existed against them. They were sure that they would advance further and faster, and be more productive if they were men.

(6) About half of the professional women identified themselves first of all as professionals. Among the rest of them more of the women in traditionally male professions identified themselves as a mother, while more of the women in traditionally female professions identified themselves as a wife.

(7) In their comments on being a woman in their professions, the women in traditionally male professions felt that they were considered secondary, and that challenge and frustration at work were immense. The women in traditionally female professions reported that even in their own sex-typed professions men were appointed to administrative positions faster and enjoyed higher salaries.

(8) Mothers of the women in traditional male professions were mostly non-professionals, while the majority of the mothers of the women in traditionally female professions were in sex-typed professions.

The following are the major findings between the two professional groups although they were not statistically significant:

(1) Both women in traditionally male professions and women in traditionally female professions seemed to share the tendency of personality development toward masculinity. They possessed masculine personality traits such as independence and assertion.

(6) Neither group thought a good salary and a secure future were the reasons they chose their present professions. All considered ability and skill were more important. The women in traditionally female professions thought that interest in their work was also important.

(7) Ninety-nine percent of both groups thought that their co-workers' attitude toward them was supportive.

(8) Sixty percent of the women in traditionally male professions and 40.2% of the women in traditionally female professions felt that they would advance further and faster, and be more productive if they were men.

(9) More women in traditionally male professions believed that they had contributed a great deal to the society or the community, while more women in traditionally female professions thought that they had contributed only an average amount.

(10) Women in traditionally male professions thought that sex was not important in their work, but personality was. They felt that their profession was rewarding and provided them fulfillment, satisfaction, and appropriate compensation. Some of them reported that they liked their profession because it was challenging, and they took pride and joy in working in the male domain. Women in traditionally female professions thought that it was normal to work in their profession and that their profession was good for personal growth and advantage.

(2) After children were grown and had left home, more women in traditionally male professions (32%) than the women in traditionally female professions (9.7%) felt that they were lonely, lost, and depressed. In contrast, more of the women in traditionally female professions (38.7%) than the women in traditionally male professions (25.8%) felt happy and proud because they had fulfilled their duties. One-fifth of the women in traditionally male professions, and one-sixth of the women in traditionally female professions reported that they returned to work or became more absorbed at work at this stage of life.

(3) All married professional women liked being a mother and enjoyed raising children. Only 18.2% of the women in traditionally male professions and 8.1% of the women in traditionally female professions reported in a lesser degree and one woman in traditionally male profession said that she did not like children at all. The majority described themselves as highly maternal, and had fulfilled their affective needs.

(4) Young mothers aged below 30, tended to be less maternal. They reported less investment in being a mother and raising children. The more mature women responded more positively.

(5) The majority of professional women responded negatively to the question of whether they had given priority to marriage in their early twenties.

(11) There were no significant differences in favorite subjects in grade school through high school between the two professional groups. Neither were there significant differences found in parental education, parental occupational success, and parental leisure activities. But the tendencies were that women in traditionally male professions favored science; their mother had a slightly lower educational level and were more sociable compared with the mothers of the women in traditionally female professions; and their fathers took delight in outdoor activities. Women in traditionally female professions tended to prefer arts; their mothers educational level was higher; and both their fathers and mothers enjoyed reading and activities at home.

(12) Neither group thought popularity important in high school. The majority of both groups stressed the importance of academic achievement. The percentage in both groups who held this opinion increased in college.

(13) Both professional groups tended to be more active in participating in extra-curricular activities with the advancement of educational levels. A difference in attitude occurred in college. Eighty-eight and one-half percent of the women in traditionally male professions reported that they were active in collegiate extra-curricular activities while less (65%) of the women in traditionally female professions reported that they were active.

(14) More women in traditionally male professions reported no conflict in being a housewife and a working woman. A much higher percentage of the women in traditionally female professions reported having either a strong conflict or some conflict.

(15) When comparing among age levels, two-thirds of the professional women below the age of 30 admitted either a strong conflict or some conflict, whereas only 18% of the professional women between the age of 31 to 40 reported a strong conflict and the rest (82%) reported no conflict. Professional women aged 41 and older reported much less role conflict.

(16) Younger single professional women (57.1%), in contrast to older single professional women (6%) reported that they visualized some marriage conflict.

(17) Eighty-five and seven-tenths percent of the young wives below the age of 30 shared house work with their husband while wives above the age of thirty did more house work by themselves.

## CHAPTER V

### ANALYSIS OF THE DATA - II

#### COMPARISON OF CREATIVE WOMEN IN TRADITIONALLY MALE PROFESSIONS WITH CREATIVE WOMEN IN TRADITIONALLY FEMALE PROFESSIONS

##### Introduction

The basic purpose of the description and analysis in this Chapter is to focus on the second question, namely:

Similarities and differences in personality characteristics and background experiences between creative women who choose traditionally male professions and creative women who choose traditionally female professions.

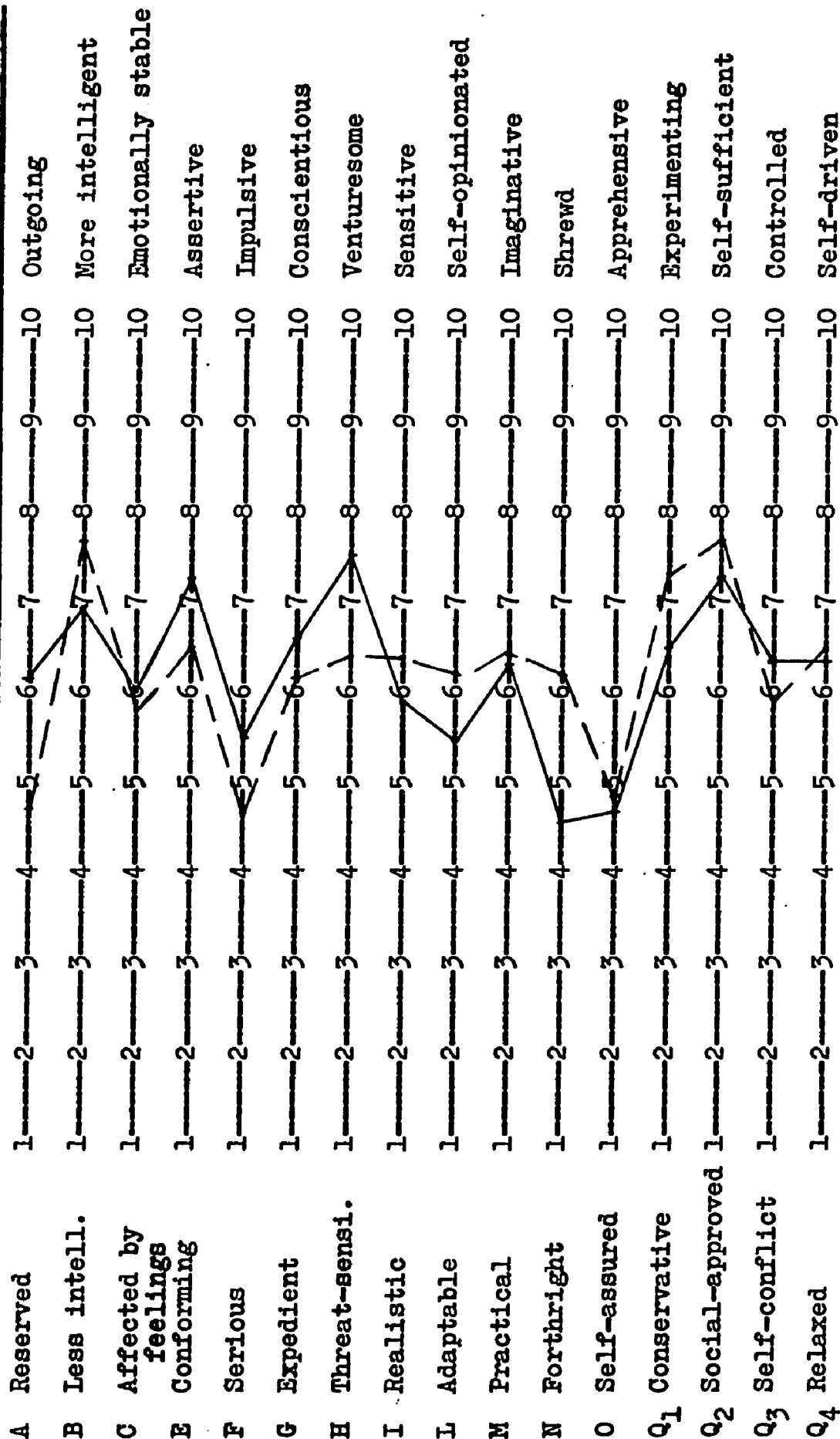
The selection of creative women is based on the two research instruments used in this study, namely: the 16 PF Questionnaire and the Adjective Check List.

##### Personality Variables

The personality variables were based on scores from the Sixteen Personality Factor Questionnaire (16 PF). The selection into High creative, Medium creative, and Low creative was based upon the creativity scores from the 16 PF and the

Graph 5

Profiles for 16 Personality Factor Questionnaire Scores  
 Traditionally Male Professional Creative Group & Traditionally Female Professional Creative Group  
 TMP Creative Group— TFP Creative Group—



Mean = 5.5

TABLE 39

RAW SCORE MEANS, STANDARD DEVIATION, T-STATISTICS FOR  
TRAITS MEASURED BY THE 16 PF QUESTIONNAIRE

| Variable                              | Creative<br>Mean | TMP Grp.<br>S.D. | Creative<br>Mean | TFP Grp.<br>S.D. | t     | DF | Proba-<br>bility |
|---------------------------------------|------------------|------------------|------------------|------------------|-------|----|------------------|
| Reserved vs.<br>Out-going             | 11.15            | 2.92             | 9.56             | 2.69             | 2.24  | 61 | .05              |
| Less intell. vs.<br>More intelligent  | 8.96             | 1.72             | 9.61             | 1.66             | -1.51 | 61 | NS               |
| Affected by feel.<br>vs. Emot. stable | 16.04            | 3.81             | 15.67            | 3.77             | 0.38  | 61 | NS               |
| Conforming vs.<br>Assertive           | 14.41            | 4.47             | 12.31            | 4.23             | 1.90  | 61 | NS               |
| Serious vs.<br>Impulsive              | 13.22            | 4.18             | 11.28            | 4.19             | 1.82  | 61 | NS               |
| Expedient vs.<br>Conscientious        | 14.22            | 3.03             | 13.31            | 3.82             | 1.03  | 61 | NS               |
| Threat-sensitive<br>vs. Venturesome   | 17.70            | 5.93             | 14.11            | 5.77             | 2.40  | 61 | .05              |
| Realistic vs.<br>Sensitive            | 13.81            | 4.23             | 14.75            | 3.53             | -0.95 | 61 | NS               |
| Adaptable vs.<br>Self-opinionated     | 6.92             | 3.54             | 6.34             | 2.86             | 0.71  | 61 | NS               |
| Practical vs.<br>Imaginative          | 14.52            | 3.23             | 14.81            | 3.88             | -0.31 | 61 | NS               |
| Forthright vs.<br>Shrewd              | 8.59             | 3.03             | 11.14            | 3.23             | -3.18 | 61 | .001             |
| Self-assured vs.<br>Apprehensive      | 8.30             | 4.38             | 8.69             | 3.79             | -0.39 | 61 | NS               |
| Conservative vs.<br>Experimenting     | 8.48             | 3.46             | 9.56             | 2.80             | -1.36 | 61 | NS               |
| Social-approved<br>vs. Self-suffi.    | 12.48            | 2.69             | 13.36            | 3.37             | -1.11 | 61 | NS               |
| Self-conflict<br>vs. Controlled       | 13.74            | 3.54             | 12.97            | 3.48             | 0.86  | 61 | NS               |
| Relaxed vs. Tense                     | 14.11            | 4.93             | 14.31            | 4.72             | -0.16 | 61 | NS               |

Adjective Check List. The following comparison is expressed in the descriptive terms provided by Cattell, Eber and Tatsuoka (1970).

Differences from the overall personality patterns of the high creative women in traditionally male professions (hereafter referred as creative women in TMP) and the high creative women in traditionally female professions (hereafter referred as creative women in TFP) were shown in Table . . . Of the 16 personality variables only three differed significantly. This suggests a basic similarity in the personality characteristics of the creative women in either traditionally male professions or traditionally female professions.

The creative women in TMP were found significantly different ( $P < .05$ ) from the creative women in TFP on Factor A(Reserved vs. Outgoing). The creative women in TMP were less reserved, more outgoing, and willing to participate in activities outside their profession or activities connected with their work. The creative women in TFP were more cautious in expressing themselves emotionally. They preferred working alone, and were less willing to participate in group activities.

The sten scores on Factor B (Less intelligent vs. More intelligent) indicates that both the creative women in TMP and the creative women in TFP were much more superior in intelligence than women in general. The close similarity in this personality factor suggests that both groups of creative women were highly insightful, intellectually adaptable, and bright. They had more interests in the academic world, had

higher scholastic mental capacity in abstract thinking, and showed better judgement on critical issues.

Both groups showed close similarity on Factor C (Affected by feelings vs. Emotional stability). The closeness of their sten scores to the mean suggests that they were also not different from general adult women. They tended to be calm and mature, stable and constant in emotions. Their average ego strength suggests that they were not easily upset or frustrated in situations where sudden adjustment was required, or difficulty arose.

Compared with general adult women, the creative women in TMP were much higher on Factor E (Humble vs. Assertive) than women in general; and they were more assertive when compared with the creative women in TFP. This indicates that creative women in TMP tended to be more assertive and aggressive, more competitive and dominant. The score of the creative women in TMP on this factor was exactly the same as that found in the male research scientists studied by Cattell and Drevdahl (1955).

On Factor F (Serious vs. Impulsive), the creative TMP group seemed to be as average as the women in general, while the creative TFP group was below the average. The difference between the two groups was not significant. The creative TFP group tended to be more serious and taciturn, more introspective and reflective, and more cautious both in speech and action.

The sten scores of both groups on Factor G (Expedient vs. Conscientious) were again very close without significant difference, and were just above average women in general. This suggests that both groups tended to be quite conscientious and persevering. The creative TMP group tended to be slightly more so.

A significant difference ( $P < .05$ ) was found on Factor H (Threat-sensitive vs. Venturesome). The creative TFP group was slightly above the general women population, while the creative TMP group was far more venturesome and socially bolder than the creative TFP group and differed further compared with the average women. Among the 16 personality variables, the creative TMP group scored the highest in this factor. Persons who scored high on this factor were very bold and were ready to try new things. They were also spontaneous and abundant in emotional response. They were described as free from autonomic fatigue, brave in social situations, and showed little inhibition by environmental threat. This personality trait tends to increase with age and score highly among administrators. (Cattell, Eber, and Tatsuoka, 1970)

The creative women in TMP seemed to be less sensitive but more realistic than the creative women in TFP on Factor I (Adaptable vs. Sensitive) although the difference was not significant. Creative women in TMP were as average as women in general. The creative women in TFP tended to be unrealistic, and impractical in general affairs. They were more tender-minded and feminine.

On Factor L the sten score of the creative TMP group fell in the norm and resembled very much the score of women in general. Comparatively the higher score of the creative TFP group showed that women in this group tended to be self-opinionated and were interested in internal mental life.

Similarity was observed on Factor M (Practical vs. Imaginative) between the creative TMP group and the creative TFP group. Both groups were slightly above the average. They tended to be unconventional, self-motivated, and imaginatively creative. Although they were inclined to disregard practical matters, they actually had higher internal anxiety and conflict tensions. They tended to be internally autonomous in their thinking.

The creative TMP group differed significantly ( $P < .001$ ) on Factor N (Forthright vs. Shrewd) from the creative TFP group. The creative TMP group was below the average while the creative TFP group was above the average. The creative women in the TFP group were more socially polished and flexible in view point. They were more exacting and calculating in mind, and were more intellectually analytical in approaching wordly situations. The creative women in the TMP group were more natural and spontaneous. They could be pleased easily and became contentedly happy.

Similarity was again found between the two groups on Factor O (Self-assured vs. Apprehensive). Both the creative women in TMP and the creative women in TFP scored below the mean. Compared with general adult women, they tended to be

self-assured and confident. They were resilient and secure, with a feeling of adequacy in dealing with people, things, or situations.

No significant differences were found between the creative TMP group and the creative TFP group on Factor  $Q_1$  (Conservative vs. Experimenting). The creative TFP group scored higher than the creative TMP group. Both groups were above women in general. This suggests that both groups were liberal, analytical, and free in thinking, but the creative TFP group was slightly more so.

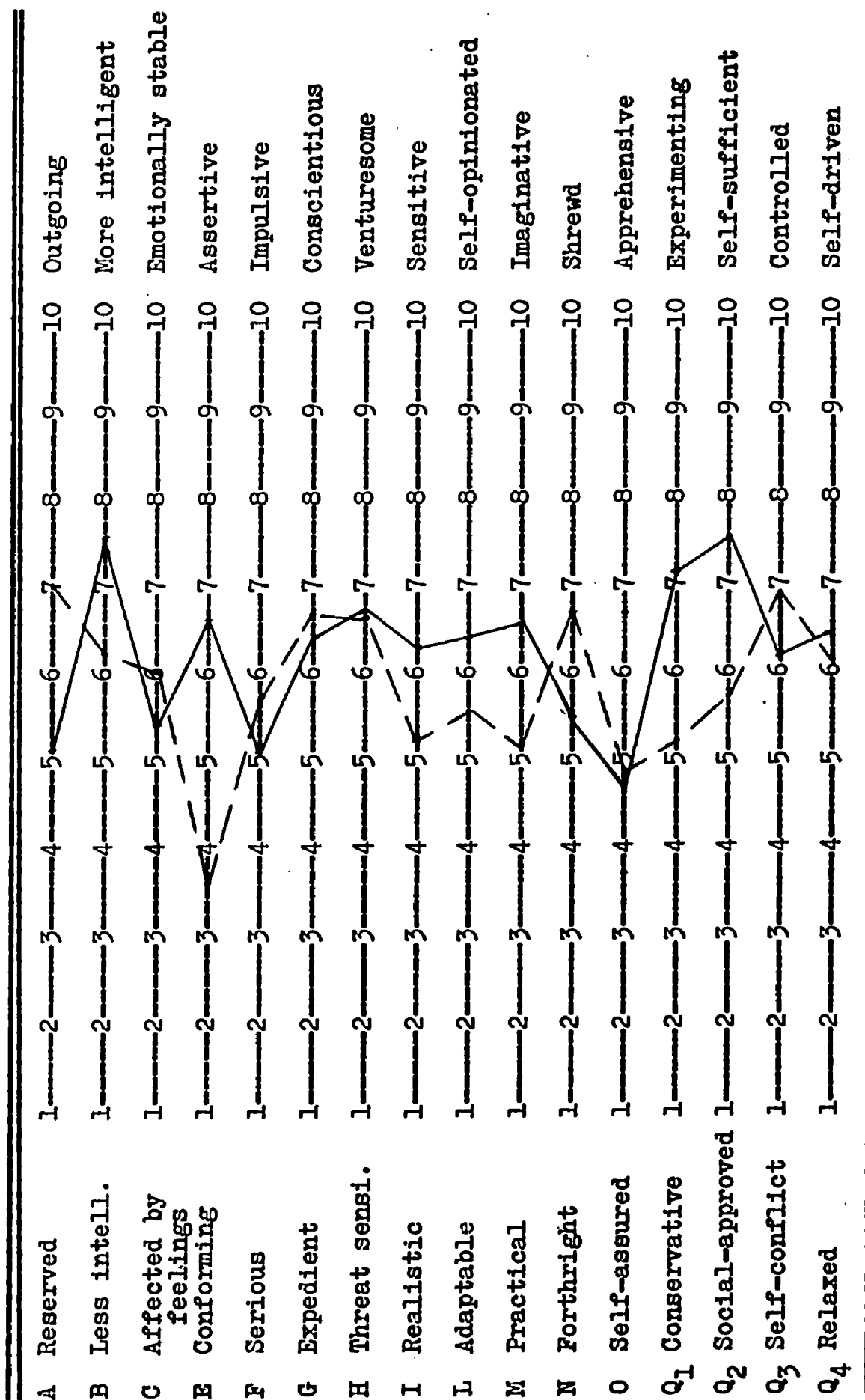
Both groups scored high on Factor  $Q_2$  (Social-approved vs. Self-sufficiency). Creative women in the TFP group scored 4th highest compared with the 55 professionals listed in the Handbook for the 16 PF. Their score (7.68) was only lower than Airmen (7.9), university professors (7.8), and artists (7.8). This finding indicates that creative women in the TFP group were independent both in thinking and action. They did not need other's agreement or support because of their own resourcefulness and self-sufficiency. They were resolute in making decisions, and discounted public opinions. A high score on this factor also indicated the scholastic success of creative women in the TFP group. The creative women in the TMP group also scored highly on Factor  $Q_2$ , although they were slightly inferior to the creative women in the TFP group in this particular trait.

On Factor  $Q_3$  (Undisciplined self-conflict vs. Controlled) no significant difference was found. The creative TMP group

Graph 6

Profiles for Personality Factor Questionnaire Scores  
High Creative Group and Low Creative Group

High Creative Group Low Creative Group



Mean = 5.5

TABLE 40

RAW SCORE MEANS, STANDARD DEVIATION, T-STATISTICS FOR  
TRAITS MEASURED BY THE 16 PF QUESTIONNAIRE

| Variable                              | High Creative Gp.<br>Mean | S.D. | Low Creative Gp.<br>Mean | S.D. | t     | DF  | Probability |
|---------------------------------------|---------------------------|------|--------------------------|------|-------|-----|-------------|
| Reserved vs.<br>Out-going             | 10.24                     | 2.88 | 12.99                    | 2.57 | -5.99 | 139 | .001        |
| Less intell. vs.<br>More intelligent  | 9.33                      | 1.70 | 8.35                     | 1.90 | 3.21  | 139 | .001        |
| Affected by feel.<br>vs. Emot. stable | 15.83                     | 3.76 | 16.06                    | 3.76 | -0.37 | 139 | NS          |
| Conforming vs.<br>Assertive           | 13.21                     | 4.43 | 8.23                     | 3.66 | 7.30  | 139 | .001        |
| Serious vs.<br>Impulsive              | 12.11                     | 4.27 | 13.08                    | 4.27 | -1.34 | 139 | NS          |
| Expedient vs.<br>Conscientious        | 13.70                     | 3.51 | 14.40                    | 2.76 | -1.32 | 139 | NS          |
| Threat-sensitive<br>vs. Venturesome   | 15.68                     | 6.06 | 15.05                    | 5.11 | 0.66  | 139 | NS          |
| Realistic vs.<br>Sensitive            | 14.35                     | 3.84 | 12.38                    | 3.40 | 3.22  | 139 | .001        |
| Adaptable vs.<br>Self-opinionated     | 6.59                      | 3.15 | 5.49                     | 2.39 | 2.33  | 139 | .05         |
| Practical vs.<br>Imaginative          | 14.68                     | 3.59 | 12.23                    | 3.81 | 3.89  | 139 | .001        |
| Forthright vs.<br>Shrewd              | 10.05                     | 3.37 | 11.77                    | 2.79 | -3.32 | 139 | .001        |
| Self-assured vs.<br>Apprehensive      | 8.52                      | 4.02 | 8.86                     | 4.02 | -0.49 | 139 | NS          |
| Conservative vs.<br>Experimenting     | 9.10                      | 3.12 | 6.27                     | 2.66 | 5.77  | 139 | .001        |
| Social-approved<br>vs. Self-suffi.    | 12.98                     | 3.11 | 9.77                     | 2.95 | 6.29  | 139 | .001        |
| Self-conflict<br>vs. Controlled       | 13.30                     | 3.50 | 14.82                    | 2.73 | -2.89 | 139 | .01         |
| Relaxed vs. Tense                     | 14.22                     | 4.77 | 13.32                    | 4.59 | 1.14  | 139 | NS          |

scored slightly higher than the creative TFP group whose score was close to the mean. Comparatively, women in the creative TMP group tended to have a stronger control of their emotions and general behavior; and had stronger will power and objectivity. They tended to be effective leaders and to be productive in organizational activities.

The creative TMP group and the creative TFP group scored very closely on Factor  $Q_4$  (Relaxed vs. Tense). Both groups, compared with women in general, tended to be slightly tense, restless, anxious, and impatient. They tended to be active and self-driven.

#### Summary of Personality Variables

In summarizing findings on the personality variables, it appears that there are relatively insignificant differences between the creative TMP women and the creative TFP women. The groups differed significantly on only three personality variables, i.e., Factor A (Reserved vs. Outgoing), Factor H (Threat-sensitive vs. Venturesome), and Factor N (Forthright vs. Shrewd). These suggested that the creative TMP women were less reserved, more venturesome, and more natural and spontaneous. Other personality variables differed slightly but were not statistically significant. Thus we see a wide range of similarities in personality characteristics between the creative women in TMP and the creative women in TFP. Table 40 showed that the creative professional women in either traditionally male professions or traditionally female professions shared a basic personality characteristics of creative person. They were reserved, intelligent, assertive,

sensitive, self-opinionated, imaginative, self-assured, experimenting, self-sufficient, controlled and self-driven.

### Biographical Variables

The biographical variables described and discussed in this Chapter were defined as the data derived from the biographical questionnaire. All the data were computerized and were analyzed by means of chi square.

From a total sample of 221 subjects, sixty-three of the professional women participating in this study were selected to be highly creative. Among these 63 highly creative women, twenty-seven were in the traditionally male professions, and thirty-six were in the traditionally female professions. Due to the small number of selected creative subjects in each professional group we would like to emphasize the tentativeness of our findings.

It is statistically significant ( $P < .05$ ) to note that more creative women below the age of 30 and those age 56 and older were in the traditionally female professions. Others from age 31 to 55 were more working in the traditionally male professions.

Table 41

Frequency Table and Chi Square Statistics for  
Distribution of Creative Subjects in either Traditionally  
Male or Female Professions at Different Age Levels

|              | M Creative* |        | F Creative**        |       | Total |
|--------------|-------------|--------|---------------------|-------|-------|
|              | N           | %      | N                   | %     |       |
| Below 30     | 1           | 4.0    | 10                  | 28.6  | 11    |
| Age 31-40    | 3           | 12.0   | 2                   | 5.7   | 5     |
| Age 41-55    | 15          | 60.0   | 11                  | 31.4  | 26    |
| 56 and older | 6           | 24.0   | 12                  | 34.3  | 18    |
| Total        | 25          | 100.0  | 35                  | 100.0 | 60    |
| <hr/>        |             |        |                     |       |       |
| Chi square = | 9.50        | DF = 3 | Sig. level = 0.0327 |       |       |

The distribution of creative subjects between age groups is also worth noting: out of 18 women whose ages were below thirty, 13 were high creatives. Between the ages of 31 to 40, five out of 19 were highly creatives. In the age group between 41 to 55, twenty-six out of eighty-one were highly creatives. In the more mature group, i.e., between age 56 and older, only 18 out of 102 were high creatives. It seems that the percentage of creative subjects in this study decreased as age increased.

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\*M Creative refers to creative women in traditionally male professions.

\*\*F Creative refers to creative women in traditionally female professions.

Table 42

Frequency Table and Chi Square Statistics for  
Distribution of High Creative, Medium, & Low Creative Subjects  
at Different Age Levels

|                     | High Crea. |        | Medium |                     | Low Crea. |       | Total |
|---------------------|------------|--------|--------|---------------------|-----------|-------|-------|
|                     | N          | %      | N      | %                   | N         | %     |       |
| Below age 30        | 13         | 20.6   | 3      | 3.8                 | 2         | 2.6   | 18    |
| Age 31-40           | 5          | 7.9    | 6      | 7.7                 | 8         | 10.3  | 19    |
| Age 41-55           | 26         | 41.3   | 28     | 35.9                | 27        | 34.6  | 81    |
| Age 56 and older    | 19         | 30.2   | 41     | 52.6                | 41        | 52.6  | 101   |
| Total               | 63         | 100.0  | 78     | 100.0               | 78        | 100.0 | 219   |
| Chi square = 22.358 |            | DF = 6 |        | Sig. level = 0.0010 |           |       |       |

Table 43

Frequency Table and Chi Square Statistics for  
College Major Field

|                       | M Creative |        | F Creative |                     | Total |
|-----------------------|------------|--------|------------|---------------------|-------|
|                       | N          | %      | N          | %                   |       |
| In male professions   | 8          | 36.4   | 4          | 11.8                | 12    |
| In female professions | 14         | 63.6   | 30         | 88.2                | 44    |
| Total                 | 22         | 100.0  | 34         | 100.0               | 56    |
| Chi square = 3.451    |            | DF = 1 |            | Sig. level = 0.0632 |       |

About thirty-six percent of the creative women in traditionally male professions took their collegiate major in male professions; 63.6% in female professions. In contrast, only 11.8% of the creative women in traditionally female professions took a male professional collegiate major, whereas 88.2% took a female professional collegiate major.

Table 44

Frequency Table and Chi Square Statistics for  
B. A. Degree/Certificate

|                       | M Creative<br>N | %     | F Creative<br>N     | %     | Total |
|-----------------------|-----------------|-------|---------------------|-------|-------|
| In male professions   | 9               | 39.1  | 3                   | 8.3   | 12    |
| In female professions | 14              | 60.9  | 33                  | 91.7  | 47    |
| Total                 | 23              | 100.0 | 36                  | 100.0 | 59    |
| Chi square = 6.424    | DF = 1          |       | Sig. level = 0.0113 |       |       |

The percentage of B. A. degree varied little from the collegiate major field. This suggested that creative undergraduates did not shift their sex-typed major field during their college years.

Table 45

Frequency Table and Chi Square Statistics for  
M. A. Degree

|                       | M Creative<br>N | %     | F Creative<br>N     | %     | Total |
|-----------------------|-----------------|-------|---------------------|-------|-------|
| In male professions   | 2               | 18.2  | 1                   | 4.3   | 3     |
| In female professions | 9               | 81.8  | 22                  | 95.7  | 31    |
| Total                 | 11              | 100.0 | 23                  | 100.0 | 34    |
| Chi square = 1.77     | DF = 1          |       | Sig. level = 0.4938 |       |       |

Fewer of the creative subjects had a M. A. degree. But 81.8% of the creative women in the traditionally male professions earned their female professional degree and were presently in the male professions. This suggested that the creative women in TMP showed a very high percentage in entering the male professions after college years. They were very venturesome.

Almost ninety-six percent of the creative women in TFP took a female professional M. A. degree and they stayed overwhelmingly in the same field.

Table 46

Frequency Table and Chi Square Statistics for Professions Considered at Junior High School

|                                                        | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|--------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Male professions                                       | 5               | 22.7  | 4               | 17.4  | 9     |
| Female professions                                     | 15              | 68.2  | 18              | 78.3  | 33    |
| Glamour/Entertaining professions                       | 2               | 9.1   | 1               | 4.3   | 3     |
| Total                                                  | 22              | 100.0 | 23              | 100.0 | 45    |
| Chi square = 4.17      DF = 2      Sig. level = 0.7063 |                 |       |                 |       |       |

Table 47

Frequency Table and Chi Square Statistics for Professions Considered in Senior High School

|                                                        | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|--------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Male professions                                       | 9               | 34.6  | 2               | 6.5   | 12    |
| Female professions                                     | 15              | 57.7  | 27              | 87.1  | 42    |
| Glamour/Entertaining professions                       | 1               | 3.8   | 0               | 0.0   | 1     |
| Male and Female                                        | 0               | 0.0   | 1               | 3.2   | 1     |
| Religious                                              | 1               | 3.8   | 1               | 3.2   | 2     |
| Total                                                  | 26              | 100.0 | 31              | 100.0 | 57    |
| Chi square = 9.13      DF = 4      Sig. level = 0.0494 |                 |       |                 |       |       |

Table 48

Frequency Table and Chi Square Statistics for  
Professions Considered at College

|                                                        | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|--------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Male professions                                       | 12              | 52.2  | 5               | 16.7  | 17    |
| Female professions                                     | 10              | 43.5  | 24              | 80.0  | 34    |
| Male and Female                                        | 0               | 0.0   | 1               | 3.3   | 1     |
| Marriage                                               | 1               | 4.3   | 0               | 0.0   | 1     |
| Total                                                  | 23              | 100.0 | 30              | 100.0 | 53    |
| Chi square = 9.96      DF = 3      Sig. level = 0.0195 |                 |       |                 |       |       |

Table 49

Frequency Table and Chi Square Statistics for  
Professions Considered after College

|                                                          | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|----------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Male professions                                         | 12              | 75.0  | 2               | 8.3   | 14    |
| Female professions                                       | 4               | 25.0  | 22              | 91.7  | 26    |
| Total                                                    | 16              | 100.0 | 24              | 100.0 | 40    |
| Chi square = 15.939      DF = 1      Sig. level = 0.0001 |                 |       |                 |       |       |

For the creative women in TMP, like the professional women discussed in the previous chapter, the desire to join a male profession correlated positively with advancement in educational level. This phenomenon can be observed from the increment in percentage from junior high school through college. This tendency continued and reached its peak in the post-college years. For the creative women in TFP this

phenomenon did not obviously exist. The large majority consistently remained in their sex-typed professions.

Table 50

Frequency Table and Chi Square Statistics for  
Reasons for Choosing Present Profession

|                                          | High<br>Crea. |         | Medium<br>Crea. |                     | Low<br>Crea. |       | Total |
|------------------------------------------|---------------|---------|-----------------|---------------------|--------------|-------|-------|
|                                          | N             | %       | N               | %                   | N            | %     |       |
| Good salary                              | 4             | 6.3     | 3               | 4.1                 | 6            | 8.0   | 13    |
| Secure future                            | 1             | 1.6     | 5               | 6.8                 | 7            | 9.3   | 13    |
| Ability and skill                        | 24            | 38.1    | 22              | 29.7                | 30           | 40.0  | 76    |
| Freedom to work<br>independently         | 11            | 17.5    | 4               | 5.4                 | 4            | 5.3   | 19    |
| Opportunity for per-<br>sonal growth     | 0             | 0.0     | 8               | 10.8                | 8            | 10.7  | 16    |
| Interest                                 | 14            | 22.2    | 26              | 35.1                | 17           | 22.7  | 57    |
| Opportunity to be<br>creative & original | 9             | 14.3    | 6               | 8.1                 | 3            | 4.0   | 18    |
| Total                                    | 63            | 100.0   | 74              | 100.0               | 75           | 100.0 | 212   |
| Chi square = 26.752                      |               | DF = 12 |                 | Sig. level = 0.0084 |              |       |       |

Significant differences were found between creative and low creative professional women in their responses to the question as to why they chose their present professions. The high creative women paid the least attention to salary and future security. They gave more consideration to their ability and skill, their interests, freedom to work independently, and opportunities to be creative and original in their work. The low creative professional women also considered their ability and skills, as well as their interests. They thought personal growth, salary and future security were also important,

but they considered freedom, independence, creativity, and originality the least important.

Table 51

Frequency Table and Chi Square Statistics for  
Reasons for Choosing Present Profession

|                                                         | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|---------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| A good salary                                           | 0               | 0.0   | 4               | 11.1  | 4     |
| A secure future                                         | 1               | 3.7   | 0               | 0.0   | 1     |
| Ability and skill                                       | 12              | 44.4  | 12              | 33.3  | 24    |
| Freedom to work independently                           | 5               | 18.5  | 6               | 16.7  | 11    |
| Interest                                                | 6               | 22.2  | 8               | 22.2  | 14    |
| Can be creative and original                            | 3               | 11.1  | 6               | 16.7  | 9     |
| Total                                                   | 27              | 100.0 | 36              | 100.0 | 63    |
| Chi square = 5.197      DF = 5      Sig. level = 0.3923 |                 |       |                 |       |       |

When the same question was imposed on high creative subjects only, no significant differences were found between those in traditionally male professions or those in traditionally female professions.

In regard to the educational level of the parents of creative professional women, no statistically significant differences were observed. Neither was the kind of occupations their parents were in.

Table 52

### Frequency Table and Chi Square Statistics for Father's Education

|                        | High<br>Crea. |       | Medium<br>Crea. |       | Low<br>Crea.        |       | Total |
|------------------------|---------------|-------|-----------------|-------|---------------------|-------|-------|
|                        | N             | %     | N               | %     | N                   | %     |       |
| Completed grade school | 4             | 6.6   | 8               | 11.4  | 5                   | 7.6   | 17    |
| Some high school       | 17            | 27.9  | 19              | 27.1  | 27                  | 40.9  | 63    |
| Completed high school  | 9             | 14.8  | 17              | 24.3  | 14                  | 21.2  | 40    |
| Some college           | 10            | 16.4  | 13              | 18.6  | 7                   | 10.6  | 30    |
| College graduate       | 9             | 14.8  | 6               | 8.6   | 8                   | 12.1  | 23    |
| Advanced/Prof. degree  | 12            | 19.7  | 7               | 10.0  | 5                   | 7.6   | 24    |
| Total                  | 61            | 100.0 | 70              | 100.0 | 66                  | 100.0 | 197   |
| Chi square = 11.813    |               |       | DF = 10         |       | Sig. level = 0.2978 |       |       |

### Table 53

### Frequency Table and Chi Square Statistics for Mother's Education

[illegible]

Table 52 and Table 53 roughly revealed that the high creative professional women have parents whose educational level tended to be slightly higher than the low creative professional women.

Table 54

Frequency Table and Chi Square Statistics for  
Father's Occupation

|                          | High crea. |         | Medium crea. |                     | Low crea. |       | Total |
|--------------------------|------------|---------|--------------|---------------------|-----------|-------|-------|
|                          | N          | %       | N            | %                   | N         | %     |       |
| Professional             | 22         | 40.0    | 9            | 13.2                | 13        | 20.3  | 44    |
| Proprietor/Manager       | 10         | 18.2    | 13           | 19.1                | 14        | 21.9  | 37    |
| Clerk/Salesman           | 4          | 7.3     | 10           | 14.7                | 9         | 14.1  | 23    |
| Craftman/Foreman         | 3          | 5.5     | 11           | 16.2                | 5         | 7.8   | 19    |
| Operative/Service worker | 9          | 16.4    | 9            | 13.2                | 13        | 20.3  | 31    |
| Laborer (non-farm)       | 2          | 3.6     | 2            | 2.9                 | 0         | 0.0   | 4     |
| Farmer/Rancher           | 5          | 9.1     | 12           | 17.6                | 9         | 14.1  | 26    |
| Minister                 | 0          | 0.0     | 2            | 2.9                 | 1         | 1.6   | 3     |
| Total                    | 55         | 100.0   | 68           | 100.0               | 64        | 100.0 | 187   |
| Chi square = 21.885      |            | DF = 14 |              | Sig. level = 0.0810 |           |       |       |

Table 54 showed that fathers of creative professional women were largely (40%) professional. A lower percentage (20.3%) of the low creative professional women's fathers were professional. Fathers of the low creative professional women tended to work more in business and service occupations.

Again no significant differences were found in the fathers' or mothers' achievement success.

In comparison with women in traditionally male professions and women in traditionally female professions, as

Table 55

|                                                         | M  | Creative | F  | Creative | Total |
|---------------------------------------------------------|----|----------|----|----------|-------|
|                                                         | N  | %        | N  | %        |       |
| Group game                                              | 19 | 70.4     | 22 | 62.9     | 41    |
| Solitary play                                           | 8  | 29.6     | 12 | 34.3     | 20    |
| Both                                                    | 0  | 0.0      | 1  | 2.9      | 1     |
| Total                                                   | 27 | 100.0    | 35 | 100.0    | 62    |
| Chi square = 1.004      DF = 2      Sig. level = 0.6053 |    |          |    |          |       |

[illegible]

There are no significant differences between creative women in TMP and creative women in TFP regarding their preferences in activities. But one difference was statistically significant ( $P < .05$ ) between high creative and low creative professional women. High creative professional women preferred palying along, while low creative professional women preferred to join in group games.

No significant differences were found in parents' leisure activities as between creative women in TMP and creative women in TFP. But there is a slight tendency for more mothers of creative women in TFP to enjoy reading and doing domestic work while more mothers of the creative women in TMP engage in music and art and social activities, in addition to housework.

This tendency does not show in comparison among the high, medium, and low creative professional women. The percentages were distributed similarly.

Table 57

Frequency Table and Chi Square Statistics for  
Father's Leisure Activities

|                                                         | M creative<br>N | %     | F creative<br>N | %     | Total |
|---------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Reading                                                 | 30              | 31.3  | 42              | 40.8  | 72    |
| Music and art                                           | 7               | 7.3   | 7               | 6.8   | 14    |
| Sports, gardening, travel                               | 33              | 34.4  | 26              | 25.2  | 59    |
| Family activities                                       | 8               | 8.3   | 16              | 15.5  | 24    |
| Games required mental ability                           | 8               | 8.3   | 6               | 5.8   | 14    |
| Church/Community activities                             | 3               | 3.1   | 4               | 3.9   | 7     |
| Social activities                                       | 7               | 7.3   | 2               | 1.9   | 9     |
| Total                                                   | 96              | 100.0 | 103             | 100.0 | 199   |
| Chi square = 8.468      DF = 6      Sig. level = 0.2058 |                 |       |                 |       |       |

The same tendency, although slightly less in degree, could be detected in the fathers' leisure activities. Fathers of creative women in TMP seemed to be more active outdoors or outside the home (gardening, sports, travel, and social activities), in addition to reading. Fathers of creative women in TFP seemed to be more domestic and preferred intellectual activities (family activities, reading, and games requiring mental ability).

Table 58.

Frequency Table and Chi Square Statistics for  
Being Active in Extra-curricular Activities in  
Senior High School

|                                                         | M creative |       | F creative |       | Total |
|---------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                         | N          | %     | N          | %     |       |
| Very active                                             | 17         | 65.4  | 15         | 42.9  | 32    |
| Fairly active                                           | 5          | 19.2  | 17         | 48.6  | 22    |
| Not active                                              | 4          | 15.4  | 3          | 8.6   | 7     |
| Total                                                   | 26         | 100.0 | 35         | 100.0 | 61    |
| Chi square = 5.608      DF = 2      Sig. level = 0.0606 |            |       |            |       |       |

Table 59

Frequency Table and Chi Square Statistics for  
Being Active in Extra-curricular Activities in College

|                                                         | M creative |       | F creative |       | Total |
|---------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                         | N          | %     | N          | %     |       |
| Very active                                             | 11         | 47.8  | 8          | 23.5  | 19    |
| Fairly active                                           | 7          | 30.4  | 10         | 29.4  | 17    |
| Not active                                              | 5          | 21.7  | 16         | 47.1  | 21    |
| Total                                                   | 23         | 100.0 | 34         | 100.0 | 57    |
| Chi square = 4.822      DF = 2      Sig. level = 0.0897 |            |       |            |       |       |

Significant differences were not found between the creative TMP group and the creative TFP group as to whether they were active in extra-curricular activities in grade school through college. But on becoming high school girls, more of the creative women in TMP (65.4%) tended to be very active. This tendency continued in their college years. The fairly active women in TFP ultimately became less active or not active at all.

No significant differences were found between the two creative groups in popularity and academic achievement in high school and college. But a highly significant difference was found between the high creatives and the low creatives with respect to their opinions on popularity in high school. The high creative professional women (23.9%) thought popularity very important, while only 17% of the low creative

Table 60

Frequency Table and Chi Square Statistics for  
High School Popularity

|                     | High crea. |        | Medium crea. |                     | Low crea. |       | Total |
|---------------------|------------|--------|--------------|---------------------|-----------|-------|-------|
|                     | N          | %      | N            | %                   | N         | %     |       |
| Very important      | 11         | 23.9   | 9            | 17.0                | 9         | 17.0  | 29    |
| Fairly important    | 21         | 45.7   | 40           | 75.5                | 38        | 71.7  | 99    |
| Not important       | 14         | 30.4   | 4            | 7.5                 | 6         | 11.3  | 24    |
| Total               | 46         | 100.0  | 53           | 100.0               | 53        | 100.0 | 152   |
| Chi square = 13.908 |            | DF = 4 |              | Sig. level = 0.0076 |           |       |       |

professional women thought it very important. Almost 72% of the low creative women thought it fairly important. More different answer was found among the high creatives, for 30.4% of them, in contrast to the 23.9% mentioned above, thought that popularity was not important. This may suggest that a high creative high school girl could be either very popular or not popular at all, while a low creative high school girl would be just fairly popular. In other words, among the high creative professional women their opinions on popularity in high school were split whereas the low creative professional women had a more consistent opinion on this matter.

In general, all professional women, either high, medium, or low creatives, thought academic achievement was more important than popularity both in high school and college. The creative women in TMP and the creative women in TFP shared the same opinion.

Table 61

Frequency Table and Chi Square Statistics for  
Conflict between Being a Housewife and a Working Woman

|                 | High crea. |       | Medium crea. |       | Low crea.           |       | Total |
|-----------------|------------|-------|--------------|-------|---------------------|-------|-------|
|                 | N          | %     | N            | %     | N                   | %     |       |
| Strong conflict | 6          | 17.1  | 1            | 3.6   | 1                   | 2.8   | 8     |
| Some conflict   | 10         | 28.6  | 11           | 39.3  | 7                   | 19.4  | 28    |
| No conflict     | 19         | 54.3  | 16           | 57.1  | 28                  | 77.8  | 63    |
| Total           | 35         | 100.0 | 28           | 100.0 | 36                  | 100.0 | 99    |
| <hr/>           |            |       |              |       |                     |       |       |
| Chi square =    | 9.506      |       | DF = 4       |       | Sig. level = 0.0496 |       |       |

Table 62

Frequency Table and Chi Square Statistics for  
Conflict between Being a Housewife and a Working Woman

|                 | M Creative |       | F Creative |       | Total               |
|-----------------|------------|-------|------------|-------|---------------------|
|                 | N          | %     | N          | %     |                     |
| Strong conflict | 1          | 7.7   | 5          | 22.7  | 6                   |
| Some conflict   | 2          | 15.4  | 8          | 36.4  | 10                  |
| No conflict     | 10         | 76.9  | 9          | 40.9  | 19                  |
| Total           | 13         | 100.0 | 22         | 100.0 | 35                  |
| <hr/>           |            |       |            |       |                     |
| Chi square =    | 4.289      |       | DF = 2     |       | Sig. level = 0.1172 |

High creative professional women reported conflict between being a housewife and a working woman: 17.1% found a

strong conflict; 28.6%, some conflict; whereas only 2.8% of the low creative women found a strong conflict and 19.4% some conflict. Almost seventy-eight percent reported no conflict at all.

This leads to the question as to whether a high creative woman actually had a strong conflict or whether the conflict felt was caused psychologically.

When the same question was being asked of the creative professional groups, their responses seemed quite different though not statistically significant. Almost 77% of the creative women in TMP reported no conflict while only 41% of the creative women in TFP agreed; another 22.7% reported having experienced a strong conflict and 36.4% some conflict.

Table 63

Frequency Table and Chi Square Statistics for  
Nature of Conflict

|                                                         | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|---------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Husband resentment                                      | 2               | 66.7  | 1               | 7.1   | 3     |
| Care for children                                       | 0               | 0.0   | 2               | 14.3  | 2     |
| House work                                              | 0               | 0.0   | 2               | 14.3  | 2     |
| Not enough time for family                              | 1               | 33.3  | 7               | 50.0  | 8     |
| Potential conflict of duties                            | 0               | 0.0   | 1               | 7.1   | 1     |
| No time for personal leisure                            | 0               | 0.0   | 1               | 7.1   | 1     |
| Total                                                   | 3               | 100.0 | 14              | 100.0 | 17    |
| Chi square = 6.392      DF = 5      Sig. level = 0.2699 |                 |       |                 |       |       |

When asked about the nature of conflict that they had experienced, the three creative male professionals who reported having conflicts believed husband and family were the causes of conflict. Half of the creative female professionals believed family was the chief source of conflict, and the other half considered children, housework, and husband, personal leisure, and potential conflict of duties the secondary cause.

Table 64

Frequency Table and Chi Square Statistics for  
Nature of Conflict

|                              | High Crea.<br>N | %     | Medium Crea.<br>N | %                   | Low Crea.<br>N | %     | Total |
|------------------------------|-----------------|-------|-------------------|---------------------|----------------|-------|-------|
| Husband resentment           | 3               | 17.6  | 1                 | 9.1                 | 0              | 0.0   | 4     |
| Care for children            | 2               | 11.8  | 0                 | 0.0                 | 0              | 0.0   | 2     |
| House work                   | 2               | 11.8  | 1                 | 9.1                 | 0              | 0.0   | 3     |
| Not enough time for family   | 8               | 47.1  | 6                 | 54.5                | 5              | 55.6  | 19    |
| No time for personal leisure | 1               | 5.9   | 2                 | 18.2                | 1              | 11.1  | 4     |
| Part-time, no conflict       | 0               | 0.0   | 0                 | 0.0                 | 1              | 11.1  | 1     |
| Potential conflict of duties | 1               | 5.9   | 1                 | 9.1                 | 2              | 22.2  | 4     |
| Total                        | 17              | 100.0 | 11                | 100.0               | 9              | 100.0 | 37    |
| <hr/>                        |                 |       |                   |                     |                |       |       |
| Chi square = 10.771          | DF = 12         |       |                   | Sig. level = 0.5487 |                |       |       |

When the same question was asked of high and low creative professional women, high creative professional women said they thought more of their husband, children, and housework, while low creative professional women did not think their husband, children and house work would conflict with their marriage.

Although not a significantly different finding, it is interesting to note that creative women in male-oriented professions tended to marry younger and earlier as shown in Table 65.

When examining data on the high, the medium, and the low creative professional women it is clear that more high creative professional women had new marriages while low creative professional women had already had a longer marriage. It leads to the question whether these creative professional women were recently re-married or that they married late. (Table 66)

Table 65

Frequency Table and Chi Square Statistics for  
Age Married

|               | M Creative |        | F Creative          |       | Total |
|---------------|------------|--------|---------------------|-------|-------|
|               | N          | %      | N                   | %     |       |
| Before age 20 | 6          | 37.5   | 4                   | 18.2  | 10    |
| Age 21-24     | 7          | 43.8   | 11                  | 50.0  | 18    |
| Age 25-30     | 2          | 12.5   | 4                   | 18.2  | 6     |
| Age 31-35     | 1          | 6.2    | 0                   | 0.0   | 1     |
| After age 36  | 0          | 0.0    | 3                   | 13.6  | 3     |
| Total         | 16         | 100.0  | 22                  | 100.0 | 38    |
| <hr/>         |            |        |                     |       |       |
| Chi square =  | 5.136      | DF = 4 | Sig. level = 0.2736 |       |       |

Table 66

Frequency Table and Chi Square Statistics for  
Years have been Married

|                     | High Crea. |         | Medium Crea. |                     | Low Crea. |       | Total |
|---------------------|------------|---------|--------------|---------------------|-----------|-------|-------|
|                     | N          | %       | N            | %                   | N         | %     |       |
| 1-3 years           | 3          | 8.8     | 4            | 12.1                | 0         | 0.0   | 7     |
| 4-6 years           | 4          | 11.8    | 0            | 0.0                 | 0         | 0.0   | 4     |
| 7-12 years          | 0          | 0.0     | 5            | 15.2                | 2         | 5.7   | 7     |
| 13-20 years         | 5          | 14.7    | 4            | 12.1                | 4         | 11.4  | 13    |
| 20-30 years         | 15         | 44.1    | 12           | 36.4                | 12        | 34.3  | 39    |
| More than 30 years  | 7          | 20.6    | 8            | 24.2                | 17        | 48.6  | 32    |
| Total               | 34         | 100.0   | 33           | 100.0               | 35        | 100.0 | 102   |
| Chi square = 23.363 |            | DF = 10 |              | Sig. level = 0.0095 |           |       |       |

Table 67

Frequency Table and Chi Square Statistics for  
Like Being a Mother and Enjoy Raising Children

|                     | High Crea. |        | Medium Crea. |                     | Low Crea. |       | Total |
|---------------------|------------|--------|--------------|---------------------|-----------|-------|-------|
|                     | N          | %      | N            | %                   | N         | %     |       |
| Very much           | 18         | 66.7   | 21           | 95.5                | 29        | 93.5  | 68    |
| Fairly much         | 8          | 29.6   | 1            | 4.5                 | 2         | 6.5   | 11    |
| Not at all          | 1          | 3.7    | 0            | 0.0                 | 0         | 0.0   | 1     |
| Total               | 27         | 100.0  | 22           | 100.0               | 31        | 100.0 | 80    |
| Chi square = 11.088 |            | DF = 4 |              | Sig. level = 0.0256 |           |       |       |

The high creative professional women were significantly different from the low creative professional women in that they expressed less liking for being a mother and raising children.

Table 68 .

### Frequency Table and Chi Square Statistics for Like Being a Mother and Enjoy Raising Children

|                                                         | M  | Creative | F  | Creative | Total |
|---------------------------------------------------------|----|----------|----|----------|-------|
|                                                         | N  | %        | N  | %        |       |
| Very much                                               | 8  | 57.1     | 10 | 76.9     | 18    |
| Fairly much                                             | 5  | 35.7     | 3  | 23.1     | 8     |
| Not at all                                              | 1  | 7.1      | 0  | 0.0      | 1     |
| Total                                                   | 14 | 100.0    | 13 | 100.0    | 27    |
| Chi square = 1.687      DF = 2      Sig. level = 0.4301 |    |          |    |          |       |

When studying responses to the same question by creative women in TMP and creative women in TFP, it seems that creative women in TMP showed less liking for being a mother and raising children. One even admitted that she did not like the mother role at all.

### Table 69

### Frequency Table and Chi Square Statistics for Care of House and Children

[illegible]

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### Frequency Table and Chi Square Statistics for Care of House and Children

|                                                         | M<br>N | Creative<br>% | F<br>N | Creative<br>% | Total |
|---------------------------------------------------------|--------|---------------|--------|---------------|-------|
| Self                                                    | 7      | 50.0          | 4      | 23.5          | 11    |
| Both husband and self                                   | 6      | 42.9          | 12     | 70.6          | 18    |
| Mother-in-law/Own Mother                                | 1      | 7.1           | 0      | 0.0           | 1     |
| Hire some one                                           | 0      | 0.0           | 1      | 5.7           | 1     |
| Total                                                   | 14     | 100.0         | 17     | 100.0         | 31    |
| Chi square = 4.571      DF = 3      Sig. level = 0.2061 |        |               |        |               |       |

High creative professional women seemed to have more help from their husband in housework and child care. Among these creative women, more of those who were in traditionally female professions had their husband lend a hand in domestic tasks.

No significant differences were found in response to the question regarding reaction to children who were grown and had left home. Answers varied, but more seemed to feel happy and proud that they had fulfilled their duties in this respect.

Table 71

### Frequency Table and Chi Square Statistics for Working Was a Factor in Divorce

[illegible]

Table 72

Frequency Table and Chi Square Statistics for  
Working Was a Factor in Divorce

|                                                          | N | M Creative<br>% | N | F Creative<br>% | Total |
|----------------------------------------------------------|---|-----------------|---|-----------------|-------|
| Yes                                                      | 3 | 60.0            | 0 | 0.0             | 3     |
| No                                                       | 2 | 40.0            | 4 | 100.0           | 6     |
| Total                                                    | 5 | 100.0           | 4 | 100.0           | 9     |
| Chi Square = 10.406      DF = 1      Sig. level = 0.2357 |   |                 |   |                 |       |

One-third of the high creative professional women reported working was a factor in their divorce, while one-fifth of the low creative professional women gave the same answer. Among the nine divorcees, three of the five creative women in the traditionally male professions reported working was a factor in their divorce, while the four creative women in the traditionally female professions denied it. (Tables 71,72 )

It is interesting to note that the creative women in TFP had aspirations to work in the male's domain while in junior high school. This desire represented a significant difference from that of the creative women in TFP, and it increased after college age. Conversely, creative women in TFP were rather consistent regarding future plans for entering traditionally female professions. Almost 92% who planned to join traditionally female professions were, after sever decades, still in the same field (Tables 73, 74, 75).

Table 73

Frequency Table and Chi Square Statistics for  
Professions Considered in Senior High School

|                                                         | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|---------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Male profession                                         | 9               | 34.6  | 2               | 6.5   | 11    |
| Female profession                                       | 15              | 57.7  | 27              | 87.1  | 42    |
| Glamour/Entertaining                                    | 1               | 3.8   | 0               | 0.0   | 1     |
| Male and Female profession                              | 0               | 0.0   | 1               | 3.2   | 1     |
| Religious                                               | 1               | 3.8   | 1               | 3.2   | 2     |
| Total                                                   | 26              | 100.0 | 31              | 100.0 | 57    |
| Chi square = 9.518      DF = 4      Sig. level = 0.0494 |                 |       |                 |       |       |

Table 74

Frequency Table and Chi Square Statistics for  
Professions Considered in College

|                                                         | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|---------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Male profession                                         | 12              | 52.2  | 5               | 16.7  | 17    |
| Female profession                                       | 10              | 43.5  | 24              | 80.0  | 34    |
| Male and Female profession                              | 0               | 0.0   | 1               | 3.3   | 1     |
| Marriage                                                | 1               | 4.3   | 0               | 0.0   | 1     |
| Total                                                   | 23              | 100.0 | 30              | 100.0 | 53    |
| Chi squage = 9.895      DF = 3      Sig. level = 0.0195 |                 |       |                 |       |       |

Table 75

Frequency Table and Chi Square Statistics for  
Professions Considered after College

|                                                          | M Creative |       | F Creative |       | Total |
|----------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                          | N          | %     | N          | %     |       |
| Male profession                                          | 12         | 75.0  | 2          | 8.3   | 14    |
| Female profession                                        | 4          | 25.0  | 22         | 91.7  | 26    |
| Total                                                    | 16         | 100.0 | 24         | 100.0 | 40    |
| Chi Square = 15.939      DF = 1      Sig. level = 0.0001 |            |       |            |       |       |

High creative professional women tended to feel some sex discrimination while low creative professional women seemed to be contented with their work, feeling that their co-workers were most supportive on the whole. The creative women in TMP and the creative women in TFP shared almost the same feeling toward a slight sex bias.

Table 76

Frequency Table and Chi Square Statistics for  
Attitude of the Public Changing

|                                                         | M Creative |       | F Creative |       | Total |
|---------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                         | N          | %     | N          | %     |       |
| Yes                                                     | 9          | 34.0  | 10         | 29.4  | 19    |
| Some what                                               | 14         | 53.8  | 13         | 38.2  | 27    |
| No                                                      | 3          | 11.5  | 11         | 32.4  | 14    |
| Total                                                   | 26         | 100.0 | 34         | 100.0 | 60    |
| Chi square = 3.659      DF = 2      Sig. level = 0.1605 |            |       |            |       |       |

Comparatively, more of the creative women in TMP (53.8%) believed the public's attitude toward their professions was somewhat changing. Thirty-four percent gave a definite

answer. Eleven and one-half percent did not see the change. Among the creative women in TFP 38.2% thought the public had changed its attitude toward their professions. Twenty-nine and four-tenths percent was very sure while 32.4% answered negatively.

Table 77

Frequency Table and Chi Square Statistics for  
Would Advance Further, Faster, or be  
More Productive if Were Men

|              | High Crea. |       | Medium Crea. |       | Low Crea.           |       | Total |
|--------------|------------|-------|--------------|-------|---------------------|-------|-------|
|              | N          | %     | N            | %     | N                   | %     |       |
| Yes          | 35         | 59.3  | 32           | 42.1  | 31                  | 40.3  | 98    |
| No           | 24         | 40.7  | 44           | 57.9  | 46                  | 59.7  | 114   |
| Total        | 59         | 100.0 | 76           | 100.0 | 77                  | 100.0 | 212   |
| <hr/>        |            |       |              |       |                     |       |       |
| Chi Square = | 5.693      |       | DF = 2       |       | Sig. level = 0.0581 |       |       |

Upon being asked whether they thought that they would advance further and faster, or be more productive if they were men, 59.3% of the high creative professional women responded yes; 40.7% said no. The percentages of the low creative professional women were just in reverse. When the same question was asked, 68% of the women in TMP answered positively while 52.9% of the creative women in TFP gave the same response. This finding suggests that creative women in TMP did not feel that they were given the same chance as men in advancement.

Table 78

Frequency Table and Chi Square Statistics for  
Would Advance Further, Faster, or be  
More Productive if Were Men

|                                                         | M Creative |       | F Creative |       | Total |
|---------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                         | N          | %     | N          | %     |       |
| Yes                                                     | 17         | 68.0  | 18         | 52.9  | 35    |
| No                                                      | 8          | 32.0  | 16         | 47.1  | 24    |
| Total                                                   | 25         | 100.0 | 34         | 100.0 | 59    |
| Chi Square = 0.802      DF = 1      Sig. level = 0.3706 |            |       |            |       |       |

In responding to the question whether they had made a contribution to the community or society, 55.6% of the creative women in TFP reported positively while only 22.2% of the creative women in TFP felt that they had. More creative women in TFP believed that they had contributed very little to the community or society.

Table 79

Frequency Table and Chi Square Statistics for  
Have Made Contribution to Community or Society

|                                                         | M Creative |       | F Creative |       | Total |
|---------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                         | N          | %     | N          | %     |       |
| A great deal                                            | 15         | 55.6  | 8          | 22.2  | 23    |
| Average amount                                          | 10         | 37.0  | 21         | 58.3  | 31    |
| Little                                                  | 2          | 7.4   | 7          | 19.4  | 9     |
| Total                                                   | 27         | 100.0 | 36         | 100.0 | 63    |
| Chi Square = 7.683      DF = 2      Sig. level = 0.0215 |            |       |            |       |       |

Table 80

Frequency Table and Chi Square Statistics for  
Professionally an Innovator

|                                                         | M Creative |       | F Creative |       | Total |
|---------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                         | N          | %     | N          | %     |       |
| Yes                                                     | 18         | 69.2  | 17         | 47.2  | 35    |
| Sometimes                                               | 6          | 23.1  | 16         | 44.4  | 22    |
| No                                                      | 2          | 7.7   | 3          | 8.3   | 5     |
| Total                                                   | 26         | 100.0 | 36         | 100.0 | 62    |
| Chi square = 3.246      DF = 2      Sig. level = 0.1973 |            |       |            |       |       |

Again, a greater percentage of creative women in TMP believed themselves to be innovators in their professions while only 47.2% of the creative women in TFP gave a positive answer. More of the creative women in TFP thought that they were occupationally innovative.

When asked what were the conditions or personal qualities that helped them be innovative, the creative women in TMP thought persistence and determination were most important. Freedom to work, cooperation from colleagues, and a creative mind came second. The creative women in TFP believed that accepting changes and new ideas were of primary importance. Constantly searching for better ways of doing things in order to keep abreast was regarded as secondary. It seems that creative women in TMP were more initiating. They believed that by having certain personality traits such as persistence, determination, originality, ambition, and drive, in addition to a creative mind, freedom, and cooperation, they could bring about direct changes. The creative women in TFP seemed to be

more passive. In order not to be lagging behind, they had to accept changes and new ideas suggested by others, and had

Table 81

Frequency Table and Chi Square Statistics for  
Conditions and/or Personal Qualities that Helped  
to be an Innovator

|                                                                        | M Creative<br>N | %     | F Creative<br>N | %     | Total |
|------------------------------------------------------------------------|-----------------|-------|-----------------|-------|-------|
| Support from administration                                            | 1               | 5.3   | 2               | 7.1   | 3     |
| Right condition/opportunity                                            | 2               | 10.5  | 2               | 7.1   | 4     |
| A creative mind, freedom & cooperation                                 | 4               | 21.1  | 4               | 14.3  | 8     |
| Personal qualities                                                     | 8               | 42.1  | 4               | 14.3  | 12    |
| Accepting changes and new ideas                                        | 2               | 10.5  | 10              | 35.7  | 12    |
| Constantly searching for better ways of doing things & to keep abreast | 2               | 10.5  | 6               | 21.4  | 8     |
| Total                                                                  | 19              | 100.0 | 28              | 100.0 | 47    |
| Chi square = 7.554      DF = 5      Sig. level = 0.1826                |                 |       |                 |       |       |

to keep themselves current by constantly searching for better or effective ways of doing their work.

High creative professional women reacted significantly different from low creative professional women when requested to describe their personalities. More than seventy percent of the high creative women in TMP described themselves as more independent and assertive. Fewer of the low creative women in TFP (53.8%) described themselves as independent and assertive.

Table 82

Frequency Table and Chi Square Statistics for  
Describing One's Own Personality

|                                   | High<br>Crea. |        | Medium<br>Crea. |                     | Low<br>Crea. |       | Total |
|-----------------------------------|---------------|--------|-----------------|---------------------|--------------|-------|-------|
|                                   | N             | %      | N               | %                   | N            | %     |       |
| Traditionally<br>feminine         | 15            | 23.8   | 28              | 37.3                | 36           | 46.2  | 79    |
| More independent and<br>assertive | 45            | 71.4   | 44              | 58.7                | 42           | 53.8  | 131   |
| Between                           | 3             | 4.8    | 3               | 4.0                 | 0            | 0.0   | 6     |
| Total                             | 63            | 100.0  | 75              | 100.0               | 78           | 100.0 | 216   |
| Chi Square = 10.089               |               | DF = 4 |                 | Sig. level = 0.0390 |              |       |       |

Table 83

Frequency Table and Chi Square Statistics for  
Describing One's Own Personality

|                                | M Creative |        | F Creative |                     | Total |
|--------------------------------|------------|--------|------------|---------------------|-------|
|                                | N          | %      | N          | %                   |       |
| Traditionally feminine         | 6          | 22.2   | 9          | 25.0                | 15    |
| More independent and assertive | 21         | 77.8   | 24         | 66.7                | 45    |
| Between                        | 0          | 0.0    | 3          | 8.3                 | 3     |
| Total                          | 27         | 100.0  | 36         | 100.0               | 63    |
| Chi square = 2.567             |            | DF = 2 |            | Sig. level = 0.2771 |       |

Among high creative professional women, those in the traditionally male professions (77.8%) described themselves as independent and assertive whereas 66.7% of the creative women in TFP gave the same description. Three of the creative women in TFP were not certain. They put themselves in between. One actually wrote on the questionnaire that it depended on

the situation and environment. Both creative groups believed that personality affected work and marriage. Their responses yielded no significant differences.

Table 84

Frequency Table and Chi Square Statistics for  
Nouns Identifying Self as a Person

|              | High Crea. |       | Medium Crea. |       | Low Crea.           |       | Total |
|--------------|------------|-------|--------------|-------|---------------------|-------|-------|
|              | N          | %     | N            | %     | N                   | %     |       |
| Scholar      | 3          | 5.1   | 1            | 1.3   | 0                   | 0.0   | 4     |
| Mother       | 5          | 8.5   | 11           | 14.7  | 6                   | 9.8   | 22    |
| Wife         | 12         | 20.3  | 13           | 17.3  | 12                  | 19.7  | 37    |
| Woman        | 6          | 10.2  | 7            | 9.3   | 7                   | 11.5  | 20    |
| Professional | 31         | 52.5  | 39           | 52.0  | 30                  | 49.2  | 100   |
| Friend       | 2          | 3.4   | 4            | 5.3   | 6                   | 9.8   | 12    |
| Total        | 59         | 100.0 | 75           | 100.0 | 61                  | 100.0 | 195   |
| <hr/>        |            |       |              |       |                     |       |       |
| Chi square = | 7.941      |       | DF = 10      |       | Sig. level = 0.6346 |       |       |

No significant differences were found when professional women were asked to identify themselves as a person with nouns. Half of them identified themselves as professionals. More than twenty percent of the high creative professional women identified themselves first as a wife, next as a woman, and finally as a mother. Low creative women identified themselves in the same order, except that their percentages were slightly altered. An interesting difference was that 5.1% of the high creative professional women thought of themselves as a scholar whereas more of the low creative professional women thought of themselves as a friend.

An interesting difference was found between the creative women in TMP and the creative women in TFP. Twenty percent of the former group identified themselves as a mother while none from the latter group did so. More creative TMP women (56%) identified themselves as a professional but fewer of them identified themselves as a wife (16%) and a woman (four percent). The creative women in TFP showed the opposite. Three of them identified themselves as a scholar.

Table 85.

Frequency Table and Chi Square Statistics for  
Nouns Identifying Self as a Person

|                     | M Creative |        | F Creative |                     | Total |
|---------------------|------------|--------|------------|---------------------|-------|
|                     | N          | %      | N          | %                   |       |
| Wife                | 4          | 16.0   | 8          | 22.9                | 12    |
| Scholar             | 0          | 0.0    | 3          | 8.6                 | 3     |
| Mother              | 5          | 20.0   | 0          | 0.0                 | 5     |
| Woman               | 1          | 4.0    | 5          | 14.3                | 6     |
| Professional        | 14         | 56.0   | 17         | 48.6                | 31    |
| Citizen             | 0          | 0.0    | 1          | 2.9                 | 1     |
| Friend              | 1          | 4.0    | 1          | 2.9                 | 2     |
| Total               | 25         | 100.0  | 35         | 100.0               | 60    |
| Chi square = 11.956 |            | DF = 6 |            | Sig. level = 0.0630 |       |

The strong self-identification of the creative women in TMP as a mother resembled very much the trait of professional women who were professionals in the man's field studied by Garland and Paloma (1971). These professional women felt strongly the importance of playing a mother's role and they wanted to have more children. On the other hand one may wonder

whether the strong identification of creative women in TMP as a mother was negative because of guilt feelings of being a working mother.

Several of the creative professional women gave additional comments on their work. Three among the seven creative women in TMP thought that sex was not important in working in the man's world, but personality was. More of the creative women in TFP thought it wise to work in their professions because their professions were personally advantageous and could easily be returned to (after children were grown, I presume). They also thought that their professions were most rewarding, because they provided a sense of fulfillment and satisfaction.

Table 86

Frequency Table and Chi Square Statistics for  
Additional Comments on Being a Woman in Own Profession (Positive)

|                                                             | M Creative |       | F Creative |       | Total |
|-------------------------------------------------------------|------------|-------|------------|-------|-------|
|                                                             | N          | %     | N          | %     |       |
| Good for personal advantage, easy to return to work         | 1          | 14.3  | 3          | 30.0  | 4     |
| No problem, normal                                          | 1          | 14.3  | 1          | 10.0  | 2     |
| Prefer to create a home than produce a bibliography         | 0          | 0.0   | 1          | 10.0  | 1     |
| Success through work gave self encouragement & satisfaction | 1          | 14.3  | 0          | 0.0   | 1     |
| Sex is not important but personality is                     | 3          | 42.9  | 2          | 20.0  | 5     |
| Most rewarding, fulfilling, satisfying                      | 1          | 14.3  | 3          | 30.0  | 4     |
| Total                                                       | 7          | 100.0 | 10         | 100.0 | 17    |
| Chi square = 3.789      DF = 5      Sig. level = 0.5892     |            |       |            |       |       |

Table 87

Frequency Table and Chi Square Statistics for  
Additional Comments on Being a Woman in Own Profession (Negative)

|                                                                            | M Creative<br>N | %     | F Creative<br>N     | %     | Total |
|----------------------------------------------------------------------------|-----------------|-------|---------------------|-------|-------|
| Progress for women is still slow                                           | 0               | 0.0   | 3                   | 33.3  | 3     |
| Still some prejudice &<br>non-acceptance                                   | 2               | 50.0  | 0                   | 0.0   | 2     |
| No chance for women to advance in<br>educational hierarchy                 | 1               | 25.0  | 0                   | 0.0   | 1     |
| Men have come increasingly & get<br>top jobs easier                        | 0               | 0.0   | 6                   | 66.7  | 6     |
| "Making it" in a men's world has<br>been both challenging &<br>frustrating | 1               | 25.0  | 0                   | 0.0   | 1     |
| Total                                                                      | 4               | 100.0 | 9                   | 100.0 | 13    |
| <hr/>                                                                      |                 |       |                     |       |       |
| Chi square = 10.653                                                        | DF = 4          |       | Sig. level = 0.0308 |       |       |

Conversely, negative comments on professions were also given. Although the number of women who wrote negative comments were small, their difference in opinions were statistically significant. Two among four of the creative women in TMP felt sex discrimination and non-acceptance still prevailed. One felt that it had been both challenging and frustrating for her to become successful in a men's world. The other felt that women had no chance to advance. Half of the creative women in TFP believed that the opposite sex had increasingly entered female professions and that men were promoted quicker. The other half felt that women still progressed slowly. This view implies that even in a traditionally female profession, sex bias exists.

### Summary of Biographical Variables

In summary, the following presents the statistically significant differences from biographical variables:

(1) More creative women below the age of 30 and those age 56 and older were in traditionally female professions. Creative women from age 31 to 55 were working in the traditionally male professions.

(2) Out of 18 professional women whose ages were below thirty, 13 were highly creative. The high percentage of the creative women in this age group is markedly different from the older age groups in which we found that the percentage of creative subjects decreased as age increased.

(3) Creative undergraduates did not shift their sex-typed major fields during their college years.

(4) The desire of the creative women in traditionally male professions to work in the male domain correlated positively with advancement in educational level (22.7%, 34.6%, 52.2%, 75%, junior high school through post-college years). This tendency continued and reached its peak in the post-college year. This phenomenon did not obviously exist in creative women in traditionally female professions. The large majority consistently remained in their sex-typed professions.

(5) Creative professional women differed significantly from low creative professional women in certain reasons for choosing their present professions. The former paid the least attention to future security and salary. They gave more consideration to freedom to work independently and to opportunities to be creative and original. The low creative professional women, conversely, considered a good salary and a secure future more important, with personal growth secondary. These differences were not significant between the creative women in traditionally male professions and the creative women in traditionally female professions.

(6) Although activities preferred in childhood were not significantly different between the creative women in TMP and the creative women in TFP, a statistically significant difference emerged between the creative professional women and the low creative professional women. Creative professional women preferred playing alone, while low creative professional women preferred to join group games.

(7) No significant differences were found between the creative groups in their opinions regarding popularity and academic achievement in high school and in college. But highly significant differences were found between the creative and the low creative. The creative professional women either thought that popularity was very important or not important at all, while the majority of low creative professional women thought that popularity was fairly important.

(8) More creative professional women reported having a strong conflict or some conflict in being a house wife and a working woman.

(9) More of the creative professional women had new marriages while the low creative professional women were in long-term marriages.

(10) Creative professional women expressed less liking for being a mother and raising children. No significant difference was found between the creative women in TMP and the creative women in TFP.

(11) More than half of the creative women in TMP thought that they had contributed a great deal to the society or community whereas most of the creative women in TFP thought that they had contributed only an average amount.

(12) More of the creative professional women described themselves as more independent and assertive. Much fewer of the low creative professional women described themselves as independent and assertive. No significant difference was found between the creative women in TMP and the creative women in TFP. The majority of them all described themselves as independent and assertive.

(13) Very few creative professional women made comments about being a woman in their professions. But significant differences were found between the creative groups. The creative women in TMP felt that sex discrimination and unacceptance still prevailed, and it had been both challenging and frustrating to become successful in the men's world. The creative women in TFP felt that men had increasingly entered female professions and that men were promoted quicker. They also felt that progress for women was still slow.

Other major findings although not significant statistically are summarized as follows:

(1) Only 36.4% of the creative women in TMP took a male professional degree while 88.2% of the creative women in TFP took a female professional degree. This suggests that creative TFP women tended to remain in their sex-typed professions while two-thirds of the creative women in TMP had shifted from female professions.

(2) Fewer of the creative subjects had an M. A. degree. But 81.8% of the creative women in TMP who earned their female professional M. A. degree, were presently in the male professions. Ninety-five and seven-tenths percent of the creative women in TFP who took a female professional M. A. degree, stayed in the same field.

(3) The creative professional women had parents whose educational level tended to be higher than the parents of the low creative professional women.

(4) Fathers of the creative professional women were largely professionals while fathers of the low creative

professional women tended to be in business, service occupations, clerical work, and in the farm.

(5) No significant differences were found in the father's or mother's occupational success. Neither was childhood health of the creative women in TMP and the creative women in TFP significantly different.

(6) Mothers of the creative women in TFP tended to enjoy reading and doing domestic work while mothers of the creative women in TMP tended to like music and art and engage in social activities, in addition to house-work.

(7) Fathers of the creative women in TMP seemed to be more active outdoors and more sociable whereas fathers of the creative women in TFP tended to enjoy reading and family activities.

(8) On becoming high school girls, more of the creative women in TMP tended to be very active in extra-curricular activities. This tendency continued in their college years. The fairly active women in TFP ultimately became less active or not at all active in college.

(9) Creative women in TMP tended to feel that husband resentment was the chief source of marriage conflict, while creative women in TFP tended to think house-work and family were the real causes of conflict.

(10) Creative women in TMP tended to marry younger and earlier than the creative women in TFP.

(11) Creative professional women seemed to have more help from their husband in house-work and child care. Among these creative women, more of those who were in traditionally female professions had their husband lend a hand in domestic work.

(12) Working was not considered as a real factor in divorce by the professional women. No significant differences were found between the creative and the low creative; but there is a tendency that the majority of creative TMP women reported positively, while none of the creative women in TFP held the same opinion.

(13) Creative professional women tended to feel some sex discrimination while low creative professional women seemed to be contented with their work, feeling that their coworkers were most supportive on the whole. Among the creatives, both groups shared almost the same feeling toward a slight sex bias.

(14) Almost 90% of the creative women in TMP tended to believe the public's attitude toward their professions was changing but a smaller percentage of the women in TFP felt the same way. One-third of the creative women in TFP actually reported no change.

(15) The majority of creative professional women seemed to be sure that they would advance further and faster, or be more productive if they were men, while only two-fifths of the low creative professional women thought so. When the same question was asked, 68% of the women in TMP answered positively while 52.9% of the creative women in TFP gave the same answer.

(16) More than two-thirds of the creative women in TMP tended to believe themselves to be innovators in their professions while less than half of the creative TFP women gave a positive answer. The former thought that personality traits such as persistence, determination, originality, ambition, and drive were most important while the latter seemed to be more passive and thought acceptance of changes and new ideas would help them be an innovator.

(17) When being asked to identify themselves as a person with nouns, creative women in TMP tended to identify themselves as a mother while none of the creative women in TFP did so. The creative women in TFP tended to identify themselves as a wife or a woman instead.

(18) Positive comments on being a woman in one's own profession were few. The creative women in TMP tended to think that sex was not important but personality was. The creative women in TFP thought that their professions were most rewarding and provided them a sense of fulfillment and satisfaction. They also thought that their professions were personally advantageous and could easily be returned to.

## CHAPTER VI

### TENTATIVE MODELS AND DISCUSSION

This exploratory study was designed to determine the personality characteristics and background experiences that might help explain women's occupational choices either in traditionally male professions or in traditionally female professions. The study also was designed to show the role of creativity in their occupational choices.

Differences in personality variables and biographical factors as well as adult experiences of professional women have previously been examined. Now the model patterns of development that characterize women in traditionally male professions, in traditionally female professions; and creative women in traditionally male professions, and in traditionally female professions will be analyzed keeping in mind the fact that individual differences, inherited or acquired, play an important part in feminine development. Based on data from three research instruments administered to an adequate sample, we now are in a position to propose some tentative models of the professional women classified above. We can get acquainted with their childhood, their school life, and their work experiences. We also can learn about their feelings toward

marriage and a profession, their satisfactions and disappointments, and their professional self-appraisal. The picture which emerges from trends found in the data may then provide a new way of viewing the total situation and various aspects of it.

#### Tentative Model of Women in Traditionally Male Professions

Being in the traditionally male profession, she was quite outgoing, and casual, cheerful and frank, and enjoyed friendship. At work she was conscientious and independent. Although she was venturesome and spontaneous and concerned less about moral standards and rules than women in general, she was fairly sensitive and adaptable to practical and conventional situations and environment. She had socially approved character responses, and was concerned about etiquette and her social reputation. She was rather emotionally stable and natural, contented and trustful. She was confident and felt quite adequate at work and in meeting the demands of daily life. In decision making, she depended on her own judgment rather than on social approval because she was resourceful and self-sufficient. Since she was self-assured, she was less inclined to worry than the women in general whenever frustrations and deficiencies arose.

The woman in traditionally male profession was reared in a family in which the father's educational level ranged from high school to some college. More probably than not he did not complete his high school education. Had he attended college he likely would have been a professional. If not he

would have been a business man or in public service. In the eyes of his daughter he was quite successful in terms of achievement, but less successful in the monetary sense. He enjoyed sports, gardening and travel, and to lesser degree, reading. Like the father, the mother had some high school education, but most had not completed high school. She had no plans to work outside the home. If she worked, she would take any job without considering whether it was an occupation for men or women. As a matter of fact, her education enabled her to work only as a non-professional. Nevertheless she was considered quite successful in achievement but less successful from a monetary standpoint by her daughter. She enjoyed reading and doing domestic work. She also took delight in associating with friends. She was sociable.

In childhood, the girl who later worked in a male profession was very healthy. She preferred to play games with friends rather than to play alone. She favored science subjects in school. She considered academic achievement more important than popularity. But on becoming a college girl, she became very active in extra-curricular activities.

Her interest in a male profession started as early as junior high school, and her aspirations along this line increased with age even after her college years. Like most girls, she took a female professional B. A. degree, and worked in a female profession at the start of her career. But this did not mean that she had given up her desire to work in a male profession. Her continuously developing personality and her persistent desire to work in the male domain facilitated

her eventual professional shift from a female profession to a male profession.

Upon entering a male profession she worked very hard, facing challenges, frustrations, and even a certain degree of non-acceptance from colleagues. It was not until recently that she felt that public attitudes toward women in her profession were changing.

The younger she was, the more certain she felt that prejudice existed against women. She believed that she would advance further and faster, and be more productive, if she were a man. She denied that she gave priority to marriage in her early twenties while in fact she was married early.

Aside from identifying herself as a professional, she identified herself as a mother. She found happiness as a mother and in rearing her children. But maternal happiness varied. If she were younger than 30, she would tend to be less maternal. When her children were grown and had left home, she would feel lonely and depressed. When the intensity of her depressed mood was over, she found herself more absorbed at work.

A woman in traditionally male profession usually felt no role conflict. It was only when young that she visualized or actually felt role conflict, in spite of the help her husband offered in domestic tasks. Age makes the difference. Even if she were a young single professional she would feel that there were conflicts in being a housewife and a working woman.

In choosing her profession, she believed that her ability and skill at work were most important. She paid little thought to salary or job security.

As a professional in the male domain, she believed that she had contributed to society or the community. Being in a male profession for a few decades, she found that her sex was not important in her work, but that her personality was. She found satisfaction, fulfillment, and appropriate compensation at work. Her profession was challenging and she took pride in working in it.

#### Tentative Model of Women in Traditionally Female Professions

The woman in traditionally female profession was slightly reserved, rigid, and precise. She tended to be more exacting in character and to be dominated by a sense of duty than the woman in traditionally male profession. Emotionally she was slightly restrained and cautious. Yet she could be affected by feelings easier than women in general. She was slightly submissive, dependent, and mild; but she was also slightly serious, introspective, and careful. She was very intelligent, had more intellectual interests and was more resourceful and unconventional in her critical thinking. Therefore she tended to be slightly aesthetic and unrealistic, skeptical and self-opinionated. Being imaginative and subjective, she might have a greater degree of internal anxiety and conflict. She was shrewd in tactical dealings with people and situations. Like the woman in traditionally male profession, her character responses were socially approved, and she showed consideration for others and regard for etiquette and her social reputation.

A woman who worked in a traditionally female profession came from a home where the father might be educated at the high school level or have an advanced degree. He might be a professional, a business man, a farmer, or a public servant. No matter what his occupation, he was considered quite successful in terms of achievement but less successful monetarily by his daughter. He tended to enjoy reading. He was less energetic with regard to outdoor activities and less sociable than the father of the woman in traditionally male profession. He preferred to stay at home with his family. The mother of the woman in traditionally female profession, comparatively speaking, had more education than the mother of the woman in traditionally male profession. She completed high school and had college education. She was unlikely to work outside the home. If she did, her profession tended to be a traditionally female one. Like the mother of the woman in traditionally male profession, she was viewed by her daughter as a quiet successful achiever, but less successful in a monetary sense. She enjoyed both reading and domestic work more than other activities. She was also fond of music and art, but was not very sociable.

As a girl, the woman in traditionally female profession was healthy. She liked to play with age mates rather than play alone. She found arts subjects interesting. All the degrees that she earned would be in the female professions, and she was happy to be in a female profession and stayed in it. She was fairly active in extra-curricular activities in school but when in college she became much less active. While

in high school, she considered academic achievement more important than popularity and while in college she thought such achievement was very important. She might not give priority to marriage in her early 20's, and considered matrimony after completion of her college education.

After marriage she might find some role conflict although her husband would help her occasionally with housework. She definitely enjoyed being a mother and rearing her children. She was highly maternal. Years later, when her children were grown and had left home she would feel happy and proud for she had fulfilled her duty. She would then take up other interests and activities, or become more committed at work.

She experienced conflict in that she felt she had too little time for her family or for her personal leisure. She felt that caring for children as a mother and working as a professional woman confused her goals in life.

Besides identifying herself as a professional, she liked to identify herself as a wife. This might indicate dependence on her husband or that her husband was important to her.

In choosing a female profession she did not think a good salary and a secure future most important. She believed that her interests as well as her ability and skills were more important.

When at work she was happy that her co-workers' attitude toward her was very supportive. She did not feel that the attitude of the public toward her profession was changing. Actually she felt somewhat invaded, as men had gradually and

increasingly joined her profession. These men, though inferior or less capable at work, were appointed to administrative positions faster and enjoyed high salaries.

She too felt that if she were a man she would have advanced further and faster, and be more productive. But she did not think that she had contributed a great deal to society. She felt that what she had contributed was just an average amount.

She believed that it was normal for her to work in a female profession and that her profession offered her an opportunity for personal growth and other advantages.

#### Tentative Model of Creative Women in Traditionally Male Professions

The creative woman in traditionally male profession was slightly outgoing, warm-hearted, and willing to participate in activities outside her profession or connected with her work. She was also ready to cooperate in public matters and enjoyed social recognition. She was very intelligent, insightful, intellectually adaptable and bright. She had interests in the academic world, had high scholastic mental capacities in the sphere of abstract thinking, and showed good judgment on critical issues. She tended to be calm and mature, stable and constant in emotions and in interests. She was not easily upset or frustrated in situations where sudden adjustment was required or difficulty arose. At work she was very assertive and aggressive, and quite conscientious and persevering, very competitive and dominant.

She was highly venturesome and socially bold, and always welcomed innovations and tried new things. She tended to be active and self-driven and was free from autonomic fatigue. In social situations she was the least inhibited or threatened by environment. Yet in general she could be quite realistic and practical. She tended to be unconventional, self-motivated and imaginatively creative. She was also quite liberal, analytical and free in thinking. Although she was inclined to disregard practical matters she actually had higher internal anxieties and conflict tensions. Compared with women in general, she tended to be slightly more tense, restless, anxious and impatient. She was less polished and sophisticated but more natural and spontaneous than the creative woman in traditionally female profession. She was self-assured and confident, resilient and secure, with a feeling of adequacy in dealing with people, things or situations. Being independent both in thinking and action, she did not need others' agreement or support; her own resourcefulness and self-sufficiency saw her through. She had a strong ego and will power and also a high level of objectivity. With such a personality she tended to be an effective leader and to be productive in organizational activities.

The creative woman in the traditionally male profession most probably was reared in a family where her parents' educational level was higher than the average. Her father most likely was a college graduate and was either a professional or a business man. He was very successful in achievement and quite successful financially as recalled by his

daughter. At leisure her father enjoyed outdoor activities such as sports and gardening. He also was fond of traveling and reading. Her mother probably was a high school graduate. She might have some college education as well. Most often she was not working outside the home. If the mother worked, she might either work in a traditionally female profession or work as a non-professional. She was considered quite successful in achievement and above average in monetary success by her daughter. The mother, in addition to doing household chores, enjoyed music and art most. She also liked reading and was socially active either with her friends or for the church or community.

The creative girl who later ventured into the male professional sphere was very healthy. At times she joined group games but more often than not she preferred playing in solitude. In school she tended to favor science subjects, but she might have taken a female major in college, and have earned her initial degree in a female profession. If she continued her education, she would have had a female professional major in working on her M. A. degree, even though she had earned her B. A. degree in male profession. The same pattern would emerge in working on her Ph.D. degree.

Since she was in junior high school, she had the desire to work in a male profession. This desire grew stronger as she advanced in her studies. Even after college she felt most strongly a desire to work in a man's field although her degree prepared her for a female profession. Her venturousness and courage, and her persistence and endeavor enabled her to

fulfill her wish, and she finally invaded the male territory. She might taste frustration occasionally and find slight discrimination and non-acceptance at work, but once difficulties were overcome and challenges conquered her gratification and sense of achievement urged her to stay on. She confessed that working in a men's world, demanded more effort and hard work for her to be a success. However, after long years of service, she felt that the public attitude toward women in her profession was changing.

In school, she already felt the importance of academic achievement. When in college, she valued it the more. She thought popularity was much less important as compared with academic achievement.

She became very active in extra-curricular activities in high school and continued to be active during her college years.

When choosing a profession, she believed freedom to work independently and the opportunity to be creative and original were most important. She paid the least consideration to a good salary or a secure future.

She strongly believed that she would advance further and faster and be more productive if she were a man. She was also sure that she was an innovator in her profession, for such personality traits as persistence, determination, originality, ambition and drive enabled her to bring about changes. Through her work she was quite certain that she had contributed much to society.

She tended to marry early and found almost no marital conflict. Had there been any, it would be her husband's resentment that caused it.

Besides identifying herself as a professional, she liked to identify herself as a mother. In fact she quite liked to be a mother and to rear her children. She tried to do housework by herself although her husband would offer her a hand in it. When her children were grown and had left home, she had mixed feelings about their independence and her empty nest. She felt happy and proud to fulfill her duty as a mother, yet she felt lonely and depressed when her children were away. Ambivalently she also felt free and relieved, and was able to be profoundly dedicated to work.

In describing her own personality, she saw herself as independent and assertive. She was convinced that personality affected her work positively.

#### Tentative Model of Creative Women in Traditionally Female Professions

The creative woman in traditionally female profession was more cautious in expressing herself emotionally. She tended to be serious and reflective, and was aloof in manner. She was critical, self-opinionated, less willing to participate in group activities and preferred working alone. She was very superior in intelligence, highly insightful, intellectually adaptable and bright. She had more interests in the world of academia. She had excellent scholastic achievement and mental capacity in abstract thinking, and she showed good judgment on critical issues.

She was emotionally mature and stable and would not be easily upset or frustrated when sudden difficulties or challenges appeared. At work she was reasonably assertive and aggressive, competitive and dominant. She tended to be quite conscientious, persevering and self-motivated. She was also slightly venturesome and liked travel and new experiences.

She was quite sensitive, affected and unpractical in general affairs. In fact, she was tender-minded and feminine. She was more polished and sophisticated in manner and flexible in viewpoint than the creative woman in traditionally male profession. These social skills might have been partly acquired by experiences.

Like the woman in traditionally male profession she was self-assured and confident, resilient and secure, and felt adequate in life and at work. Her own resourcefulness and self-sufficiency facilitated her ability to make decisions resolutely and independently.

She was sensitive and imaginative. Although she had strong will power and controlled her emotions and behaviors, internally she experienced deeper anxiety, conflict, and tension than other women classified in this study.

The creative woman in a traditionally female profession usually comes from a family in which the parents were quite highly educated. The father was most probably a professional. He was very successful in achievement and quite successful financially as judged by his daughter. After work the father greatly enjoyed reading. Occasionally he participated in sports and traveled. He sometimes also liked to participate

in activities with his family. The mother probably was a college graduate or had attended college. More often than not she was not working outside the home. If so, like the mother of the creative women in TMP, she might work either in a traditionally female profession or work as a non-professional. As recalled by her daughter she was quite successful in achievement but about average in terms of monetary success. The mother enjoyed very much domestic work and reading. At times she liked to play such games as bridge which required mental ability.

In childhood, the creative woman in traditionally female profession was very healthy. She preferred playing alone though she sometimes participated in group games. In school her favorite subjects were in the arts, and she took her collegiate major in the arts and obtained her B. A. degree in a female profession. She would continue studying in the female professional field for advanced degrees if she had the chance to do so.

In high school she believed that the academic achievement was very important. This belief continued in college. Popularity was never regarded as being important to her. She was much involved with extra-curricular activities in high school, but gradually became inactive in college.

She had long planned to join a sex-typed profession. Her college education prepared her for it, and she stayed in her profession happily thinking that it was natural for a

woman to do her work. She regarded her profession as rewarding and satisfying, and good for personal growth.

When choosing a profession, she considered freedom to work independently and the opportunity to be creative and original as most important. She belittled the importance of a good salary and a secure future.

Although in a sex-typed profession she felt slight sex discrimination, for men had continuously entered her field, and they were promoted to administrative positions quicker and enjoyed higher salaries. In her eyes they were actually less qualified and efficient. She felt that though women were recognized as offering something unique in her profession, progress for women was still slow. She did not perceive much change in public attitudes toward her profession.

She believed that if she were the opposite sex she would advance further and faster, and be more productive. She doubted that professionally she was an innovator. She, however, was willing to accept changes and new ideas if that would make her an innovator. As to her contribution to society, she felt that she had contributed only an average amount.

She would not give priority to marriage in her early twenties. She tended to marry somewhat late. After marriage she felt that she had encountered role conflict. She felt that household and family were the real causes of conflict, although she actually had more help from her husband in domestic tasks than other women had. She very much enjoyed being a

mother and rearing her children. When her children grew up and left home, she regarded the change as normal, and expressed happiness and pride at having fulfilled her duty.

Discussion of Personality Characteristics and Background  
Experience of Women in Traditionally Male Professions and  
Traditionally Female Professions

Sex-typing of occupations is classified according to the nature of work or the percentage of men or women working in them. Occupations requiring qualities of detachment, analytic thinking, objectivity, intellectual assertion, and competition are considered as male professions. Occupations requiring qualities of nurturance, empathy, sensitivity, subjectivity, and helping or caring are regarded as female professions. Women in male professions are therefore viewed as independent, persistent, ambitious, competitive, aggressive, cool, analytic and objective. Conversely the image of women in the female occupational sphere includes qualities of personal warmth, grace and charm, empathy and sensitivity, compliance and dependence.

The personality characteristics of the professional women in this study differed slightly in their over-all personality patterns according to the nature of the work in which they were engaged. But they did vary significantly in certain personality traits.

First, women in traditionally male professions were more outgoing, adaptable, and casual than women in traditionally female professions. Since half of the subjects in

the male occupational sphere were business executives and managers, this personality trait is to be expected. The subjects in traditionally female professions were more reserved, rigid and precise. This implies that they were cautious and wary, inhibited in both behavior and emotions.

Secondly, women in traditionally male professions are slightly inferior in intelligence to women in traditionally female professions. We may attribute this characteristic to the fact that, being less outgoing, women in traditionally female professions naturally developed more intellectual interests at home. These interests include reading, artistic pursuit and pastime activities which demand mental ability. It is not a surprise to find women in traditionally female professions were more sensitive, intuitive, introspective, imaginative, and excelling in abstract thinking than women in traditionally male professions.

All professional women are more adventurous and socially bolder than women in general. The women in traditionally male professions were significantly more so. They were highly adventurous and socially bold and were uninhibited by environmental threats. A plausible explanation may be that professional women, either male-oriented or female-oriented, when first entering their professions in the 1940's or earlier, were pioneers.

We found that women in traditionally male professions were rather practical while women in traditionally female professions were more imaginative and had a higher degree of subjectivity and sensitivity. Practicality in the women in

traditionally male professions might be developed by experiences in the competitive world where standards of excellence and efficiency were so demanding that the concept of reality constantly reminded them to be practical. Subjectivity and sensitivity are basic requirements for working in a person-oriented profession such as teaching, nursing, and social work.

Lastly the women in traditionally female professions were much more shrewd in tactical skills in dealing with people and situations than women in traditionally male professions who were more natural, contented, and trustful. Sensitivity and subjectivity helped improve personal relationships. It is foolish to generalize, but it is logical to say that feminine qualities such as sensitivity and subjectivity enabled those who worked in the female professions to be more shrewd in manipulating or creating relationships with people and situations. Men usually give heed to their heads rather than to their hearts. They are detached rather than attached. The masculinity characteristic in the women in traditionally male professions made them more natural, contented, and trustful.

Among the biographical variables, we have few statistically significant findings between women in traditionally male professions and women in traditionally female professions.

The nature of maternal employment was found to have influenced daughters' later career choices. Mothers of the women in traditionally male professions were mostly non-professionals. As a girl the woman in traditionally male

professions might get the favorable impression that working outside the home was enjoyable and encouraged. The working model of the mother would have served as an incentive for a career, but her later choice of a male profession might have stemmed from her interests and her ambition for status and prestige as well as achievement drives.

In contrast, the majority of mothers of the women in traditionally female professions were in sex-typed professions. We may explain that maternal employment tended to orient the daughter to be a professional, but the degree of intimacy between mother and daughter influenced her career choice. Very often the daughter having a close relationship with the mother identified with the mother in her career, especially when the mother was in sex-typed professions which were mostly sex role extensions involving caring and helping, or managing and assisting.

Another significant finding was that, among women in traditionally male professions, the aspiration to join a profession in the male domain increased from junior high school age through college age. This continued even after college years. We may interpret that the choice of a masculine occupation may be the result of the following: 1) Independence and autonomy being encouraged in childhood. 2) Defiant daughters from lower social-economic class homes seeking upward mobility, therefore rejecting traditionally female professions. 3) Achievement-oriented girls tending to have greater commitment at work,--and the more masculine the occupation, the greater the commitment. 4) Ambitious and

competitive girls aiming at masculine professions as a ladder to prestige, power, honor, and work satisfaction--especially true of girls with creativity and talent who expect to make a life for themselves through their own efforts.

The third significant finding was the great increase in female professional M. A. degrees compared with the percentage of female professional B. A. degrees. In contrast to the increased aspiration to work in the male occupational sphere, there was the increase in female professional M. A. degrees. This was an unusual phenomenon.

Women who successfully completed their male professional B. A. degrees were bright and career-committed. They were also the minority deviant. There were reasons they changed to a female professional M. A. degree. Those who obtained a male professional B. A. degree might work for a female professional degree to get into a male profession, such as teaching science subjects at a college or university. Another reason was that they worked for a female professional M. A. degree preparing for an administrative position. If the reasons were not those just mentioned, they might tie in with an effort to conform to social expectations, for traditionally female careers have been considered socially acceptable for women.

Among the statistically significant findings, the most interesting one was that a great percentage of women shifted their professions from female oriented to male oriented after their college years. In view of the large number of professional women in business who hold executive or managerial

positions, we should examine the facets of such a shift and the difficulties they might have encountered.

It is common for positions at a higher level of responsibility and prestige to occur in the male's domain. When a woman crosses the sex barrier and assumes a traditionally male position, she may experience suspicion, hostility, and non-acceptance. The notion that women who work in the man's occupational sphere are undermining the men, rather than supplementing or functioning equally with them, exists among many. When a woman proves to be qualified and capable she may face successive conflicts between her personal life and her career. Role conflicts and feminine ambivalence often hinder a woman's initial entry and degree of success in male professions. It takes courage, motivation, commitment and talent for a woman to be in a male profession.

Unfortunately, on examining further our significant findings, we ascertained that women in traditionally male professions manifested signs of being considered second rate. In an occupation in which the majority is male, to rank men first is natural, for society regards it as proper. It is not strange that women in such professions are considered secondary.

Although women in traditionally male professions managed to enter the field they also said that the challenges and frustrations at work were immense. First of all, men's work is usually more demanding, both in terms of skill and mental ability. A woman has to put greater effort into her work and to prove herself better than the male to get recognition.

Yet top ranking positions are seldom offered to women. This is not only because of overt discrimination but because of sex status that makes a woman subordinate in the stratification of the male profession. No wonder women in traditionally male professions felt it difficult to become a success in a men's world.

Grievances were also evinced by women in traditionally female professions. They viewed the male as invaders in their territory, for men were appointed to administrative positions faster and enjoyed higher salaries as though women inherently were junior, more inferior in qualification and less efficient. This was true in certain female professions, such as library science, secondary education, and social work. Traditionally women have filled a large percentage of staff positions, but only a small proportion of administrative positions in these fields. Men are the authoritative figures.

One may inquire why this happens in the female occupational world and not in the male sphere, where women can hardly hope to climb to the top of the ladder. We may reflect that women in traditionally female professions are less ambitious and are happily contented with their work. Or women are presumed to have so much less commitment and drive that they are not appointed or even recommended for administrative positions. Or it may be, of course, that at times, due to hostility among women, women prefer to work with males rather than with females.

Women in traditionally male professions and women in traditionally female professions differed significantly in their view of the attitude of the public toward women in their professions. The former believed that the attitude of the public toward their profession was changing, while only a small percentage of the women in traditionally female professions shared the same opinion. There are two possible reasons as to why women in traditionally male professions believed so. First, recent employment opportunities favor minority groups. Women are considered to be a minority in the male world of work; and now in accordance with many new laws women are to have equal employment opportunities, and equal payment for the same employment classifications. Secondly, colleges and universities have recently recruited a higher percentage of women students in the male collegiate fields. This means women are encouraged and given a chance to prepare themselves for male professions.

Another significant finding was that women in traditionally male professions, when asked to identify themselves as a person with nouns, tended to identify themselves as professionals, while at the same time more of them identified themselves as a mother than did the women in traditionally female professions, who identified themselves as a wife. This may be the manifestation of femininity ambivalence and guilty feelings of a working mother in the male professions. Functioning on her masculine side in a professional setting where detachment, analytic thinking, competition, and arduous striving are required makes it difficult for a woman to adjust herself

at home where she must demonstrate her femininity to her husband and children. Not only her neglected womanhood troubled her, but also her neglected motherhood, for women are expected to devote themselves in child-rearing and house-keeping tasks. Carrying a dual role, which required two extreme personalities, a woman might not only have doubts about the feasibility of it all, but might also be anxious about meeting societal expectation of a woman's proper role. Thus guilty feeling toward children was generated. Her identification as a mother might be a compensatory effect in facing cultural condemnation.

#### Discussion of Personality Characteristics & Background

#### Experience of Creative Women in Traditionally Male Professions and Traditionally Female Professions

From studies attempting to identify personality characteristics of the creative person, there does seem to emerge general agreement as to the characteristics of the creative person. Conclusions derived from studies dealing with sex differences suggest that there are not many differences between creative males and creative females. Really creative individuals, males or females, combine masculine and feminine qualities.

The creative professional women in this study resemble creative persons in general. The profile of their personality (graph 6) based on the 16 PF, showed a resemblance in many traits to the eminent researchers studied by Cattell and Drevdahl (1955), and of the successful academic women studied

by Bachtold and Warner (1970). Cattell concluded that four of the sixteen personality factors in the 16 PF could be used to predict creativity of individuals in various professions. These four factors are Reserved (A-), Serious (F-), Venturesome (H+), and Self-sufficient ( $Q_2+$ ).

In addition to being reserved, serious, venturesome, and self-sufficient, our creative professional women were intelligent (B+), assertive and dominant (E+), conscientious (G+), sensitive (I+), Self-opinionated (L+), imaginative (M+), self-assured (O-), experimenting ( $Q_1+$ ), self-disciplined ( $Q_3+$ ), and relatively self-driven ( $Q_4+$ ). They resembled average adult females only in two personality factors, i.e., emotional maturity (C), and sentiment (N).

Being intelligent, the creative professional women had the capacity to grasp ideas quickly, and to wonder about things they saw or thought about. They were able to toy with elements and concepts. They were occupied with intellectual interests and abstract thinking, and they tended to be asocial, aloof and reserved. By contrast they were warm and sincere, and simple and frank when in their associations with people. They tended to be reserved because they enjoyed more of their inner mental life than did others. Creative professional women had great confidence in their work and in their sense of uniqueness. They were often frustrated with the level of their work, for they were their own worst—and best—critics. Yet they were sustained by their faith in themselves. Independence of judgment and a tendency to rely less on the judgment of others was another of their likely characteristics.

Though they were not anti-social, they seemed to have less direct need of other people, and to be less enculturated. They were independent, confident, and self-sufficient.

The creative professional women were relatively unfrightened by the unknown, In fact they were often positively attracted to the unknown and the untried. They tended to be skeptical of accepted ideas and practices but were less suspicious of new ideas than the average person. They were venturesome, experimenting, non-conforming, suspicious, radical, sensitive and imaginative.

The creative professional women were likely to have a strong, assertive, dominative ego. Contrarily they could be completely ego-less and self-transcending. With such a disposition they were likely to be relatively more spontaneous and expressive.

Being sensitive, they tended to be aware of conflicts, to experience them deeply, and to accept them not just intellectually but in feeling. They might become emotionally tense or receptive to frustrations, but also tended to be self-disciplined and controlled.

In comparison with creative women in TFP and creative women in TFP few significant differences were found. Only three of the sixteen personality factors showed a significant difference between the two creative groups of professional women. They differed on Factor A (Reserved vs. Outgoing), Factor H (Threat-sensitive vs. Venturesome), and Factor N (Forthright vs. Shrewd). This suggested that great similarity was to be found in the overall personality

characteristics of creative professional women, male oriented or female oriented. When comparing the creative and the less creative, ten of the sixteen personality factors differed significantly, particularly in those personality factors which best predict a creative person.

The creative women in TMP were more outgoing while creative women in TFP were more reserved. This may be due to the fact that creative women in TMP had a feeling of separateness from others, and a sense of being socially useful and happy in their work. They might also have a desire for personal recognition and for self-expression. The creative women in TFP on the contrary, felt less reason to exert themselves in achieving and competing; and had less need to gain recognition for their ability and capacity since their professions were considered most proper and acceptable for a woman.

Both creative women in TMP and creative women in TFP were venturesome. The difference was in degree. Creative women in TMP were highly venturesome. Their curiosity, desire for novelty, independent thinking and self-confidence urged them to be venturesome. Their persistence and desire to experiment drove them toward new ventures which would bring them gratification, success and recognition.

Another significant difference between the creative groups was that the creative women in TMP were more natural and spontaneous. While the creative women in TFP were more polished and experienced, worldly and shrewd.

From the biographical data we obtained several significant findings on creative professional women.

In childhood creative girls preferred solitary play rather than group games. Playing alone enhanced their imagination. Activities such as reading, painting, drawing, working with clay, writing poems and stories, and even doll playing develop aesthetic sense, symbolic vision, abstract thinking, sensitivity and imagination. All these are necessary for creative productivity. In her own imaginative world, a girl's thoughts wandered, her mind ranged. It was much like having complete freedom to indulge in one's intellectual world. Independent and creative thinking was thus achieved. It is not surprising that creative women feel the need of autonomous self-expression, and therefore resist to conformity of femininity.

In high school creative professional women tended to think that popularity was very important or not important at all, while the low creative professional women thought popularity was fairly important.

Here emerged two different pictures of the creative high school girls. One was very active; the other not active. The active high school creative girl might have the intention of seeking acceptance from peer groups. She might fear to be rejected both by boys and girls of her age because of her high academic achievement. Or the active high school creative girl saw herself as a leader. In fact her mental ability, her verbal fluency and her tactful social skills qualified her as a good leader. On the contrary, the non-active high school

creative girl might be of the reserved and aloof type, so busy with studies and mental life that she belittled the importance of popularity.

During their collegiate years, creative undergraduates rarely shifted their sex-typed major fields. The initial degree they earned was in the field chosen when they entered college.

It seemed that creative college girls undertook professional education as a step toward preparation and did not regard their plans as contingent and subject to modification because of marriage or the influence of boy friends. They definitely had specific career plans to which they were committed as lifetime goals. They aimed at college training as means of achieving their full potentials.

Another statistically significant finding was that the desire of creative women in traditionally male professions to work in the men's world correlated positively with advancement in educational levels. This tendency continued and reached its peak in the post-college years. However, this phenomenon did not obviously exist in creative women in traditionally female professions. Overwhelmingly they stayed in the same field after a few decades.

We have previously discussed the same phenomenon among the women in traditionally male professions. We may also conclude that the reasons the creative women in TMP entered male occupational spheres are similar to those motivating women in traditionally male professions. This rationale applies especially to creative persons.

We may infer that career limitations on women are self-imposed, for women usually have minimal aspirations and seldom consider their capacities and motivations. Even if they do, they might not have the least idea as to how to reach their professional goals. Creative women in traditionally female professions who were consistent in their future vocational plans might never have thought of the possibility of doing a male-typed job when young. They had internalized values on sex-typed professions at an earlier age. Even those who had demonstrated scholarship, once attuned to the opinions of parents on sex-typed professions, became sensitive of social opinions on female professions. An alternative explanation is that mothers who were in traditionally female professions and enjoyed their dual roles as housewives and working women became the key figure as role models for their daughters.

Among background variables, both for professional women and creative professional women, we found no statistically significant difference with respect to their parents education, social status, leisure activities and childhood health. Viewing the related research literature one concludes that the findings are rather inconsistent. It seems that developmental theories are not germane in this instance.

There were several significant findings to differentiate the creative and the low creative professional women, as well as the creative women in TMP and the creative women in TFP.

First, more creative women below the age of 30 and those age 56 and older were found to be in traditionally female professions. Creative women from age 31 to 55 were more working in the traditionally male professions. This casts a doubt as to whether creative women perceived and actually encountered greater difficulties in joining the male professions before the Second World War and that twenty-five years later the same situation occurred again that creative women would rather work in their own sex-typed professions.

In choosing a profession, intrinsic value of work was more important to creative women, while low creative women attributed more value to extrinsic rewards such as a good salary and a secure future. Creative professional women, on the contrary, considered freedom to work independently and opportunities for creativity and originality as more important. Thus it is clear that they value achievement success and work gratification more than monetary reward.

Creative women, either in traditionally male or female professions described themselves as more independent and assertive, while low creative women described themselves as more traditionally feminine. No significant difference was found between creative women in TMP and creative women in TFP. This self-description of personality was found in accordance with the personality profile showed in Graph 6.

In regard to role conflict, which means incompatibility in handling different kinds of work, more creative professional women reported having a strong conflict or some conflict in being a house wife and a working woman. A close and careful

examination of the personality profile of creative professional women revealed that they were more intelligent, more assertive, more experimenting and more self-sufficient. With work experience and advanced education, they managed their dual home-making and career role better than low creative professional women. The complexity of roles actually allowed them to make full use of their ability and talent. On the other hand they were more sensitive, easier affected by feelings and tended to have undisciplined self-conflict. One might wonder their reported conflict was psychological. That means they were anxious to meet societal expectation of a traditionally female role, and that they had higher expectation for themselves as well.

When the same question was asked, more creative women in TFP tended to report a strong conflict or some conflict than did the creative women in TMP. It is obvious that low creative women felt the least conflict; creative women in TFP felt the most conflict; and creative women in TMP seemed to manage both home and profession the best. We may infer that the more creative a woman, and the more traditionally feminine the occupation, the stronger the role conflict a woman will feel.

It may be worth noting that among creative subjects who reported having role conflicts, two out of three creative women in TMP thought that their husband's resentment was the cause of conflict, while 11 out of 14 creative women in TFP thought that children, housework, and the lack of time for their family were the real causes. The nature of conflict

seemed to be different according to the nature of the professions the creative women were in. We may doubt whether that creative women in TMP who managed their dual role better were projecting their fear of authority to their husbands or not.

When checking the years of marriage between the creative professional women and the low creative professional women, it is significant to note that more of the former group had new marriages while the latter group had already had a long-term marriage. The question arises whether these creative professional women were recently remarried or simply married late.

Creative professional women expressed less liking for being a mother and raising children than low creative professional women. Maternity and motherhood are essential for femininity. To give birth to children and to raise them bring satisfaction of affiliation need and a sense of biological achievement to a woman. Our creative professional women seemed to have less need in these spheres. Other needs were more important and gratifying to them. This may suggest that they had a stronger need for achievement in the professions, the attainment of which actually demanded more of their time and devotion than the traditional role for women. It would be extremely difficult to spend limited energy and time in both home and profession, especially when the latter is found to be more challenging and rewarding.

If self-esteem is defined by professional achievement and a contribution to society through one's own work, we may state that our creative women in traditionally male professions

had higher self-esteem while creative women in traditionally female professions had a lower self-esteem. The former were sure that they had contributed a great deal to society or community, whereas the latter thought they had contributed only an average amount. The question is what were their internalized criteria of professional contribution. Were criteria similar between creative women in TMP and creative women in TFP? Did creative women in traditionally male professions believe that the more demanding the work the more effort it required, and therefore the greater contribution to society? Did creative women in traditionally female professions still place the traditional value of male professions higher than the female professions and in doing so believe that they had contributed only an average amount?

Although significant differences were found between creative women in traditionally male professions and creative women in traditionally female professions with respect to their opinions on their own professions, sex discrimination was the main issue. The creative women in TMP felt that sex bias and non-acceptance still prevailed, and that it was both challenging and frustrating to strive for success in the male occupational sphere. The creative women in TFP felt that men had increasingly entered their professions and that their male colleagues were promoted quicker. They also felt that progress for women was still slow. It seems to be a general belief that sex discrimination exists not only in traditionally male professions, but also in traditionally female professions. This belief was felt not only by ordinary

professional women, but also by creative professional women. Intellectual shifting of the opposite sex in sex-typed professions may supplement or even utilize better human resources. However, it would be distressing if such a shift entails greater sexual inequality.

Out of 18 professional women whose ages were below thirty, 13 were highly creative. The high percentage of creativity in this age group contradicts that of the older age group. It is statistically significant that the percentage of creative subjects in this study decreased as age increased.

## CHAPTER VII

### CONCLUSIONS AND IMPLICATIONS

#### Overview of the Study

The purpose of this investigation was to study the personality characteristics, background experiences and present life situations of professional women and creative professional women who are either in traditionally male professions or in traditionally female professions, and to explore the role of creativity in their careers.

The sample consisted of 221 professional women, of whom 109 were in traditionally male professions and 112 were in traditionally female professions. Of the total population 205 were working full-time, 13 part-time, and 3 retired. Sixteen were below the age of 30; 21 between the ages of 31-40; 81 between the ages 41-55, and 103 were older than 56. Eighty-five were single; 82 married; 27 divorced; and 27 widowed.

Selection of creative subjects was based on their creativity scores on the Sixteen Personality Factor Questionnaire and the Adjective Check List. Of 109 women in traditionally male professions, 27 were considered creative; of 112 women in traditionally female professions 36 were creative, resulting in a total of 63 creative subjects in the total population.

Two broad questions were explored:

- (1) Similarities and differences in personality characteristics and background experiences between women who choose traditionally male professions and women who choose traditionally female professions; and
- (2) Similarities and differences in personality characteristics and background experiences between creative women who choose traditionally male professions and creative women who choose traditionally female professions.

The experimental procedures were as follows: Each subject was requested to complete and return by mail three research materials--the Sixteen Personality Factor Questionnaire, the Adjective Check List, and the Biographical Questionnaire. All returned materials were edited, scored, coded, and key punched. The personality and biographical variables were analyzed by means of several statistical procedures and a digital computer.

Data from the 16 PF, the Adjective Check List, and the Biographical Questionnaire provided information about the questions. Significant differences both in personality characteristics and background experiences were found between women in traditionally male professions and women in traditionally female professions; also between creative women in traditionally male professions and creative women in traditionally female professions.

On the 16 PF women in traditionally male professions and those in traditionally female professions differed significantly on five of the sixteen personality factors. On Factor A ( $P < .001$ ), women in traditionally male professions were more outgoing, adaptable, and casual, whereas women in traditionally female professions were more reserved, rigid, and precise. Factor B revealed that both professional groups were high in intelligence in comparison with women of the general population. The traditionally female professional group was, however, significantly superior ( $P < .05$ ) in intelligence to the traditionally male professional group. Factor H ( $P < .001$ ) indicated that the women in traditionally male professions were definitely much more adventurous, socially bold, and less inhibited by environmental threats than the women in traditionally female professions. On Factor M, women in traditionally female professions were found significantly ( $P < .05$ ) more imaginative, and they had a higher degree of subjectivity and inner mental life. Women in traditionally male professions were more practical and had fewer internal anxieties and sentiments. Factor N ( $P < .001$ ) revealed that women in traditionally female professions were much more shrewd in tactical dealings with people and in various situations, whereas women in traditionally male professions were more natural, contented, and trustful.

The two professional groups also showed similarities in personality characteristics. The most similar characteristics were found on Factor E, Factor G, and Factor  $Q_3$ . This

suggested that they were all self-assured and assertive, very conscientious and quite mature emotionally.

Less significant differences were found between creative women in traditionally male professions and creative women in traditionally female professions although ten of sixteen personality factors were found to be significantly different between the creative professional women and the low creative professional women. Thus creative professional women differed significantly in more personality factors than the low creative professional women.

Factor A ( $P < .05$ ) showed that creative women in traditionally male professions were more willing to participate in activities outside their professions or activities connected with their work, while creative women in traditionally female professions were reserved, preferred working alone, and were less willing to participate in group activities.

Both creative groups were venturesome as indicated on Factor H, yet creative women in traditionally male professions were far more venturesome and socially bolder ( $P < .05$ ) than creative women in traditionally female professions.

The creative groups differed highly ( $P < .001$ ) on Factor N. Creative women in traditionally male professions were more natural and trustful, while creative women in traditionally female professions were more socially polished and sophisticated in manner and flexible in viewpoint. While the overall personality pattern of creative women, whether in

traditionally male professions or in traditionally female professions were very similar, there was a degree of difference between them.

The biographical data based on chi square analyses pointed to a number of significant differences between the professional groups and between the creative professional groups in background experiences.

(1) Significant differences between the professional groups:

Maternal employment of traditionally male professional group was mostly non-professional in nature, while the majority of the mothers of women in traditionally female professions were in sex-typed professions.

Women in traditionally male professions had long desired to work in the male domain since they were students in junior high school. Their professional aspiration increased even after their college years. Although some of these women shifted to earn a female professional M. A. degree after obtaining a male professional B. A. degree, and also work initially in the traditionally female profession, they eventually shifted to male-oriented professions. Shifting professions did not occur to women in traditionally female professions.

More of the women in traditionally male professions believe that the attitude of the public toward their profession was changing. Fewer of the women in traditionally female professions shared that opinion.

In their comments on being a woman in their profession, women in traditionally male professions felt that they

were considered second rate or less important, and that challenge and frustration at work were immense. Women in traditionally female professions felt that even in their own sex-typed professions they were discriminated against in promotions to administrative positions, i.e., although they were more qualified and efficient as compared with their male colleagues, the latter often were appointed to administrative positions faster and enjoyed higher salaries.

About half of the professional women initially identified themselves as professionals. Among the rest of them more of the women in traditionally male professions identified themselves as mothers while more of the women in traditionally female professions identified themselves as wives.

All professional women felt that they would advance further and faster, and be more productive if they were men. This belief was especially prevalent among the young professional women, and the younger the women the more they felt that prejudice existed against them.

Additional trends emerging from the biographical data derived from group differences in background experiences and were related to the quality of the responses:

There were no significant differences in parental education, degree of occupational success, and leisure activities. But the tendencies were for the women in traditionally male professions to favor science; for their mothers to be slightly less educated and more sociable as compared with mothers of the women in traditionally female professions, and for fathers to delight in outdoor activities. The women in

traditionally female professions tended to prefer arts; and both their father and mother enjoyed reading and activities at home.

In high school neither group thought popularity important. The majority of both groups stressed the importance of academic achievement. Percentages in both groups holding this opinion increased in college. Both professional groups tended to participate most in extra-curricular activities with the advancement of educational levels. A difference in attitude occurred in college. The majority of the women in traditionally male professions were active in collegiate extra-curricular activities while women in traditionally female professions became less active.

In choosing their present professions, neither groups thought extrinsic values such as a good salary and a secure future were important. All considered ability and skill of primary importance. The women in traditionally female professions thought that interest in their work was also important.

All professional women shared the tendency of personality development toward masculinity.

Ninety-nine percent of both groups thought that their co-workers' attitude toward them was supportive. More women in the traditionally male professions believed that they had contributed a great deal to society while more women in traditionally female professions thought that they had contributed only an average amount.

Women in traditionally male professions thought that their sex was not important in their work, but personality was. They felt that their profession was rewarding and provided them fulfillment, satisfaction, and appropriate compensation. Some of them reported that they liked their profession because it was challenging, and they took pride and joy in working in the male occupational sphere. Women in traditionally female professions thought that it was normal to work in their profession and that their profession was good for personal growth and gave them the advantage of being able to return to work with less difficulty than if they were in a traditionally male profession.

The majority of professional women responded negatively to the question of whether they had given priority to marriage in their early 20's.

All married professional women liked being a mother and enjoyed rearing children. Only 18.2% of the women in traditionally male professions and 8.1% of the women in traditionally female professions responded in lesser degree to this question. One woman in a traditionally male profession said that she did not like children at all. The majority described themselves as highly maternal, and said their affective needs were fulfilled.

Young mothers below age 30 tended to be less maternal. They reported less interest in being a mother and rearing children. The more mature women responded more positively.

More women in traditionally male professions (32%) than women in traditionally female professions (9.7%) felt

that they were lonely, lost, and depressed after their children were grown and had left home. In contrast, more of the women in traditionally female professions (38.7%) than the women in traditionally male professions (25.8%) felt happy and proud inasmuch as they had fulfilled their duties. One-fifth of the women in traditionally male professions, and one-sixth of the women in traditionally female professions reported that they returned to work or became more absorbed at work at this stage of life.

In regard to role conflict, more women in traditionally male professions reported no conflict in being a housewife and a working woman. A much higher percentage of the women in traditionally female professions reported having either a strong conflict or some conflict.

When comparing age levels, two-thirds of the professional women below the age of 30 admitted either a strong conflict or some conflict, whereas only 18% of the professional women between the ages of 31 to 40 reported a strong conflict, and the rest (82%) reported no conflict. Professional women aged 41 and older reported much less role conflict. Even younger single professional women (57.1%), in contrast to older single professional women (6%), reported that they felt some marriage conflict.

Division of housework by sex was less marked in young couples, for 85.7% of the young wives below age 30 shared housework with their husbands while wives above the age of thirty did more housework by themselves.

(2) Significant differences between creative\* professional groups:

Although activities preferred in childhood were not significantly different between creative women in TMP and creative women in TFP, a statistically significant difference emerged between the creative professional women and the low creative professional women. Creative professional women preferred playing alone, while low creative professional women preferred joining group games.

No significant differences were found between the creative groups in their opinion regarding popularity and academic achievement in high school and college. But highly significant differences were found between creative and low creative respondents. The creative professional women either thought that popularity was fairly important.

As did women in traditionally male professions, creative women in traditionally male professions also had a desire to work in the male domain while in junior high school. This desire correlated positively with advancement in educational levels (22.7%, 34.6%, 52.2%, 75%, junior high school through post-college year). This phenomenon did not exist in creative women in traditionally female professions. The large majority (92%) who planned to join the traditionally female professions consistently remained in their sex-typed professions even after several decades of service.

Creative undergraduates did not shift their sex-typed major fields during college years; but the creative women who

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\*Creativity was based on 16 PF scores and Adjective Check List scores.

desired to work in the male occupational sphere did shift their professions from traditionally female fields to traditionally male spheres.

Creative professional women differed significantly from low creative professional women in expressing reasons for choosing their present professions. The former paid the least attention to extrinsic values such as future security and salary. They gave more consideration to freedom to work independently and to opportunities to be creative and original. The low creative professional women, conversely, considered extrinsic values more important than intrinsic values. These differences were not significant between creative women in traditionally male professions and creative women in traditionally female professions. They all prized intrinsic values at work.

More than half of the creative women in TMP thought that they had contributed a great deal to society or community life, whereas most of the creative women in TFP thought that they had contributed only an average amount.

More of the creative professional women described themselves as independent and assertive. Many fewer of the low creative professional women described themselves this way. No significant difference was found between the creative women in TMP and the creative women in TFP.

Very few creative professional women commented about being a woman in their professions. But significant differences were found between the creative groups. Creative women in TMP felt that sex discrimination and unacceptance still prevailed, and it had been both challenging and frustrating to become successful in a man's world. Creative women in TFP felt that men had increasingly entered female professions, and that men were promoted quicker. They also felt that progress for women was still slow, especially in the educational hierarchy and the field of library science.

More of the creative professional women had new marriages while more low creative professional women were in long-term marriages.

More creative professional women reported strong or some conflict in being a housewife and a working woman. This was particularly so with respect to creative women in TMP.

Creative professional women expressed less liking than low creative professional women for being a mother and rearing children. No significant differences was found between the creative women in TMP and the creative women in TFP.

Two significant findings are also worth noting. First, more creative women below the age of 30 and those age 56 and older were in traditionally female professions. Creative women from age 31 to 55 had more interest in working in traditionally male professions. Secondly, out of 18 professional women whose ages were below thirty, 13 were highly creative. The high percentage of creative women in this age group is

markedly different from the older age groups in which it was found that the percentage of creative subjects decreased as age increased.

Additional trends emerged from the biographical data. These trends need further in-depth research in order to verify their existence and to explore the dynamics of their functioning. They are now listed as follows:

Creative professional women had parents whose educational level tended to be higher than that of parents of the low creative professional women. Fathers of creative professional women were largely professional while fathers of low creative professional women tended to be in business, service occupations, clerical work and farming. No significant differences were found in the father's or mother's occupational success, nor was childhood health of the creative women in TMP and the creative women in TFP significantly different.

Mothers of creative women in TFP tended to enjoy reading and doing domestic work while mothers of creative women in TMP tended to like music and art and engage in social activities, in addition to housework. Fathers of creative women in TMP seemed to be more active outdoors and more sociable, whereas fathers of creative women in TFP tended to enjoy reading and family activities.

Upon reaching high school age, more of the creative women in TMP tended to be very active in extra-curricular activities. This tendency continued in their college years. The fairly active women in TFP ultimately became less active or inactive in college.

Only 36.4% of the creative women in TMP took a male professional B. A. degree while 88.2% of the creative women in TFP took a female professional B. A. degree. Fewer of the creative subjects had an M. A. degree. But 81.8% of the creative women in TMP who earned their female professional M. A. degree, were presently in the male professions. Ninety-five and seven-tenths percent of the creative women in TFP who took a female professional M. A. degree stayed in the same field. This finding suggests that creative women in TFP tended to remain in their sex-typed professions while more than two-thirds of the creative women in traditionally male professions had shifted from female professions.

Creative professional women tended to feel some sex discrimination while low creative professional women seemed to be contented with their work, feeling that their coworkers were most supportive on the whole. Among the creatives, both groups shared the same feeling toward a slight sex bias.

Almost 90% of the creative women in TMP tended to believe that the public's attitude toward their professions was changing, but a smaller percentage of women in TFP felt the same way. One-third of the creative women in TFP actually reported no change.

The majority of creative professional women seemed to be sure that they would advance further and faster, or be more productive, if they were the opposite sex, while only two-fifths of the low creative professional women thought so. When the same question was asked, 68% of the creative women in TMP answered positively while 52.9% of the creative women in TFP gave the same answer.

More than two-thirds of the creative women in TMP tended to believe themselves innovators in their professions while less than half of the creative women in TFP gave a positive answer. The former thought that personality traits such as persistence, determination, originality, ambition, and drive were most important while the latter seemed to be more passive and thought that acceptance of changes and new ideas would help them be an innovator.

Positive comments on being a woman in one's own profession were few. The creative women in TMP tended to think that sex was not important but personality was. The creative women in TFP thought that their professions were most rewarding, and provided them a sense of fulfillment and satisfaction.

They also thought that their professions were personally advantageous and could easily be returned to.

Creative women in TMP tended to marry younger and earlier than creative women in TFP, and tended to feel that husband resentment was the chief source of marriage conflict, while creative women in TFP tended to think house work and family were the real causes. It is interesting to find that creative professional women seemed to have more help from their husband in house work and child care than low creative professional women. Among these women, more of those who were in traditionally female professions had their husband lend a hand in domestic tasks.

Working was not considered a real factor in divorce by professional women. No significant differences were found between the creative and the low creative; but there was a tendency for the majority of creative women in TMP to think

working might be a factor in divorce, while none of the creative women in TFP held the same opinion.

When asked to identify themselves with nouns, the majority of creative professional women identified themselves as professionals. The rest of them, more of those in traditionally male professions, tended to identify themselves as mothers while none of the creative women in traditionally female professions did so. The creative women in TFP tended to identify themselves as wives instead.

#### Implications for use and Future Research

Several striking findings of this study with regard to women and creative women in either traditionally male professions or traditionally female professions may provide some knowledge which will prove useful in dealing with problems faced by most women.

First, personality types of women in male and female professions, and of creative women in male and female professions may guide women in examining themselves as they choose a profession.

Secondly, the background life experience data of this study provide some knowledge on rearing girls who are creative and will later enter the male professions.

A most interesting finding and one that will shed light on our knowledge of women relates to the masculinity found in all professional women. As Helson (1967b) noted with regard to Jungian assumptions, "every person has both masculine and feminine potential. The question is that most persons invest heavily in their personal or social role, so that one set of

potential is developed while the other remains largely unconscious". We may infer that a college education and actual work experience enhance a woman's latent masculine personality traits; they must be developed in order for her to cope with her many daily demands, both at home and at work.

The professional aspiration to work in the male domain which grows with the advancement of the educational level in young girls is another proof of masculinity development. The unyielding commitment to work, especially in a field which is demanding and challenging requires strong masculine characteristics such as persistence and competition. The courage to break the sex barrier and the ability to work in a male profession in spite of discrimination and non-acceptance again require unusual masculinity. No man is required to have such a strong character to enter a profession. For him to join a male profession or a female profession is less demanding than is the case with a woman.

This study also presents personality profiles of women, and of creative women in both male and female professions. It may help distinguish women and creative women who have similar interest in working in either the male or the female professions. Clues are provided as to the personality traits and background experience factors that help or inhibit women in joining or not joining a particular profession.

Another highlight of our findings is that creativity in mature women declines with age. It seemed that the decline starts before the age of thirty. Reasons that

cause the decline, according to Torrance (1961a, 1962b, 1964), and Getzels and Jackson (1961), are related to social or cultural causes and pressures toward conformity. But the creative professional women examined in this study were not conforming. They resisted social or cultural pressure. Their masculinity developed with age. And yet their creativity declined with the advancement of maturity. Is it true that mental ability, like intelligence, declines at a certain age with disregard for personality development?

Our cross age study showed that young professional women, even those who were single, visualized some strong marriage conflicts; and that the younger the woman, the more certain they felt that sex discrimination existed against them. We might wonder whether this was due to the impact of the women's liberation movement and whether a new ideology had emerged among the younger generation.

The present study underlined the need for further research into a number of areas. Among them are the following:

- (1) The nature of the relationship between personality and background experiences of women in either male or female professions appeared quite complex and so needs further study.
- (2) The necessity of integration of masculinity and femininity in creative personality development in women.
- (3) The hypothetical models of women and of creative women in either male or female professions need to be tested with other adequate samples.

(4) The question of the relative effectiveness of creative personality of women on work performance in male professions and in female professions requires additional consideration.

(5) The creative women in traditionally female professions seemed superior in intelligence and their personality profile indicated that they were more creative than those in the male professions. A study focused on creative women who prefer working in the female professions may be necessary to find out the motivational factors that keep them in sex-typed professions.

(6) The need to study the growth and the decline of creativity in women.

(7) Professional development in women also awaits further study along with studies on whether firm aspirations begin at junior high school age and the degree to which such aspirations correlate with advancement of educational levels.

(8) The need to study the self-concept and self-esteem of women and of creative women in male professions or in female professions requires further attention. The central question is whether it is more a function of the degree of challenge, creative productivity, or other intrinsic work gratification that determines one's self-concept and self-esteem.

The study at hand, designed as an exploratory analysis, has met the objectives set forth in the first chapter, i.e., it has explored those questions to which it has addressed itself, while raising additional questions that should be asked in future studies of professional women and creativity.

APPENDIX A

September 18, 1971

Dear .

I am a graduate student at The University of Michigan. As part of the requirement for my Ph.D. degree, I plan soon to conduct a study of the background experiences and personality characteristics of professional women. The study will seek to provide information for parents and educators concerning personality development and creativity nurturance of women and to assist gifted women in planning their professions.

For the past three years I have been privileged to attend many social gatherings and the annual meetings of the \_\_\_\_\_ Club\*. My hostess--and a most helpful friend--has been \_\_\_\_\_.\*\*. When she learned that my dissertation topic dealt with a study of professional women, she suggested members of the \_\_\_\_\_ Club throughout the Michigan state might assist me by participating in my study. With this prospect in mind, may I be sent a roster of your club? If the names and addresses of your members were made available to me, I could ask them if they would be willing to cooperate with me in the furtherance of my study.

Thank you for any assistance that you may provide, and best wishes.

Sincerely yours,

Miriam Yu

\* The name of the club is omitted.

\*\* The name of the person is omitted.

APPENDIX B

November 7, 1971

Dear

I am conducting a study of professional women's background experiences and personality characteristics as my last requirement for a Ph. D. degree in Education at The University of Michigan.

Research on women is one of the necessary steps in improving women's status. Unfortunately, there has been very little research on women. My study hopes to partially correct this deficiency, and it is with this research in mind that I seek your cooperation.

Specifically, my study seeks to assist parents and educators to determine the environment most conducive to the development of creativity in girls and to help women to intelligently plan their professional future, thereby maximizing their career potential.

To make this study more meaningful, may I request your cooperation in responding to a mailed questionnaire, an adjective check list, and a personality inventory. Your anonymity will be scrupulously observed, and data will be treated confidentially.

Enclosed is a form by which you may indicate whether you are willing to participate in my study. If you are willing to do so, I shall then mail you the above mentioned materials.

Thank you very much and best wishes.

Sincerely yours

Miriam Yu

## APPENDIX C

### BIOGRAPHICAL QUESTIONNAIRE

1. Occupational Title \_\_\_\_\_
2. Description of work \_\_\_\_\_  
☐ Full-time                      ☐ Part-time  
 (If part-time) Why do you work part-time? \_\_\_\_\_
3. Age \_\_\_\_\_
4. Marital Status (Circle one):      Single                      Married  
                                                  Divorced/Separated              Widowed
5. Chronological summary of your education:  
                                          Year    Major field/favourite subject    Degree/Cert.&Date received  
 Grade school \_\_\_\_\_  
 Junior high school \_\_\_\_\_  
 Senior high school \_\_\_\_\_  
 College \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
6. Work Experiences (in chronological order):  

| <u>Year</u> | <u>Employer</u> | <u>Position</u> | <u>Responsibility</u> | <u>Full-time/Part-time</u> |
|-------------|-----------------|-----------------|-----------------------|----------------------------|
| _____       | _____           | _____           | _____                 | _____                      |
| _____       | _____           | _____           | _____                 | _____                      |
| _____       | _____           | _____           | _____                 | _____                      |
| _____       | _____           | _____           | _____                 | _____                      |
| _____       | _____           | _____           | _____                 | _____                      |
7. What is the highest level of schooling completed by your parents?  

|                                 | <u>Father</u>            | <u>Mother</u>            |
|---------------------------------|--------------------------|--------------------------|
| Some high school                | <input type="checkbox"/> | <input type="checkbox"/> |
| Completed high school           | <input type="checkbox"/> | <input type="checkbox"/> |
| Some college                    | <input type="checkbox"/> | <input type="checkbox"/> |
| College graduate                | <input type="checkbox"/> | <input type="checkbox"/> |
| Advanced or professional degree | <input type="checkbox"/> | <input type="checkbox"/> |
8. What is your father's occupation? (Name and describe) \_\_\_\_\_  
 \_\_\_\_\_
9. How successful do you think your father was in his occupation?  

|                | <u>Very successful</u>   | <u>About average</u>     | <u>Not successful</u>    |
|----------------|--------------------------|--------------------------|--------------------------|
| Achievement    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Monetary award | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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10. Was your mother working outside the home ?

☐ Yes, full-time☐ Yes, part-time☐ No

(If yes) Name and describe your mother's occupation \_\_\_\_\_

11. How successful do you think your mother was in her occupation ?

|                | <u>Very successful</u>   | <u>About average</u>     | <u>Not successful</u>    |
|----------------|--------------------------|--------------------------|--------------------------|
| Achievement    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Monetary award | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

12. How was your health in childhood ?

☐ Very healthy☐ Fairly healthy☐ Sick and weak

13. How many brothers and sisters were there in the family ?

Older brother \_\_\_\_\_

Younger brother \_\_\_\_\_

Older sister \_\_\_\_\_

Younger sister \_\_\_\_\_

14. What kind of activities did you prefer when you were a girl ?

☐ Group game☐ Solitary play

15. What did your parents prefer to do at leisure time? (List the most often first, and the least often last.)

Father \_\_\_\_\_

Mother \_\_\_\_\_

16. Were you active in extra-curricular activities ?

|                    | <u>Very active</u>       | <u>Fairly active</u>     | <u>Not active</u>        |
|--------------------|--------------------------|--------------------------|--------------------------|
| Grade school       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Junior high school | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Senior high school | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| College            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

17. Which was more important to you in high school and in college ?

|                 |                      | <u>Very important</u>    | <u>Fairly important</u>  | <u>Not important</u>     |
|-----------------|----------------------|--------------------------|--------------------------|--------------------------|
| In high school: | Popularity           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                 | Academic achievement | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                 | Other _____          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In college:     | Popularity           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                 | Academic achievement | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                 | Other _____          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

18. Did you give priority to marriage in your early 20's ?

☐ Yes☐ No

(IF MARRIED, PLEASE ANSWER QUESTIONS 19, 20, 21, 22, 23, 24, 25. IF DIVORCED, ANSWER QUESTIONS 26, 27. IF SINGLE, SKIP TO QUESTION 28.)

19. If you are married, do you feel any conflict between being a housewife and a working woman ? ☐ Yes, a strong conflict ☐ Yes, some conflict ☐ No conflict

(If yes) What is the nature of the conflict ? \_\_\_\_\_

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20. At what age were you married ? \_\_\_\_\_
21. How many years have you been married ? \_\_\_\_\_
22. How many children do you have ? \_\_\_\_\_ How old are they ? \_\_\_\_\_
23. Do you like being a mother and enjoy raising your children ?  
☐ Very much      ☐ Fairly much      ☐ Not at all
24. Who is responsible for care of the house and children ?  
☐ My husband      ☐ Myself  
☐ Both my husband and myself      ☐ Other (Please specify) \_\_\_\_\_
25. If your children are grown and have left home, how did you react when you no longer had daily responsibility for them ? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
26. If you are divorced, how many years of married life did you have ? \_\_\_\_\_
27. Was your working a factor in your divorce ?      ☐ Yes      ☐ No
28. If you are single, do you feel any conflict between a desire for marriage and a career?  
☐ Yes, a strong conflict      ☐ Yes, some conflict      ☐ No conflict  
 (If yes) What is the nature of the conflict ? \_\_\_\_\_  
 \_\_\_\_\_
29. Has there been a particular person or persons that have been influential in your choice of profession ?      ☐ Yes      ☐ No  
 (If yes) Please describe \_\_\_\_\_  
 \_\_\_\_\_
30. What kind of professions have you considered at different stages of your life ?  
 Junior high school \_\_\_\_\_  
 Senior high school \_\_\_\_\_  
 College \_\_\_\_\_  
 After college \_\_\_\_\_
31. Why did you choose your present profession ? (Check one. If more than one answer, put 1, 2, 3, 4, etc. in rank order of importance.)  
☐ It brings a good salary.  
☐ It promises a secure future.  
☐ It fits with my ability and skill.  
☐ It provides me freedom to work independently.  
☐ It provides me opportunities for personal growth.  
☐ It is what I am most interested to do.  
☐ In this profession I can be creative and original.  
 Other \_\_\_\_\_

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32. What was the attitude of your co-worker when you first entered your profession ?
- |                         | <u>Very much</u>         | <u>Some</u>              | <u>Not at all</u>        |
|-------------------------|--------------------------|--------------------------|--------------------------|
| Supportive              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Unwilling to accept you | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other _____             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
33. Do you find the attitude of the public or within profession toward women in your profession changing currently ?
- |                   | <u>Yes</u>               | <u>Somewhat</u>          | <u>No</u>                |
|-------------------|--------------------------|--------------------------|--------------------------|
| Public            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Within profession | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
34. Do you think you would advance further, faster, or be more productive if you were a man ? ☐ Yes ☐ No
- Please explain \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
35. Do you feel that you have made some important contribution to your community and/or society ? ☐ A great deal ☐ Average amount ☐ Little ☐ None
- What enabled you to do so or stopped you from doing so ? \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
36. Are you, professionally speaking, an innovator ? For example: adapting new systems, bringing new ideas, or trying new methods, etc.)
- ☐ Yes ☐ Sometimes ☐ No ☐ Not certain
- (If positive) What are the conditions and/or personal qualities which helped you to be an innovator ? \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
37. Would you describe your personality as traditionally feminine, or are you characteristically more independent and assertive ?
- ☐ Traditionally feminine ☐ More independent and assertive
38. Does your personality affect your work and/or marriage ?
- |           |            | <u>Positive</u>          | <u>Negative</u>          |
|-----------|------------|--------------------------|--------------------------|
| Work:     | Very much  | <input type="checkbox"/> | <input type="checkbox"/> |
|           | Some       | <input type="checkbox"/> | <input type="checkbox"/> |
|           | Not at all | <input type="checkbox"/> | <input type="checkbox"/> |
| Marriage: | Very much  | <input type="checkbox"/> | <input type="checkbox"/> |
|           | Some       | <input type="checkbox"/> | <input type="checkbox"/> |
|           | Not at all | <input type="checkbox"/> | <input type="checkbox"/> |
39. Please state five nouns (nouns such as wife, housewife, mother, professional, scholar, etc.) in order of preference that identify you as a person.
1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

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FINAL COMMENTS

Any additional comments you would like to make about being a woman in your profession.

Any general reactions to this questionnaire or the other materials.

THANK YOU VERY MUCH

APPENDIX D

Dear Participant:

I appreciate your willingness to participate in my study. Enclosed please find the 16 PF Questionnaire booklet and answer sheet, the Gough Adjective Check List, and a Biographical Questionnaire. Instructions for filling out these items are on the front page of each.

Do not sign your name to any of the materials. Your responses will be treated confidentially, and you will remain anonymous.

Please complete the materials and return them to me at your earliest convenience, using the enclosed prepaid envelop.

Thank you very much for sharing your opinions and experiences. Your cooperation in this worthwhile endeavor will be most appreciated.

With best wishes.

Sincerely yours,

Miriam Yu

CREATIVITY SCALE

The creativity score is computed from the factor scores on the 16 P.F. using the weighting system described in the Institute for Personality and Ability Testing Information Bulletin (1963). The system is as follows:

Sten values of the composite score are obtained by adding stens on the primary factors with the weights suggested below, and then relating them to a sten conversion table. (A sten unit, is where the population range is divided into 10 equal units.) The weights are as follows:

|                                       |                                                              |
|---------------------------------------|--------------------------------------------------------------|
| Reserved - high score on A            | - Subtract sten score from 11.<br>Multiply the residual by 2 |
| Intelligent - high score on B         | - Multiply sten score by 2                                   |
| Assertive - high score on E           | - Multiply sten score by 1                                   |
| Serious - low score on F              | - Subtract sten score from 11.<br>Multiply the residual by 2 |
| Venturesome - high score on H         | - Multiply sten score by 1                                   |
| Sensitive - high score on I           | - Multiply sten score by 2                                   |
| Imaginative - high score on M         | - Multiply sten score by 1                                   |
| Forthright - low score on N           | - Subtract sten score from 11.<br>Multiply the residual by 1 |
| Experimenting - high score on $Q_1$   | - Multiply sten score by 1                                   |
| Self-sufficient - high score on $Q_2$ | - Multiply sten score by 2                                   |

Creativity scores equivalent to sten values of 8 - 10, determined an individual's selection into the creative counselor group.

## BIBLIOGRAPHY

- Anastasi, A. and Schaefer, C.E., Biographical Correlates of Artistic and Literary Creativity in Adolescent Girls, Journal of Applied Psychology, 1969, 53(4), 267-273.
- Bachtold, L.M. and Werner, E.E., Personality Profiles of Gifted Women Psychologists, American Psychologists, April, 1970, 234-243.
- Bardwick, J.M., Psychology of Women, A Study of Bio-cultural Conflicts, New York: Harper & Row, 1971.
- Barron, F., Creativity & Psychological Health, Princeton, N. J.: Van Nostrand, 1963.
- Casldan, S. and Welsh, G.S., Personality Correlates of Creative Potential in Talented High School Students, Journal of Personality, 1966, 34: 445-455.
- Cattell, R.B. and Butcher, H.J., The Prediction of Achievement and Creativity, 1968, Indianapolis, Indiana: Bobbs-Merrill.
- Cattell, R.B. and Drevdahl, J.E., Comparison of the Eminent Researchers with that of Eminent Teachers and Administrators and of the General Population, British Journal of Psychology, 1955, Vol. 46, 248-61.
- Cattell, R., Eber, H.W., and Tatsuoka, M.M., Handbook for the Sixteen Personality Factor Questionnaire (16 PF), Champaign, Illinois: Institute for Personality and Ability Testing, 1970.
- Chambers, J.A., Relating Personality & Biographical Factors to Scientific Creativity, Psychological Monograph, 1964, 78, 584.
- Christies, T., Environmental Factors in Creativity, Journal of Creative Behavior, 1970, Vol. 4, no. 1, 13-31.
- Cline, V.B., Richards, J.M., Jr. and Abe, C., The Validity of a Battery of Creativity Tests in a High School Sample, Educational and Psychological Measurement, 1962, 22, 781-784.
- Datta, L.E., Birth Order & Early Scientific Attainment, Perceptual and Motor Skills, 1967, 24(1), 157-158.

- Drevdahl, J.E., Factors of Importance for Creativity, Journal of Clinical Psychology, 1956, 12, 21-26.
- Drevdahl, J.E., Some Developmental & Environmental Conditions in Creativity, In Taylor, C.W. (Ed.), Widening Horizons in Creativity, New York: Wiley, 1964.
- Drevdahl, J.E. and Cattell, R.B., Personality and Creativity in Artists and Writers, Journal of Clinical Psychology, 1958, 14, 707-711.
- Eiduson, B.T., Artistic and Non-artistic: A Comparative Study, Journal of Personality, 1958, 26, 13-28.
- Epstein, C.F., Womans Place, Berkeley, California: University of California Press, 1971.
- Farber, S.M. and Wilson, R.H.L. (Eds.), The Potential of Women, New York: McGraw-Hill Book Company, Inc., 1963.
- Garland, T.N. and Poloma, M.M., Cribbs or Careers? Professionally Employed Married Women's Attitudes Toward Motherhood, Paper presented at the 66th annual Meeting of the American Sociological Association, August 30-September 2, 1971, Denver, Colorado.
- Getzels, J.W. and Csikszentmihaly, M., Creative Thinking in Art Students, Chicago: University of Chicago Press, 1964.
- Getzels, J.W. and Jackson, P.W., Family Environment & Cognitive Style: A Study of the Sources of Highly Intelligent & of Highly Creative Adolescents, American Sociological Review, 1961, 26(3), 351-359.
- Getzels, J.W. and Jackson, P.W., Creativity & Intelligence, New York: Wiley, 1962.
- Golann, S.E., Psychological Study of Creativity, Psychological Bulletin, 1963, 60(6), 548-565.
- Gough, H.G. and Heilbrun, A.B., The Adjective Check List Manual, Palo Alto, California: Consulting Psychologists Press, 1965.
- Guilford, J.P. Traits of Creativity, In Anderson, H.H. (Ed.), Creativity and Its Cultivation, New York: Harper, 1959.
- Hammer, E.F., Creativity & Feminine Ingredients in Young Male Artists, Perceptual & Motor Skills, 1964, 19(2), 414.
- Helson, R., Characteristics of Creative College Women, Berkeley: IPAR Research Bulletin, 1959.

- Helson, R., Creativity, Sex and Mathematics, In MacKinnon, D.W. (Ed.), Proceedings of the Conference on the Creative Person, Berkeley: University of California Extension, 1961.
- Helson, R., Childhood Interests Clusters Related to Creativity in Women, Journal of Consulting Psychology, 1965, 29(4), 352-361.
- Helson, R., Personality of Women with Imaginative and Artistic Interests: The Role of Masculinity, Originality, and other Characteristics in Their Creativity, Journal of Personality, 1966a, 34(1), 1-25.
- Helson, R., Narrowness in Creative Women, Psychological Report, 1966b, 19(2), 6-18.
- Helson, R., Personality Characteristics and Developmental History of Creative College Women, Genetic Psychology Monographs, 1967a, 76, 205-256 (a).
- Helson, R., Sex Differences in Creative Style, Journal of Personality, 1967b, 35(2), 214-233.
- Helson, R., Effects of Sibling Characteristics and Parental Values on Creative Interests and Achievement, Journal of Personality, 1968, 36(4), 589-607.
- Helson, R., Generality of Sex Differences in Creative Style, Journal of Personality, 1968, 36, 33-48.
- Helson, R., Women Mathematicians and the Creative Personality, Journal of Consulting and Clinical Psychology, 1971, 36, 210-220.
- Horner, M.S., A Psychological Barrier to Achievement in Women--the Motive to Avoid Success, Symposium Presentation at the Midwestern Psychological Association, May, 1968, -Chicago.
- Institute for Personality and Ability Testing, Data for Psychologists Selecting Students for Creativity & Research Potential, Information Bulletin, 1963, no. 10.
- Institute for Personality and Ability Testing, Tabular Supplement No. 1 to the 16 PF Handbook, Champaign, Illinois: 1970.
- MacKinnon, D.W., The Highly Effective Individual, Teachers College Record, 1960, 61(7), 367-378.
- MacKinnon, D.W., The Nature and Nurture of Creative Talent, American Psychologists, 1962a, 17(7), 484-495.

- MacKinnon, D.W., The Characteristics of Creative Architects and Further Reflections on their Implications for Architectural Education, Paper presented at the AIA-ACSA Seminar on the Teaching of Architects, Branbrook Academy, Bloomfield Hills, Michigan, 1963.
- MacKinnon, D.W., Testing to Identify Creative People, Lecture given at the University of Columbus, Ohio, 1965.
- MacKinnon, D.W., Personality & the Realization of Creative Potential, American Psychologist, 1965b, 20(4), 273-281.
- MacKinnon, D.W., Education for Creativity: A Modern Myth? In Heist, P. (Ed.), Education for Creativity in the American College, University of California, Center for Research & Development in Higher Education, 1967.
- Mackler, B., Relationships of Field Dependent and Field Independent Cognitive Styles to Creative Test Performance, Perceptual and Motor Skills, 1967, 24(1), 239-268.
- Nichols, R.E. and Holland, J.L., Prediction of the First Year College Performance of High Aptitude Students, Psychological Monograph, 1963, 77, 1-29.
- Oden, M.H., The Fulfillment of Promise: 40-year Follow-up of the Terman Gifted Group. Genetic Psychology Monograph, 1968, 77, 3-93.
- Roe, A., A Psychological Study of Eminent Biologists. Psychological Monograph, 1951a, 64, no. 14.
- Roe, A., A Psychological Study of Eminent Scientists. Genetic Psychology Monograph, 1951b, 43, 121-239.
- Roe, A., A Psychological Study of Eminent Psychologists & Anthropologists and a Comparison with Biological & Physical Scientists. Psychological Monographs, 1953, 67, no. 2.
- Schaefer, C.E., A Psychological Study of 10 Exceptionally Creative Adolescent Girls, Exceptional Children, 1970, 36(6), 431-441.
- Schaefer, C.E. and Anastasi, A., A Biographical Inventory for Identifying Creativity in Adolescent Boys. Journal of Applied Psychology, 1968, Vol. 52, no. 1, 42-48.
- Schaefer, C.E., Urlima, W., Harrison, J.B., and Anastasi, A., Relationship Between Masculinity-Femininity and Creativity as Measured by the Frank Drawing Completion Test. Psychological Report, 1970, 26, 799-804.
- Smith, J.M. and Schaefer, C.E., Development of a Creativity Scale for Adjective Check List. Psychological Report, 1969, 25, 87-92.

- Taylor, C.W., Creativity: Progress and Potential, New York: McGraw-Hill Book Company, 1964.
- Torrance, E.P., Sex Role Identification and Creativity: An Exploratory Study. Minneapolis Bureau of Education Research, University of Minnesota, 1959.
- Torrance, E.P., Factors Affecting Creative Thinking in Children, An Interim Research Report, Merrill-Palmer Quarterly Behavioral Development, 1961a, 7, 171-180.
- Torrance, E.P., Non-test Ways of Identifying the Creatively Gifted, Gifted Child Quarterly, 1962, 6(3), 71-75.
- Torrance, E.P., Guiding Creative Talent, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962a.
- Torrance, E.P., The Minnesota Studies of Creative Thinking, In C.W. Taylor (Ed.), Widening Horizons in Creativity, New York: John Wiley & Sons, Inc., 1964.
- U.S. Census of Population: 1960, Subject Report. Occupational Characteristics. Final Report. PC (2)-7a. Published in Washington, U.S. Government Printing Office, 1963.
- Yamamoto, K., A Further Analysis of the Roles of Creative Thinking, Journal of Psychology, 1964, 58, 277-283.