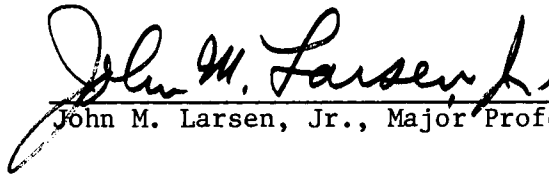
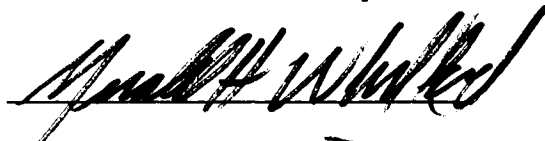


To the Graduate Council:

I am submitting herewith a thesis written by Marilyn S. Hitchcock entitled "Sex Differences on Dimensions of Career Planning in a Work Setting." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Industrial and Organizational Psychology.


John M. Larsen, Jr., Major Professor

We have read this thesis
and recommend its acceptance:


N. Alan Lasater

Accepted for the Council:


Vice Chancellor
Graduate Studies and Research

SEX DIFFERENCES ON DIMENSIONS OF CAREER PLANNING
IN A WORK SETTING

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Marilyn S. Hitchcock

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ABSTRACT

The literature on career planning in a work setting was reviewed. Few empirical studies had been done on programs which have been planned for the purpose of career planning and career development in a work setting. To a great extent, the research that was applicable had focused on male subjects and little was known about any differences that may exist between the career planning and development needs of males and females.

The objectives of this study were to:

1. Identify organizational and personal dimensions related to career planning in a work setting.
2. Determine sex differences in career planning and development needs based on those dimensions.

The data was collected in a federally owned corporation using a paper and pencil survey instrument. The instrument was developed to (1) assess the need for and appropriate design of the organization's career planning program and (2) establish baseline measures for evaluating the effects of that program. The survey was mailed to all white-collar and lower-level management employees in organizational units which volunteered to participate in the program. Completed surveys were returned by mail.

Factor analytic techniques and reliability analysis were used to establish ten internally consistent scales representing the organizational and personal dimensions measured by the instrument. The dimensions identified were:

Organizational

1. Availability of job information
2. Availability of training information
3. Supervisory support for career planning
4. General work satisfaction
5. Satisfaction with opportunity

Personal

1. Interest in career planning activities
2. Interest in career development activities
3. Willingness to acquire additional education and training
4. Career confidence and commitment
5. Awareness of career goals and abilities

The scales representing the dimensions were used as independent variables in a two-group discriminant analysis for determining sex differences in career planning needs related to the dimensions. No sex differences of practical significance were found. Possible explanations for these results were discussed.

The intercorrelations among the scales were examined for possible relationships of interest to theoretical development in the field of career planning in work settings. The implications for future research in terms of the dimensions and their intercorrelations were discussed. The possible limited usefulness of sex as a means of classifying groups of individuals with homogeneous characteristics was discussed.

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CHAPTER I

INTRODUCTION

The last ten to fifteen years have been accompanied by a shift in orientation in vocational development. The name itself has shifted towards a broader concept called career or life career development (Super & Hall, 1978). Fifteen years ago the statement that the state of the art of career development was advanced compared to other areas of psychology would probably have been considered accurate. Super, Statishersky, Mattin, and Jordaan (1963) had completed their theoretical work on self-concept and congruency between personality types and work environments. Vocational interest inventories based on this theory were successful in predicting the satisfaction and success of men in later years (Diamond, 1979).

Models of career stages had been developed and accepted since 1933 (Buhler). The model presented in Super and Hall's (1978) review is still used to organize the literature. There has been a great deal of research on the individual stages presented in Figure 1 (e.g., Beatty, 1974), but no research has been done as a longitudinal test of the validity of the life span model of career stages (Super & Hall, 1978). It would seem that this model is in fact invalid. There is considerable evidence that this model does not incorporate the patterns of vocational development of women (Super & Bohn, 1970; Rose & Elton, 1971; Holland, 1972; & Gutek & Nieva, 1979). The increased occurrence of mid career change (e.g., Bolles, 1972) has further made this model inappropriate for use in today's career

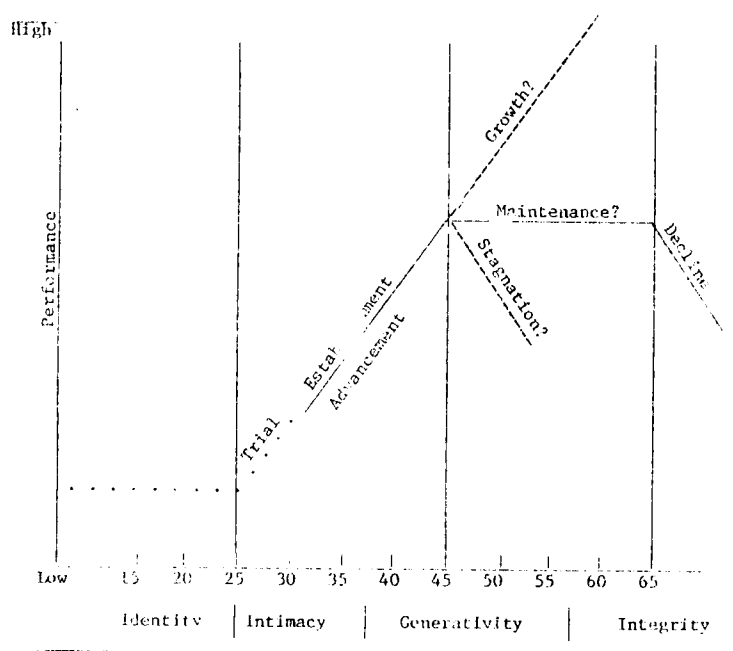


Figure 1. Stages in career development.

Source: D. E. Super and D. T. Hall, *Career Development: Exploration and planning*. *Annual Review of Psychology*, 1978, 29, p. 351.

environment (Gysbers & Moore, 1975). It makes no provision for career discontinuity or change. Ginzberg, one of the early theorists in career development did, in fact, revise his theory of career stages in the early 70's to account for these changes. The conclusion now is that the process of exploration is open-ended rather than ending at age 20 or 25 as was originally posited (Diamond, 1979). People continue to change, grow, and exercise control throughout their lives by making conscious career choices. This results in a constant need for career management which is especially salient because of increases in occupational options, changes in the economic environment, shifts in norms and social values, and changes in the opportunity structure (Hansen, S.L., 1972). These factors are having tremendous impact on the lives and career development of men as well as women as the women's liberation movement moves women into the "male created culture"

of the work setting in nontraditional roles (Diamond, 1979). Work organizations also respond to these changes. One response has been to institute in-house career planning and development programs. These programs range from labor force forecasts, job posting, and career path identification to career counseling and beyond to aid organizations and individuals in managing careers (Super & Hall, 1978).

The research on career planning in work settings is scarce compared with research in educational settings. Very little is known about how to design and implement organizational career planning programs (Super & Hall, 1978). The review that follows summarizes what is supported by the research literature.

There is substantial evidence that career planning benefits the organization as well as the individual. Beatty (1974) found that individuals who received job support and interest from the organization were more likely to be successful and show job commitment and satisfaction. Self-development activities such as goal setting and action planning have been shown to enhance career planning (Miller, Bass, & Mihal, 1973). Results from several studies (Hall & Schneider, 1973; Burnaska, 1976) indicate that training supervisors to assist disadvantaged employees in career planning decreases turnover and increases productivity. Rapid advancement seems to be related to increased job involvement, higher motivation, and positive company attitudes (Bray, Campbell, & Grant, 1974). Hall (1971) found that characteristics of the tasks, such as autonomy and interest, were related to increased self-esteem and job involvement.

These earlier studies have typically used only male subjects except in studies of disadvantaged workers, so generalizing these effects to females is premature. There is recent evidence (Gould, 1979) that career effectiveness as defined by: (1) salary and level; (2) career involvement; (3) adaptability; and (4) identity resolution is related to the extent of reported career planning for both men and women in upwardly mobile occupations.

Research on females in organizations leaves little doubt that they have faced different career climates and socialization than males (e.g., Bem, 1973; Gutek, 1979) due to unlawful discrimination and sex biases.

The effects of these differences on the career planning and development processes in the work setting are to a large extent unknown. There is some evidence that there are few basic, unsocialized differences in the career development, motivation, and occupational aspirations of males and females (Osipow, 1975). Sex related differences in career and motivational patterns have been found in well planned research studies (Rose & Elton, 1971; Gutek, 1979), yet there are inconsistencies in the findings. These inconsistencies may be a result of uncontrolled variables (Nieva & Gutek, 1980). It is Osipow's (1975) conclusion that the more homogeneous the males and females are in terms of socialization experiences, occupational choice and level, and lifestyle variables (e.g., support systems), the less differences in career aspirations can be attributed to the sex of the individual. This conclusion, however, may not apply to differences that appear as a result of organizational processes and sex role socialization.

Equal employment opportunity legislation and the women's movement have put pressure on organizational practices and sex-typed attitudes which operate to perpetuate career and occupational differences in males and females. Career planning and development may be a useful tool in responding to the pressure to increase participation of females at all organizational levels and in male-dominated occupations. At present there are few research results about sex-related differences that can guide program efforts toward meeting differential career planning and career development needs of male and female employees, if such differences do exist.

The career counseling literature provides some guidance for career planning program design. The literature is to a great extent intuitive or based on research in educational settings but nevertheless takes a realistic life span view of career development as it exists today. The aim of career counseling is generally to provide decisionmaking skills to be used continually in career planning rather than the earlier notion of aiding the individual in making an occupational choice (Hansen, 1975). Gysbers and Moore (1975) outline the basics that a career planning program should provide.

1. Self-knowledge
2. Interpersonal skills
3. Life career planning
4. Self-placement competencies

With this sketchy background knowledge the Tennessee Valley Authority (TVA), a large southeastern, federally owned corporation, set out to implement a career planning and development program to benefit employees and the agency. The first step in designing such a

program was to develop a needs assessment survey instrument to target specific activities and to establish a data base to evaluate and do continued research on the effects of the program. These efforts were in response to "a lack of research on programs which are planned for the purpose of career development in work settings," cited as one of the major research needs for career development (Super & Hall, 1978, page 336).

CHAPTER II

PROBLEM

Little research has been done to date on adult career planning and development activities in work organizations. Career development and career planning activities in the work setting have increased rapidly over the last ten years due to pressures from: (1) increased concern for the quality of work life in organizations; (2) equal employment opportunity and affirmative action legislation; (3) rising education levels and occupational aspirations of employees; and (4) slow economic growth associated with reduced advancement opportunities (Schein, undated; Super & Hall, 1978). Unfortunately there have been few attempts to evaluate the effects of career planning programs or to determine differential needs for career planning and development activities for male and female employees.

Much is known about the vocational development of males through the college years through research in educational settings (Super & Hall, 1978). The present theories based on educational research seem inadequate for understanding or assisting female employees in career development (Osipow, 1975) and dealing with the phenomenon of mid-career change (Super & Hall, 1978).

This study was designed to empirically investigate organizational and personal dimensions related to career planning in a work setting as measured by the broad-based survey instrument used in the TVA. The dimensions measured by the instrument were determined by using two different statistical methods on two separate samples of survey

responses collected in the agency. A comparison of the agreement between the two methods was made and final measurement dimensions were identified. Differences between males and females were examined to determine if the dimensions revealed patterns of response that would indicate differential career planning and development needs related to the sex of the employee.

The specific objectives of this study were to:

1. Identify organizational and personal dimensions related to career planning in a work setting.
2. Determine sex differences in career planning and development needs based on those dimensions.

A caution about the data is in order due to the uniqueness of the TVA. TVA is a hybrid corporation which operates in the public view. It is subject to many government regulations, must react to the local and national political environment and yet maintain its identity as a self-supporting member of the private sector. Employees are unique in that they are federal employees but negotiate wages and benefits through recognized private sector unions. The data, therefore, may not generalize to other types of organizations.

The methodology does not carry the limitations applicable to the data and is offered as a model for other organizations, both public and private, for designing and evaluating career planning programs. As career planning becomes a more prevalent part of organizational strategies for effective human resource management, such systematic, data-based approaches as presented here will aid in connecting career development theory with organizational practices.

CHAPTER III

PROCEDURE

Data Collection

The data were collected using a paper and pencil survey instrument. The instrument was developed to determine the need for and appropriate design of an innovative career planning program to be implemented in the TVA. The instrument was also developed as a pretest measure for evaluating the effect of the agency supported career planning effort in meeting employee needs and improving the career planning process in the agency. A follow-up administration of the instrument was planned one year after implementation of TVA's career planning program.

Items included in the instrument were chosen to cover a wide range of variables related to career planning and development. A literature search and interviews with TVA managers were used to identify variables relevant to career planning in a work setting. Variables were identified for the purpose of program needs assessment and for determining the value of the career planning program. This information was translated into Likert type items. The instrument was pilot tested in several work units in the organization. The pilot studies resulted in wording changes and the addition of items. The final version of the instrument to be used in the remainder of the organization contained 81 items. Seventy-eight of the items were used in the following analysis of instrument properties. Three of the items were excluded because the items represent lead-ins to open-ended

responses (see items 52, 64, and 65 in Appendix A). A copy of the instrument is included in Appendix A.

Items were logically grouped into nine sections with the following content areas:

- A. Availability of career information
- B. Personal statements (career awareness)
- C. Work-related questions (job confidence and properties)
- D. Career development statements
- E. Career planning statements
- F. Sources of career information
- G. Job and career satisfaction questions
- H. Willingness to acquire additional training
- I. Career planning environment (supervisor and organization support)

The items in each of the nine sections of the instrument were not assigned to sections on an empirical basis. The items in each section could therefore not be added and used as scales. During the design of the program, some of the items were examined individually to determine employee career planning needs. Career planning and development program activities were then designed to meet these identified needs. Differential needs by sex were not examined. Items included for evaluation purposes only (e.g., Part G--job satisfaction) were not examined at all during program design and implementation in order to protect the integrity of the evaluation effort.

Survey Population

The career planning program was offered to all organizational

units in the TVA and was targeted for all annual salary policy (i.e., "white collar") and lower-level management employees. Organizational units at the division and office level requested the program on a voluntary basis. The organizational units agreed to the needs assessment and evaluation as a part of implementing the program.

The instrument was mailed to all employees in thirteen organizational units in the agency that requested the career planning program. A cover memorandum was attached to each survey instrument which assured confidentiality of responses and requested return of the instrument by a specific date. (See Appendix A for a sample memorandum.) A follow-up memorandum requesting return of the instrument was mailed to all nonrespondents ten days after the requested return date. A total of 6,461 instruments were mailed and 4,171 subjects responded. Return rate was approximately 65 percent after the follow-up memorandum was sent.

Each cover memorandum was stamped with a code number so that responses could be matched with biographical data available from computerized employee records. Two hundred and ninety-six employees returned the survey instrument but detached the cover memorandum. While these responses were used in the analysis to determine instrument properties, they were dropped from the analysis of sex differences because biographical data could not be matched to those respondents.

Of the respondents matched with biographical data, 2,564 were male and 1,311 were female. Over 67 percent had some post-high school education; 30 percent had completed high school; less than 3 percent had less than a high school diploma. The mean age of respondents was 32 years.

CHAPTER IV

ANALYSIS

The analysis of the data consisted of two methods for identifying the dimensions measured by the survey instrument. Each method used a separate sample from the data as a check on agreement between methods and capitalization on chance variance. The dimensions identified were then used as independent variables in a two-group discriminant analysis with sex as the dependent variable for purposes of testing hypotheses about sex differences in responses.

Dimension Identification: Method I

Method I consisted of defining a set of scales and subjecting them to reliability analysis for determining internal consistency.

Gorsuch (1974, p. 73) states: "multiple group factors are defined as linear, weighted composites of two or more variables In most multiple group factor analyses, the factor is defined as the sum of the scores from a group of variables accepted as defining the factor with each variable given equal weights." This is equivalent to a scale score where responses to a group of items are added and the sum is used as the variable rather than individual items. Items to be included in a scale can be identified logically or through some empirical method. The scales of interest in this analysis were empirically identifiable homogeneous dimensions measured by the instrument.

A computer generated random sample of 820 cases was drawn from the respondent population. Listwise deletion of cases with missing data left 544 cases for use in the analysis. Gorsuch (1974) recommends a minimum of five cases per variable to avoid capitalization on chance in computing indices of association such as correlation coefficients. Fahey (1981) found that far fewer observations were needed than suggested by Gorsuch. According to these criteria, the sample size after case deletion was viewed as adequate.

An intercorrelation matrix was generated from the sample data. The pattern of intercorrelations was used to identify groups of items (i.e., scales) with high intercorrelations. These scales were then subjected to reliability analysis (Nie, Hall, Jenkins, Steinbrenner, & Bent, 1975). Items were added and deleted in two iterations to yield relatively homogeneous dimensions of the instrument as measured by Cronbach's alpha.

Alpha value greater than .60 was considered to indicate adequate internal consistency for use of a scale in further analysis. This level of alpha was chosen according to results reported by Gould (1979). Gould was able to identify a four item scale labeled "Identity Resolution" with three separate groups of subjects in work settings. This scale with a Cronbach's alpha of .66 subsequently entered into a multiple regression equation useful for predicting the extent of reported career planning for the research subjects (Gould, 1979).

The reliability analysis identified items which when grouped into scales met the criterion of a homogeneous dimension as defined by an

alpha greater than .60. The sum of the item responses included in each scale was computed to get a scale score for each case in the sample used in the reliability analysis. A scale intercorrelation matrix was generated to determine the degree of obliqueness among the dimensions identified.

Dimension Identification: Method II

The principal factors method with iterations for estimating communalities was used in the Method II analysis to derive factors from a second randomly generated sample of the data ($n = 563$ after listwise deletion). The initial communality estimates were the squared multiple correlation between a given item and the rest of the items in the correlation matrix (Gorsuch, 1974). Decisions about the number of factors extracted and the type of rotation were made according to the decision rules discussed below.

As pointed out earlier, the scales arrived at through reliability analysis were multiple group factors according to Gorsuch (1974). Gorsuch (1974) provides a method of determining the factor structure and therefore factor scores for this type of analysis (Gorsuch, 1974, p. 74). Access to a computer program is necessary to perform such a complex analysis since determining the factor structure from scale scores is extremely laborious. Therefore, the alternate method of using a principal factors analysis to check agreement with the homogeneous dimensions identified through Method I analysis was chosen.

It was recognized prior to any analysis that factor analytic techniques might prove useful in identifying dimensions measured by

the instrument. It was also recognized that exploratory factor analysis could be expensive, time consuming, and yield little interpretable results without knowing the appropriate factor analytic models and procedures for the data (Gorsuch, 1974; Child, 1975). Factor analytic results are difficult to explain to managers who will use the data and do not have a sophisticated knowledge of statistics. Results are also notoriously difficult to replicate (Child, 1975). For these reasons, factor analytic techniques were not chosen for the initial analysis but were used as a second method for investigating the measurement dimensions of the instrument. This allowed for the use of information gained in the Method I analysis as decision rules for the factor analytic procedures used in Method II.

Decision Rules for Method II

1. Number of factors to be extracted: The number of scales with alpha greater than .60 identified in Method I. Plus one and minus one factors were also to be extracted and examined for factor clarity.
2. Oblique/Orthogonal rotation: Oblique if scale inter-correlations from the matrix generated in Method I were consistently high. Otherwise orthogonal VARIMAX rotation (Gorsuch, 1974, page 191).

Comparing Method I and Method II

Method I and Method II were similar in that both relied on covariation to determine the dimensions measured by the instrument. Method I assigned all of an item's variance to one scale along with

other items that shared common variance. Method II assigned item variance to more than one factor on the basis of common variance with the factors. Despite this similarity there was no direct statistical test to determine agreement between the two methods.

The main criterion of interest for agreement between the two methods was whether items were grouped into similar measurement dimensions by both methods. Items which were added to compute scale scores in Method I should have loaded high on the same factor in the factor analysis performed in Method II.

The use of two methods and two samples allowed for this test of agreement on the dimensions measured by the instrument. The data from all respondents could have been analyzed as a whole by one or the other method. This would not have provided information about possible capitalization on chance variation as a result of the method chosen, or the usefulness of the dimensions in examining other samples from a similar population. This was an exploratory study and it seemed wise not to rely on any one method of grouping variables.

If both methods resulted in similar groupings of items, the decision to use factor or scale scores in the hypotheses testing of sex differences was made by looking at interpretability. Unit weighted results are far easier to interpret and communicate even when the factor structure is extremely clear and well defined. Scale scores therefore were seen as more appropriate in terms of ease of measurement and interpretability.

Examining Sex Differences

A two-group discriminant analysis was performed on one-half of the cases from the samples used in Method I and Method II analyses to determine if the dimensions differentiated between male and female respondents when used as independent variables in the discriminant function. The method of analysis was chosen as appropriate for the following reasons:

1. It avoided the problem of multiple F-tests where the intercorrelations among variables render the tests non-independent (Hayes, 1973).
2. The pervasiveness of sex differences could be determined by looking at the proportion of cases correctly classified.
3. The sex difference hypotheses were two-tailed due to inconsistent findings and lack of research on sex differences related to career planning in a work setting.
4. An additional test of the appropriateness of the measurement dimensions identified was to be made by applying the discriminant function to the other half of the respondents included in the two randomly drawn samples as a cross validation sample.

The following null hypotheses were to be tested if appropriate measurement dimensions were established through the earlier analyses:

1. Male and female employees report the same availability of career information.
2. Male and female employees express equal interest in career planning activities.

3. Male and female employees express equal interest in career development activities.
4. Reported willingness to acquire additional training is the same for males and females.
5. Males and females report the same career planning environment.
6. Females report the same awareness of their career identity as males.
7. Females express as much confidence in their abilities as males.
8. Males report the same opportunity for advancement as females.

CHAPTER V

RESULTS

Measurement Dimensions: Method I

Nine scales with Cronbach's alpha greater than .60 were identified through the reliability analysis discussed in Method I. The items for each scale and the associated alpha are given in Appendix B. Fourteen items from the original 78 did not enter into any of the scales. The scales represented the following dimensions:

1. Availability of job and training information (Alpha = .91)
2. Awareness of career goals and abilities (Alpha = .79)
3. Career confidence and commitment (Alpha = .66)
4. Satisfaction (Alpha = .86)
5. Interest in career planning activities (e.g., developing career goals) (Alpha = .87)
6. Interest in career development activities (e.g., developing communication skills) (Alpha = .82)
7. Sources of career information (Alpha = .77)
8. Willingness to acquire additional training and education (Alpha = .78)
9. Supervisory support for career planning (Alpha = .94)

The intercorrelation matrix for the nine scales is given in Table 1.

Measurement Dimensions: Method II

The decision rules from Method I were applied to select the number of factors to be extracted and the type of rotation for the

TABLE 1
INTERCORRELATIONS BETWEEN SCALES DERIVED
FROM RELIABILITY ANALYSIS
(n = 650)*

Scale	1	2	3	4	5	6	7	8	9
1 Information availability	1.00	.07	.13	.45	-.15	-.12	.05	-.19	.38
2 Career awareness	.07	1.00	.44	-.03	.14	.18	.16	.12	.03
3 Job confidence	.13	.44	1.00	.28	.13	.19	.22	.14	.24
4 Satisfaction	.45	-.03	.28	1.00	-.14	-.07	.11	-.07	.57
5 Career planning	-.15	.14	.13	-.14	1.00	.70	.58	.41	-.16
6 Career Development	-.12	.18	.19	-.07	.70	1.00	.42	.40	-.12
7 Sources of career information	.05	.16	.22	.11	.58	.42	1.00	.29	.11
8 Additional training	-.19	.12	.14	-.07	.41	.40	.29	1.00	-.10
9 Supervisory support	.38	.03	.24	.57	-.16	-.12	.11	-.10	1.00

*.05 level of significance for r is .077

principal factors analysis in the Method II analysis. Since some of the Method I scales were highly intercorrelated (e.g., career planning and career development) an oblique factor analytic solution appeared best to represent the data in the Method II analysis. Nine scales were identified in Method I and therefore a nine-factor solution with oblique rotation was initially performed on the second sample drawn from the data. This initial factor analysis did not yield a clearly defined simple factor structure and it was necessary to look at alternative factor analytic solutions.

The eigenvalues indicated that 18 factors with eigenvalues greater than 1.0 could be extracted. These factors accounted for approximately 63 percent of the total instrument variance. The eigenvalues were plotted and a scree test (Harmon, 1974) used to determine that 14 factors should be extracted. The scree test plot is given in Appendix C. A 14-factor solution dropped the total instrument variance accounted for to about 59 percent, not enough to warrant the additional factoring.

The 14 factor solutions (squared multiple correlations used for initial communality estimates and oblique rotation) extracted ten interpretable factors. Three factors were considered uninterpretable due to less than three salient loadings (Factors 7, 9, and 14 in the complete solution shown in Appendix D). Another factor was uninterpretable because the two high salient item loadings were in the opposite direction and the additional salient loading was low (Factor 10 in Appendix D).

The rotated factor solution was interpreted as follows:

1. The nine items with communality of less than .30 were eliminated as too unreliable to be useful (Fahey, personal communication).
2. The highest loading for each variable (if absolute value greater than .30) was selected as the salient loading.
3. All loadings in the factor solution that were greater than the smallest salient loading were selected as high nonsalient loadings.
4. The items with high salient and high nonsalient loading were used to define the factors.

The interpreted factor solution is displayed in Table 2. The following dimensions were represented in the factor solution:

1. Availability of job information
2. Availability of information about training opportunities
3. Awareness of career goals and abilities
4. Career commitment and confidence
5. General work satisfaction
6. Satisfaction with advancement opportunities
7. Interest in career planning activities
8. Interest in career development activities
9. Willingness to acquire additional training and education
10. Supervisory support for career planning and development

The factor solution agreed to some extent with the scales derived through the Method I reliability analysis. Four scales agreed closely between the two methods; (1) Awareness of Career Goals and Abilities, (2) Career Commitment and Confidence, (3) Supervisory Support and,

TABLE 2

Principal Factors Oblique Rotation
14 Factors Extracted
10 Retained as Interpretable

Item Number and Abbreviated Statement	1 Career Planning	2 Work Satisfaction	3 Job Information	4 Career Awareness	5 Supervisory Support	6 Additional Training	7 Training Info.	8 Confidence	9 Career Satisfaction	10 Career Satisfaction Dev. Opportunity
43 A program for developing career goals	55	-03	04	-04	03	00	00	05	-38	-02
53 Presentation about career planning (CP)	65	05	03	01	03	-06	-05	-11	-17	03
54 Confer with a CP counselor	62	-03	02	-07	08	08	-03	04	-14	-05
55 Participate in a CP workshop	56	-03	01	-02	06	13	-02	03	-20	-05
56 Read career planning material	50	-03	02	02	00	11	-07	02	-13	02
58 Info source: career planning officer	56	-08	02	07	02	02	01	12	-01	-02
62 Info source: mailed printed material	64	-01	-04	04	-02	06	01	02	05	-03
63 Info source: materials in a division location	64	00	01	-03	01	00	03	00	-09	07
35 Top management respects your rights	-05	45	08	06	-19	-03	05	-01	00	06
36 Would start over again here	12	56	01	04	-05	04	05	12	-01	15
37 Friendly feeling between employees and management	02	62	02	05	-23	00	00	-11	01	-01
38 Branch is good for getting ahead	-06	51	02	06	-11	01	02	-06	-01	33
39 Branch is better than most of IVA	-07	52	06	-01	-10	-11	01	02	-06	00
71 Overall work satisfaction with IVA	18	37	01	-05	-10	00	15	19	03	19
1 Adequate information on IVA jobs	05	-01	80	-05	02	-01	04	-01	-06	03
2 Adequate information on local jobs	-01	-02	76	03	01	-02	01	-02	-04	07
3 Receive info on duties for branch jobs	-09	22	56	04	-07	00	04	03	-03	-02
4 Receive info on duties for office jobs	01	03	84	02	-02	00	00	05	05	-04
5 Adequate info on duties for other jobs	04	-07	80	01	01	04	06	01	08	-01
14 Awareness of abilities	00	-11	-02	55	-10	02	10	15	05	02
15 Awareness of job skills	00	02	-01	64	01	00	05	00	-05	09
17 Awareness of job goals using all skills	-04	09	05	74	12	-04	05	-11	02	-02
18 Awareness of level responsibility can handle	02	05	-02	69	05	04	03	11	00	-06
19 Awareness of personal career goals	02	-01	-04	62	01	00	03	10	-02	04
77 Communication with supervisor	-05	07	00	-02	-84	-04	-01	05	-02	-06
78 Supervisor's concern for career	00	-06	-04	-02	-98	03	03	-05	00	00
79 Feedback received from supervisor	02	01	04	-07	-86	04	05	05	01	-01
80 Guidance received from supervisor	-04	-02	00	01	-84	03	08	-05	-04	06

TABLE 2 (Continued)

Item Number and Abbreviated Stem	1 Career Planning	2 Work Satisfaction	3 Job Information	4 Career Awareness	5 Supervisory Support	6 Additional Training	7 Training Info.	8 Confidence	9 Career Dev.	10 Satisfaction Opportunity
72a Education and training on TVA time	34	09	-08	13	02	25	-08	02	-09	-08
73 Education and training after work:										
full reimbursement	22	-02	-04	09	-03	57	-12	04	-04	-05
74 Education and training after work:										
half reimbursement	06	-03	00	05	-08	93	-11	03	09	-01
75 Education and training after work:										
no reimbursement	-02	04	-01	-02	-03	85	-05	00	07	02
6 Adequate info on training in office	05	05	21	08	-06	-03	56	-03	13	01
7 Adequate info on training in other										
divisions	06	-10	33	06	01	01	53	-03	13	03
8 Adequate info on rules for										
educational assistance	-05	07	-03	01	00	01	79	-02	-02	-02
9 Adequate info on educational										
programs outside TVA	-03	-04	-06	-04	-05	-02	78	-01	-08	-03
10 Adequate info on short-term										
education outside TVA	05	-05	04	-03	-03	-07	64	00	08	00
12 Adequate info about correspondence										
courses	-01	-03	12	05	-05	07	60	-02	06	03
21 Commitment to present job	04	07	-03	08	-10	07	12	30	-05	01
22 Confidence in skills and abilities	-01	-13	-02	24	01	-09	06	64	00	02
23 Decisionmaking ability confidence	06	-17	00	19	-05	05	-09	62	-04	-01
24 Important to do job well	12	11	05	00	-02	11	-05	46	01	-04
26 Work serves a useful purpose	04	16	02	-03	03	07	02	48	-08	09
27 Control over work	-15	27	08	-03	-07	-01	06	32	-06	-01
41 A program on employment interview										
skills	14	-13	-01	00	-01	04	01	-01	-50	-05
42 A program on formal writing skills	21	-08	-01	-02	-05	-03	01	-01	-52	-05
46a A program of temporary job rotation	22	01	-06	02	04	07	05	04	-28	-02
45 A program for advancement to										
management	17	00	03	01	00	01	-06	11	-46	-05
46 A program to develop communication										
skill	06	05	-04	-05	00	02	-02	07	-70	04
47 A program to develop presentation										
skills	-08	07	-07	00	-02	11	-01	01	-82	12
48 A program on first line supervisory										
skill	02	01	00	08	02	-06	-03	06	-69	01
49 A program on human relations	19	02	03	08	-03	07	-07	-09	-58	-08
31 Adequate opportunities for										
advancement	-10	24	02	04	-08	02	04	-05	02	45
33 Stuck at present grade	-03	04	02	-07	-09	06	-08	-01	05	45
67 Satisfaction with career progress										
in TVA	00	21	-10	01	-06	04	10	12	00	43
68 Satisfaction: opportunities in										
your area	-08	16	-04	07	-10	02	05	07	-03	66

TABLE 2 (Continued)

Item Number and Abbreviated Stem	1 Career Planning	2 Work Satisfaction	3 Job Information	4 Career Awareness	5 Supervisory Support	6 Additional Training	7 Training Info.	8 Confidence	9 Career Dev.	10 Satisfaction Opportunity
69 Satisfaction: opportunities in other areas	-01	08	07	00	-02	-03	03	-03	-04	67
70 Satisfaction: opportunities outside division	07	-14	07	07	01	03	02	-01	-03	56
11 Adequate info: job vacancy procedures				Eliminated due to low communality						
13 Awareness of interests and related employment				Eliminated due to low communality						
16 Desire for job advancement	14	-04	-05	23	03	-02	04	09	-19	-14
20 Desire for more job responsibility	12	-02	-01	16	-01	11	06	21	-16	-20
25 Authority and responsibility vs. salary				Eliminated due to low communality						
28 Over-trained for present work	01	01	-01	-06	-05	-14	-03	07	06	10
29 Under-trained for present work	14	16	-06	03	-04	-02	-03	03	07	02
30 Job responsibilities clearly defined				Eliminated due to low communality						
32 Qualified for next higher level	-10	-15	-01	17	-01	00	04	28	-15	-09
34 Career planning interferes with job				Eliminated due to low communality						
40 Would relocate to advance career				Eliminated due to low communality						
50 Program for job search strategies - non-TVA	05	-19	-06	-04	07	08	03	-03	-22	-06
51 Training to provide specific skills				Eliminated due to low communality						
57c Information source: immediate supervisor	10	07	03	02	-42	-01	-02	00	-01	00
59 Information source: personnel officer	25	03	09	00	07	07	01	09	-03	-04
60 Information source: personal friends				Eliminated due to low communality						
61 Information source: branch or staff chief	06	05	-07	07	00	09	08	01	-04	01
66 Satisfaction with present job	10	24	-05	02	-09	-02	08	23	10	14
76 Education on leave without pay				Eliminated due to low communality						
81 Quality of career info in TVA	06	-03	25	06	-13	-03	27	-01	01	24

*Items are grouped according to the final scales formed for the sex difference hypotheses testing. The salient loading for each variable is underlined. Decimals are omitted.

a Item #72 was included in the Additional Training scale (Factor 6) because of content. It loads highest on Factor 1 (Career Planning) but loads moderately on Factor 6.

b Item #44 was included in the Career Development scale because of its similarity to the other items despite its less than .30 loading on Factor 9.

c Item #57 was not included in the Supervisory Support scale (Factor 5) because internal consistency was not improved when the item was included in the scale and the item had little theoretical relationship to the other scale items.

(4) Willingness to Acquire Additional Training. Some clear differences were also found. Theoretical considerations caused the differences to be of more interest than the similarities. An item-by-item comparison of agreement in the assigning of items to scales was planned between the two methods. This was not done because of the potential value of the dimensions derived from the factor solution. The following major differences were observed.

- The factor solution indicated that the adequacy of job information received was distinguishable from the adequacy of training information received. This was meaningful since the two types of information were disseminated through different channels. The reliability analysis grouped all types of information into one scale.
- The satisfaction items were grouped into a general work satisfaction and a satisfaction with advancement opportunities dimension in the factor analytic solution. This distinction was of interest for testing hypotheses about sex differences. Only one satisfaction scale was arrived at through reliability analysis.
- Items concerning sources of career planning information employees would use did not form a separate factor in the factor analytic solution but some of the items made a valuable contribution to the dimension of interest in career planning activities.

These differences appeared to be meaningful enough to warrant use of the dimensions derived through factor analytic techniques in the hypotheses testing.

Final Measurement Dimensions

The items which defined the factor solution dimensions were analyzed according to Method I reliability analysis to determine if they could be represented by scales with Cronbach's alpha greater than .60. These items did form scales which met the criterion for internal consistency reliability for the sample used in Method I and the independent sample used in Method II. A second iteration of the reliability analysis was done and some items were either added to or deleted from the final scales used in hypotheses testing on the basis of theoretical meaning or increased reliabilities. The specific changes in the final scales are identified in Table 2. In total, 20 of the original items were not used in the final scales. Nine had low communalities, ten had factor loadings of less than .30 or loaded on the uninterpretable factors, and one was eliminated in the second iteration discussed above.

The final scales representing the ten measurement dimensions of the survey as derived through the combination of Method I and Method II are given in Figure 2, along with the associated means, standard deviations, and alpha. The scale means have been converted to the original five point metric of the items by dividing the sum of the item responses by the number of scale items. This was done to clarify comparisons among scale means. In all cases items were scored so that a high response (i.e., five) represented a larger amount of the

Interest in Career Planning Activities

A program designed to assist you in developing your career goals and a path which will help you reach them.

Watch an audiovisual presentation (for example, videotape, slides, movies) about career planning activities.

Have an individual conference with a career counselor to discuss career opportunities and job requirements.

Participate in a career planning workshop which includes learning to identify your abilities, skills, and experiences and how these apply to career opportunities within TVA.

Read material (for example, books, pamphlets, training program outlines) designed to aid you in career planning.

Career planning staff officer located in your division.

Printed information mailed to you.

Printed and audiovisual materials available in a central location in your division.

Cronbach's Alpha = .90; Scale Mean = 3.97; Standard Deviation = .69

General Work Satisfaction

The top people respect your rights as a person.

If you were starting over again you would like to work here.

There is a friendly feeling in your division between employees and management.

Your division is a good one for a person trying to get ahead.

Your division is a better place to work than most of TVA.

Considering everything about TVA, how satisfied are you with it as a place to work?

Cronbach's Alpha = .82; Scale Mean = 3.45; Standard Deviation = .71

Figure 2. Items and Statistics for Final Career Planning Needs Assessment Survey Measurement Dimensions.

Availability of Job Information

You receive adequate information on jobs TVA will have in the future, including the number, types, locations, and qualifications for them.

You receive adequate information on jobs Management Systems will have in the future, including the number, types, locations, and qualifications for them.

You receive adequate information about the duties and responsibilities for positions in your branch/staff.

You receive adequate information about the duties and responsibilities for positions in other divisions.

Cronbach's Alpha = .88; Scale Mean = 2.87; Standard Deviation = .88

Awareness of Career Goals and Abilities

You are aware of your abilities.

You are aware of the actual skills you use on the job or skills which you possess which could be used on another job.

You are aware of the various job goals which you could achieve by using all your skills and abilities.

You are aware of the levels of responsibility you could handle on the job.

You are aware of your personal career goals.

Cronbach's Alpha = .79; Scale Mean = 4.05; Standard Deviation = .48

Supervisory Support for Career Planning

How would you describe the communication that goes on between you and your supervisor(s)?

How would you describe the feedback you receive from your supervisor(s)?

How would you describe your supervisor's(s') concern for the direction which you would like to see your career follow?

How would you describe the guidance for your career plans,
which your supervisor(s) aids you in finding?

Cronbach's Alpha = .93; Scale Mean = 2.69; Standard Deviation = 1.12

Willingness to Acquire Additional
Training and Education

Attend education/training program on TVA time.

Attend education/training program after work (e.g., evening school) and be fully reimbursed for tuition and expenses.

Attend education/training program after work (e.g., evening school) and be reimbursed for one-half of tuition.

Attend education/training program after work (e.g., evening school) and pay all expenses yourself.

Cronbach's Alpha = .81; Scale Mean = 3.71; Standard Deviation = .74

Availability of Training Information

You receive adequate information about training programs available in your division.

You receive adequate information about training programs available in other divisions.

You receive adequate information about rules and procedures for obtaining TVA educational assistance.

You receive adequate information about educational programs available at schools or colleges in your geographic area.

You receive adequate information about short-term training programs available outside TVA (e.g., UT's Executive Development Program, NTL Workshops in Human Resources Administration, etc.)

You receive adequate information about job-related correspondence courses you can take.

Cronbach's Alpha = .87; Scale Mean = 2.54; Standard Deviation = .79

Career Commitment and Confidence

You feel committed to your present job.

You have self-confidence in your skills and abilities.

You feel you have good decisionmaking ability.

It is important that you do your job well.

You feel that your work serves a useful purpose.

You feel that you generally have control over decisions about how to do your own work.

Cronbach's Alpha = .65; Scale Mean = 4.14; Standard Deviation = .44

Interest in Career Development Activities

A program on improving skills used in information gathering and employment interviews, such as what questions to ask and how to phrase them and, in general, how to develop a comfortable, confident interviewing style in order to communicate most effectively with the interviewer or selecting manager.

A program created to improve formal writing skills for such things as job applications, resumes, and the TVA 9824.

A program of job rotation which involves changing jobs with another employee temporarily to broaden one's skills.

A program designed to prepare employees for possible advancement to the M-schedule.

A program to improve general communication skills.

A program designed to develop effective presentation skills (for example, skills used in a meeting).

A program on first-line supervisory training.

A human relations workshop.

Cronbach's Alpha = .86; Scale Mean = 3.86; Standard Deviation = .66

Satisfaction with Advancement Opportunities

There are adequate opportunities for advancement within your branch.

You feel "stuck" at your present pay grade.

How satisfied are you with the career progress you have made in TVA?

How satisfied are you with the opportunities you may have for getting ahead in your branch/staff?

How satisfied are you with the opportunities you may have for getting ahead in other areas in your division.

How satisfied are you with the opportunities you may have for getting ahead outside of your division in TVA?

Cronbach's Alpha = .81; Scale Mean = 2.85; Standard Deviation = .75

dimension being measured. The intercorrelations among the ten scales ranged from extremely low (.01) to moderately high (.66). Four of the intercorrelations were greater than .50. In no case did one scale predict more than 44 percent of the variance of another scale. The intercorrelation matrix for the scales is given in Table 3.

The work satisfaction, satisfaction with opportunity, supervisory support, and availability of job and availability of training information scales were positively correlated at levels that indicate meaningful association among these dimensions. These five scales appeared to cover the organizational dimensions that relate to career planning.

The remaining scales of (1) awareness of career goals and abilities, (2) career confidence and commitment, (3) willingness to acquire additional training, (4) interest in career planning, and (5) interest in career development covered a domain of personal dimensions which were more under the control of the individual. The pattern of intercorrelations among these scales was not as consistent as the intercorrelations among the organizational dimensions but the relationships were meaningful for speculating about the career planning process. The implications of the intercorrelations are discussed in Chapter VI.

Sex Difference Hypotheses Testing

The final step of the analyses was a two-group discriminant analysis with sex as the dependent variable. The ten scales formed through the factor analytic techniques were entered as independent variables. The use of these scales dictated some modifications of the

TABLE 3
INTERCORRELATIONS BETWEEN SCALES DERIVED
FROM FACTOR ANALYSIS
(n = 669)*

	1	2	3	4	5	6	7	8	9	10
1 Interest in Career Planning	1.00	-.09	-.08	.10	-.12	.44	-.13	.11	.66	-.16
2 Work satisfaction	-.09	1.00	.28	.05	.55	.01	.31	.37	-.09	.61
3 Job information	-.08	.28	1.00	.10	.27	-.12	.52	.13	-.13	.28
4 Career awareness	.10	.05	.10	1.00	.03	.11	.06	.31	.16	.01
5 Supervisory support	-.12	.55	.27	.03	1.00	-.05	.31	.25	-.11	.41
6 Additional training	.44	.01	-.12	.11	-.05	1.00	-.20	.17	.42	.02
7 Training information	-.13	.31	.52	.06	.31	-.20	1.00	.11	-.13	.29
8 Confidence & commitment	.11	.37	.13	.31	.25	.17	.11	1.00	.15	.20
9 Career development	.66	-.09	-.13	.16	-.11	.42	-.13	.15	1.00	-.12
10 Satisfaction with opportunity	-.16	.61	.28	.01	.41	.02	.29	.20	-.12	1.00

*.05 level of significance of r is .076

original null hypotheses that were to be tested. These modifications will be discussed as the results of the discriminant analyses are discussed. A summary of the results is displayed in Table 4.

As can be seen from Table 4, three of the dimensions did reach the .05 significance level in the discriminant function. The sex differences in mean responses, however, were so slight that they are of no practical significance. The hypotheses that were tested follow. It is important to be aware that discriminant analysis tests the significance of differences in mean response under the condition that all other variables are held constant thus controlling for inter-correlations among independent variables.

Hypothesis 1. Male and female employees report the same availability of career information. This hypothesis was actually tested as two separate hypotheses because career information was subdivided into two measurement dimensions; (1) job information and (2) training information.

Hypothesis 1a. Males and females report the same availability of job information. This null hypothesis was not rejected.

Hypothesis 1b. Males and females report the same availability of training information. This null hypothesis was not rejected.

Hypothesis 2. Male and female employees express equal interest in career planning activities. This hypothesis was rejected with females reporting slightly more interest than males.

TABLE 4

TWO-GROUP DISCRIMINANT ANALYSIS OF DIFFERENCES IN MALE AND FEMALE
RESPONSES ON THE SURVEY INSTRUMENT MEASUREMENT DIMENSIONS

Scale (Independent Variable)	Male (n = 419)		Female (n = 203)		F	Significance Level (p)
	Mean	Standard Deviation	Mean	Standard Deviation		
Job Information	2.88	.85	2.84	.94	.2877	.5919
Training Information	2.52	.77	2.57	.82	.6481	.4211
Interest in Career Planning	3.93	.67	4.05	.74	3.894	.0489
Interest in Career Development	3.84	.64	3.91	.70	1.929	.1653
Additional Training	3.72	.72	3.70	.79	.0877	.7672
Supervisory Support	2.61	1.09	2.85	1.18	6.259	.0126
Career Awareness	4.05	.48	4.04	.49	.1576	.6915
Confidence and Commitment	4.15	.45	4.14	.42	.1190	.7303
Work Satisfaction	3.46	.69	3.44	.75	.0631	.8018
Satisfaction with Opportunity	2.89	.75	2.77	.74	3.931	.0479

Hypothesis 3. Male and female employees express equal interest in career development activities. The career development scale did not discriminate between males and females so the null hypothesis was not rejected.

Hypothesis 4. Reported willingness to acquire additional training is the same for males and females. No difference was found and the hypothesis was not rejected.

Hypothesis 5. Males and females report the same career planning environment. This hypothesis was modified due to the items which defined the dimension. The items consisted solely of supervisor support for career planning.

Hypothesis 5 (revised). Males and females report the same supervisory support for career planning. The null hypothesis was rejected with females reporting slightly more supervisory support than males.

Hypothesis 6. Females report the same awareness of their career identity as males. This hypothesis was tested with the awareness of career goal and abilities scale. There was no difference in male and female responses and the null hypothesis was not rejected.

Hypothesis 7. Females express as much confidence in their abilities as males. The confidence and commitment scale was used to test this hypothesis. There was no difference and the null hypothesis was not rejected.

Hypothesis 8. Males report the same opportunity for advancement as females. The satisfaction with opportunity scale did not deal primarily with availability of advancement opportunities so the hypothesis had to be modified to reflect the dimension.

Hypothesis 8 (revised). Males report the same satisfaction with opportunities for advancement as females. Females were only slightly less satisfied but the null hypothesis was rejected.

Hypothesis 9. Females and males report the same level of work satisfaction. This null hypothesis was not included in the original statement of hypotheses to be tested. The work satisfaction dimension did not discriminate between male and female respondents and the null hypothesis was not rejected.

The discriminant function computed as a result of the analysis did a poor job of classifying the cases by sex. The sample used in the analysis was 67 percent male and 33 percent female. The discriminant function correctly classified about 68 percent of the cases. The classification analysis predicted approximately 95 percent of the cases to be male. The sample was 67 percent male and this accounted for the majority of the cases correctly classified. Only 21 of the females were correctly classified (10.3 percent) while 405 (96.7 percent) of the males were correctly classified. Due to this poor ability to discriminate, the discriminant function was not applied to a cross-validation sample. Table 5 summarizes the classification results.

TABLE 5

CLASSIFICATION RESULTS FROM THE DISCRIMINANT
ANALYSIS ON SEX DIFFERENCES

		<u>No. of Cases</u>	<u>Predicted Sex</u>	
			Male	Female
Actual Sex	Male	419	405 96.7%	14 3.3%
	Female	203	182 89.7%	21 10.3%
Percent of cases correctly classified: 68.49%				

CHAPTER VI

DISCUSSION

Analytical Methodology

Of the two methods used to identify the measurement dimensions of the survey, the Method II factor analysis was superior. The nine scales which were the result of the first analysis did not adequately capture all of the underlying measurement dimensions of the instrument although four of the nine scales did agree closely in the assignment of items with the scales derived from factor analytic results. The rest of the items were better represented by the dimensions from the factor analysis performed after the initial nine-factor solution was judged inadequate.

Factor Analysis

The fact that there were fairly high intercorrelations among some of the original nine scales (see Table 1, p. 20) made it evident that oblique rotation was appropriate in the Method II analysis. The results of the Method I analyses were also used to determine that nine factors should be extracted in the initial Method II principal factors analysis. The nine factor solution had so many variables with complex loadings that interpretation of the factors was unclear. Gorsuch (1974) advises caution in using interpretability as a criterion for comparing alternative factor solutions because of the possibility of subjective bias. He does advise that ease of measurement be used as a prime criterion if the results of the study are aimed at measuring the

factors in future research. Since establishing dimensions which could be used in the study of career planning was one purpose of this research, there was adequate reason to abandon the nine-factor decision rule and seek a more clearly defined factor structure so that salient variables could be "added together to give a meaningful and valid measure" of the factors (Gorsuch, 1974, p. 209).

Basic exploratory factor analytic procedures were used for determining the number of factors to extract when the nine factor solution did not prove adequate. There are many criteria that can be used to decide when to stop factoring. However, no simple, all encompassing standard has been developed (Harmon, 1976). A combination of several criteria was used to decide on the 14-factor solution used in the second Method II factor analysis. The basic assumptions that guided the decision were that overfactoring was better than underfactoring (Fahey, 1981) and extracting as few trivial factors as possible was desirable. The criterion of eigenvalues greater than 1.0 was examined first and the percent of instrument variance accounted for was computed. Eighteen factors accounting for 63 percent of the variance could have been extracted using that criterion. The results of studies to investigate the usefulness of this criterion have been mixed, resulting in underfactoring as often as overfactoring (Gorsuch, 1974). A scree test was examined because, while fairly rudimentary, it minimizes the number of nontrivial factors extracted while it maximizes variance accounted for (Harmon, 1976). In addition, results of empirical studies of the scree test criterion have been more consistent and encouraging than many statistical criteria (Gorsuch, 1974).

The scree plot had a fairly definitive break at 14 factors with the plot becoming a classic scree at that point (see Appendix C). Some argument could be made that the straight line began to exist at about nine factors but this had already been ruled an unacceptable solution. The 14 factors accounted for a large portion of the instrument variance (approximately 59 percent) and almost 81 percent of the common variance. These percentages met two additional criteria discussed by Harmon (1976) for determining the correct number of factors. He suggests that capturing 50 percent of the instrument variance and 75 percent to 80 percent of the communality should capture most nontrivial factors.

The 14-factor, obliquely rotated solution resulted in the ten interpretable factors that were used to form the final scales. As was seen in Table 2 (p. 23), the ten factors were fairly clearly defined and most of the salient loadings far exceeded the typical criterion of a loading greater than .30. This solution met Gorsuch's (1974) criterion of ease of measuring the factor by summing items with salient loadings and it was readily interpretable.

Table 6 is a comparison of the dimensions that were identified through Method I and Method II analysis and helps to clarify the similarities as well as the differences. The differences are discussed under the Factor Interpretation section.

Factor Interpretation

The interpretation of the factors was fairly straight forward. Two colleagues with industrial psychology backgrounds were given Table 2 and asked to interpret the factors. One was familiar with the

TABLE 6
COMPARISON OF SURVEY INSTRUMENT DIMENSIONS FROM
METHOD I AND METHOD II ANALYSIS

Method II (see Figure 2 , pg.28)		Method I (see Appendix B)	
1.	Availability of Job Information Alpha = .88	Availability of Job and Training Information Alpha = .91 (#1 and #2 in Method II)	
2.	Availability of Training Information Alpha = .87		
3.	Awareness of Career Goals and Abilities Alpha = .79	Awareness of Career Goals and Abilities Alpha = .79	
4.	Career Commitment and Confidence Alpha = .65	Career Commitment and Confidence Alpha = .66	
5.	General Work Satisfaction Alpha = .82	Satisfaction Alpha = .86 (#5 and #6 in Method II)	
6.	Satisfaction with Advancement Opportunities Alpha = .81		
7.	Interest in Career Planning Activities Alpha = .90	Interest in Career Planning Activities Alpha = .87	
8.	Interest in Career Development Activities Alpha = .86	Interest in Career Development Activities Alpha = .82	
9.	Willingness to Acquire Additional Training and Education Alpha = .81	Willingness to Acquire Additional Training and Education Alpha = .78	
10.	Supervisory Support for Career Planning Alpha = .93	Supervisory Support For Career Planning Alpha = .94	
		Sources of Career Information Alpha = .77 (no similar dimension in Method II)	

career planning process and one was totally unfamiliar. Both interpretations were identical to that of the researcher which served as a check on any researcher bias.

The career planning factor contained items of expressed interest in activities such as a workshop to set career goals and career counseling. In addition, it contained some items about the sources an employee would use for career planning information such as printed materials in a central location or mailed to the employee. All of these areas are very specific to defining the internal career of the employee. Schein (undated) defined internal career as the expectations of the future relationships among the individual, work, and other life activities. Two items originally assigned to the career planning scale in the Method I analysis did not load saliently on this factor. These items concerned interest in improving job interviewing and resume writing skills, i.e., self-placement competencies. The factor loadings indicate that these placement competencies were separate from the setting of career goals and were part of the career development dimension which focuses on self-development for implementing career goals.

The career development factor contained items about development of skills which were applicable in a wide range of jobs and occupations, including skills for getting a desired job. This factor covered what Schein (undated) defined as development of the external career, i.e., self-development as it related to exploration, entry, and progress in vocational pursuits. One item included in the final scales did not have a salient loading of greater than .30 (see Table 2, p.23, item 44). It was included because it represented an

interest in job rotation and was judged to be a useful method of career development. Internal consistency reliability of the final career development scale would have been the same (.86) if the item had been eliminated from the scale.

The two satisfaction scales were easily distinguishable as correlated yet separate dimensions. The items defining the work satisfaction factor dealt with global concerns such as management respect, friendly feelings between management and employees, and overall satisfaction with the TVA. All of the items defining the satisfaction with opportunity scale dealt with satisfaction as it related to career progress and advancement opportunities. Being able to measure these two dimensions of satisfaction separately will be of value in the followup evaluation of the TVA's career planning program and may allow some test of causal effect at a later time.

Two factors were defined by the availability of career information items. The items which dealt with information about job vacancies, and job duties and responsibilities loaded saliently on one factor and those that dealt with information about training opportunities loaded on another factor. This was a very interpretable distinction that can be useful for identifying which types of information and associated communication channels need attention. These two factors formed the job information and the training information scales.

The career awareness and abilities factor contained items about awareness of career goals and abilities as they related to those goals. Since self-knowledge is one of the basics for career planning (Gysbers & Moore, 1975), this scale may be very useful in determining

who would benefit most from participation in career planning. It may also serve as a useful criterion measure for evaluating the effects of career planning activities.

The items defining the supervisory support factor dealt with communication and concern for the employee's career and one item about use of the supervisor as a source of career information (see Table 2, pg.23, item 57). Item 57 had a much lower loading than the other salient loadings and since internal consistency was .93 without the item, it was excluded from the final scale.

The hardest factor to name was career confidence and commitment. Items with salient loadings dealt with confidence and job commitment as well as usefulness and control over work. Since autonomy and control have an empirical relationship to job commitment (Hall, 1971), it seemed rational that they would help define the factor even though the name of the factor may not adequately reflect this aspect of the dimension.

Organizational and Personal Dimensions

The scales constructed on the basis of the factor analysis generally had good internal consistency reliability. Eight of the scales had Cronbach alphas of greater than .80 and another was .79. The career confidence and commitment scale had an alpha of .65. While this met the criterion for adequate reliability, it was disappointingly low considering the reliabilities of the other scales. Adding or deleting items did not increase the internal consistency of the scale as measured by Cronbach's alpha. More items need to be written covering the domain of both job confidence and job commitment to

better define the scale. It may be that improved wording and adding items can result in better definition of this dimension or in separating it into a job confidence dimension and a job commitment dimension.

It was useful to look at the dimensions in terms of a set of personal dimensions and also a set of organizational dimensions. Personal dimensions were those which were largely determined by the individual's career attitudes within the constraints of the organizational environment. The organizational dimensions were those largely determined by the environment and activities of the organization. The two sets of dimensions follow:

Personal Dimensions:

- Interest in career development
- Interest in career planning
- Awareness of career goals and abilities
- Career confidence and commitment
- Willingness to acquire additional training

Organizational Dimensions:

- Availability of job information
- Availability of training information
- Supervisory support
- Satisfaction with opportunity
- General work satisfaction

The relationships among the dimensions were complex but did provide insight into the career planning process. The organizational dimensions were consistently positively correlated among themselves.

The finding that supervisory support for career planning was related to work satisfaction and satisfaction with opportunities supports Beatty's (1974) conclusion that individuals who received support and interest from the organization were more satisfied. The implications are that involving supervisors in the career planning process for employees may increase satisfaction and thus benefit the organization.

The two scales that covered availability of career information were positively correlated with satisfaction with opportunity. The causal direction is unknown but implementing a career information system as a part of a career planning program may increase employees' satisfaction with opportunities.

The relationships among the personal dimensions also have implications for career planning in a work setting. One of the assumptions of career planning from a career counseling perspective is that increased self-knowledge about individual career goals and abilities increases the likelihood of participation in self-development activities (Super & Hall, 1978). The finding in the present study was that while interest in career planning and career development, and willingness to acquire additional training (i.e., scales related to self-development) were positively correlated, there were only trivial relationships between these three scales and the awareness of career goals scale (see Table 3, p. 34). This finding appeared to contradict the assumption that increased awareness increases self-development.

The awareness of career goals scale was positively correlated (.31) with the career confidence and commitment scale. The causal direction was again unknown but the relationship indicated that career

planning activities aimed at increasing self-knowledge about goals and abilities may be associated with increases in commitment and confidence on the job.

The relationship among the scales making up the organizational dimensions and the scales making up the personal dimensions were not pervasive or strong. Career confidence and commitment was the only real link between the two sets of dimensions. That scale correlated .37 with work satisfaction and .25 with supervisory support. This lack of connection between the personal and organizational dimensions indicates that it may be difficult to associate changes in personal dimensions brought about by career planning activities with benefits to the organization in terms of increased satisfaction.

The next step for the TVA is to relate the dimensions to actual participation in career planning activities and determine if participation was associated with any change in the dimensions measured one year after program implementation. It is at this step in the research on career planning that we can begin to predict career planning behavior, determine who benefits most, and what effects occur as a result of career planning.

It was hoped that this study would provide homogeneous dimensions that could be used to study career planning in other organizations. With the exception of the career commitment and confidence scale the internal consistency reliabilities of the measurement dimensions are remarkably high for an exploratory study. They appear promising for further investigation both in the scale properties themselves and the ability to examine hypotheses which are potentially valuable for theoretical development in the field of career planning and career

development. The dimensions must be replicated in other organizations to be sure that they are not an artifact of the particular population of the TVA but the domain covered has the potential of being useful in many organizational settings.

Sex Differences on the Dimensions

While several of the dimensions did indicate a significant difference in responses for males and females, the differences were trivial. The two-group discriminant analysis was of no value in classifying the cases according to sex and the conclusion was that there were essentially no differences between the mean responses for males and females in either the personal dimensions or the organizational dimensions identified through this study.

The scale properties of the dimensions appear to be sound enough that the failure to find differences cannot be attributed to scale weaknesses. There is a possibility that the sample who returned surveys differed on some unknown characteristic that equated responses for this particular sample of employees but it appears unlikely. The sample is very similar to the TVA population on such variables as age, tenure, occupational distribution (e.g., clerical, professional, managerial), and sex distribution. These demographic characteristics give some indication that the sample is fairly representative of the target population within the TVA.

Another possible extraneous factor affecting the results of the hypotheses testing was that the male and female populations cannot be considered comparable due to the distribution of occupations between the sexes, i.e., the comparison was between female clerical and male

engineering and technical support personnel not male and female. The distribution at the TVA is similar to other government organizations (Smith, 1979) in that the females are concentrated in the low opportunity (e.g., clerical) occupations and therefore a large proportion of the female respondents were in those occupations. However, the disparity in occupations should have operated to accentuate differences in male and female responses, if it had any effect. Many researchers (e.g., Osipow, 1975; Nieva & Gutek, 1980) have concluded that many of the differences that have been found on variables such as achievement motivation (Stein & Bailey, 1973), clarity of career goals (Stein & Bailey, 1973), and self-esteem (Terborg, 1977) are due to uncontrolled variables such as occupational choice and level rather than sex. It seems highly unlikely that if sex differences on dimensions such as supervisory support and satisfaction with opportunity did exist that the occupational mix of the sample would have negated rather than highlighted these differences.

This study was not a controlled experiment so the extraneous factors of scale properties, sample bias and contamination due to occupational distribution cannot be eliminated. It does not appear likely, however, that these significantly affected the results.

Organizational Dimensions

These dimensions provide evidence that there was no difference in employees' perceptions of the organization's treatment of the career planning and development process for males and females. There has been one case study which suggested that females have less access to

organizational information than males (Kanter, 1977). There is some evidence that females receive less encouragement and support in their careers than males (Gackenbach & Auerbach, 1980; Rosen & Jerdee, 1977) and nonresearch literature has expressed a concern about a perceived disparity in the amount of informal development and advice provided to males and females by supervisors (e.g., Lynch, 1978; Wells, 1973). The results presented here provide no support for these discrepancies. There was no difference in the availability of job or training information for males and females and there was no evidence of a greater concern for the career development of males on the part of supervisors in the TVA. To the extent that the satisfaction with opportunity scale captures other areas of possible sex bias in advancement opportunities, there was no evidence that females encountered more barriers to desired advancement.

The affirmative action program pursued by the TVA has been aimed at correcting any biases that did exist in the opportunity structure and from the results presented here females do not perceive inequality in areas of career planning and development. It is possible that these results are due to these affirmative action efforts in combination with a more aggressive stance on the part of female employees to prepare for and pursue career opportunities. However, without baseline data it is not possible to determine if bias did exist and the cause of any change in perceived disparity of treatment.

Personal Dimensions

Terborg (1977) reported that females have lower self-confidence and esteem than males. Stein and Bailey (1973) reported that females

have less clear career goals and less masculine (i.e., upwardly mobile) achievement striving than males. The findings of no sex differences on the career confidence and awareness scales and the three scales indicating a willingness and desire for self-development (i.e., career planning, career development, and willingness to train) presented in this study contradicted these earlier findings. Gould's (1979) findings of no difference in the level of career planning, career commitment and career identity of males and females also provide support for the no difference hypothesis. These recent studies indicate that any sex differences in attitude towards careers and advancement that may have once existed are disappearing, at least in some organizations.

The disparity in occupational dispersion of males and females seems to be persisting due to the limited occupational choices and opportunities of the past. It does appear, however, that women are making the psychological changes necessary to respond to the new opportunity structure that has opened up as a result of social and legislative changes.

The findings of no sex differences in the dimensions investigated is encouraging for the TVA. Its career planning and development program can be focused on the needs of all employees without emphasis on any special needs related to sex. The data are unique to an organization that has a strong policy statement of equal opportunity, an active and broad-based affirmative action program, and a young labor force (mean age 32 years) which is apparently reflecting some of the attitudes necessary for women to take advantage of increased opportunities in male dominated organizations. For these reasons the data should not be assumed to reflect conditions in other organizations.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Organizational and Personal Dimensions

In this study ten measurement dimensions were identified that were related to career planning and career development in the TVA. The dimensions were represented by scales that were internally homogeneous dimensions as defined by a principal factors, oblique rotation factor analysis. Fourteen factors were extracted, four of which were uninterpretable. The items which defined the ten interpretable factors were subjected to reliability analysis to determine the internal consistency reliability (i.e., Cronbach's alpha) for each measurement dimension. A few items were either added or deleted from the final scales representing the dimensions based on criteria other than the factor loadings. This was done to increase the reliability or the theoretical homogeneity of some of the scales. The ten scales were logically grouped into two sets of dimensions. The sets of dimensions and the associated scales were:

1. Organizational Dimensions

- General work satisfaction
- Satisfaction with advancement opportunity
- Availability of job information
- Supervisory support for career planning
- Availability of training information

2. Personal Dimensions

- Awareness of career goals and abilities
- Career confidence and commitment
- Interest in career planning activities
- Interest in career development activities
- Willingness to acquire additional training and education

The dimensions covered a large part of the domain of variables that previous research has shown to be related to career planning and career development and allow for continued research on the individual and organizational outcomes of career planning programs in work settings.

The pattern of intercorrelations among the scales indicated that there were relationships among the dimensions that can provide theoretical insights into the career planning process when more extensive research is done on possible causal relationships. There were positive correlations among interest in career planning, willingness to acquire additional training, and interest in career development. There were only trivial relationships between the three scales mentioned above and awareness of career goals and abilities. This may indicate that the assumption that career planning activities which clarify goals and individual abilities result in increases in the likelihood of self-development activities is invalid.

Work satisfaction, satisfaction with advancement opportunities, supervisory support, and availability of both job and training information all had nontrivial intercorrelations. The direction of any causal relationships are, of course, unknown but there are indications that a career information system and supervisory knowledge

and support of employees' career goals are associated with increased satisfaction.

Sex Differences

A two-group discriminant analysis with sex as the dependent variable and the ten scales as independent variables was used to test null hypotheses concerning sex differences on the measurement dimensions. Three scales were significant at the .05 level but the mean differences in responses for males and females were extremely small and therefore meaningless.

The finding of essentially no differences in male and female responses to any of the survey instrument dimensions should be taken in context of the uniqueness of the TVA population. However, as organizations and the female labor force respond to the social pressure for increased opportunity in the work place and there is a redefinition of sex-roles, these findings may generalize to other organizational settings.

Implications for Further Research

A large part of the domain of career planning and development established by previous research was covered by the dimensions presented in this study and some insight into the relationships within this domain was gained. If the dimensions can be replicated in other settings, it is possible that they can serve as the basis for a model of career planning in work settings. A model of hypothesized cause and effects as well as moderator variables is badly needed as a guide to further research. Such a model would allow for the systematic

testing of relationships between attitudes, behaviors, organizational inputs and outcomes of career planning activities.

Relationships of particular interest are:

- Does participation in career planning programs increase satisfaction with opportunities?
- Can job confidence and commitment be increased by increasing awareness of career goals and individual skills and abilities?
- Do attitudes towards self-development activities affect the success of career planning programs at the individual level.
- What affect does supervisory support have on career planning and development attitudes and behavior?
- What are the outcomes of different types of career planning activities, (e.g., job and training information systems, goal setting workshops)?
- What attitudes and personal characteristics lead to the most benefit from career planning?

The methods presented here for evaluative research on career planning programs should be applied in organization settings where career management is seen as a desirable part of human resource management. The dimensions themselves appear appropriate in many settings and many of the scales can be modified to fit characteristics of other organizations. It is through this kind of research that career development theory will be expanded to include understanding and prediction in work settings from its present limitations of focusing on early development and educational settings.

More and more researchers feel that sex is becoming a less useful predictor of attitudes and behaviors than it once was (O'Leary, 1981).

Sex-role segregation has become less distinct as a result of social change associated with the women's liberation movement. Much of the research indicates that sex differences are much less apparent than the individual differences within the sexes (Peters, Terborg, & Taynor, 1974). The findings presented here suggest that research designs that focus on individual characteristics rather than sex characteristics may be more fruitful in defining groups of individuals with homogeneous characteristics that are useful in predicting attitudes and behavior. As sex-role socialization patterns change and individuals change to fit the more open social system it appears that distinctions based solely on the sex of the individual are of little theoretical value and research must give way to alternative ways of distinguishing between groups of people.

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APPENDICES

APPENDIX A

APPENDIX A

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : Division of Management Systems Annual Salary Policy and M-1 through M-4
Employees
FROM : Larry N. Long, Employee Relations and Development Branch, 413 MIB-K
DATE : April 28, 1980
SUBJECT: DIVISION OF MANAGEMENT SYSTEMS CAREER PLANNING PROGRAM

The attached questionnaire is part of a survey designed to measure interest, opinions, and attitudes of employees in the Division of Management Systems regarding their careers and future employment goals. In addition, questions concerning employee satisfaction, supervisor-employee relations, and biographical information are included.

You are being asked to complete this questionnaire so that employee needs related to the area of career planning may be identified. With this information, appropriate career planning programs will be developed for the Division of Management Systems. The information will also aid in evaluating these programs.

Questionnaires are being sent to all annual salary policy employees and management schedule employees on grades M-1 through M-4. It is requested that everyone receiving a questionnaire complete it and return it to the address listed below, even if you have no intention of participating in the Career Planning Program. Please leave this cover letter attached to your questionnaire when returning it so that we may compare your responses now with responses to questions we will ask you to answer after about one year. Your responses will be statistically coded and no individual will even be identified. This confidentiality is guaranteed by the career planning researcher.

If you have any questions or concerns regarding the use of your responses, please call me at extension 6120 in Knoxville. I personally guarantee the confidentiality of your responses! However, I do need the code number on the cover letter of your questionnaire in order to match responses. I will blacken out your name on the cover letter as soon as I receive your completed questionnaire. Do this yourself if you wish but please leave the code number legible.

Your response to each of the items is very important for the program to be successful, and your cooperation will be greatly appreciated. Please return your completed questionnaire to Larry N. Long, 413 MIB-K by May 9, 1980. If you have any questions, please call me.

Thank you.



OFFICE OF THE GENERAL MANAGER NEEDS ASSESSMENT

For statements 1 through 82 there are five possible response choices. Please circle the number corresponding to the response that best represents how you feel about that statement.

A. Career information is available from different sources within TVA. Please signify to what extent you agree with the following statements.

- | | <i>STRONGLY AGREE</i> | <i>AGREE</i> | <i>UNCERTAIN</i> | <i>DISAGREE</i> | <i>STRONGLY DISAGREE</i> |
|--|-----------------------|--------------|------------------|-----------------|--------------------------|
| 1. You receive adequate information on jobs TVA will have in the future, including the number, types, locations, and qualifications for them..... | (1) | (2) | (3) | (4) | (5) |
| 2. You receive adequate information on jobs the Office of the General Manager will have in the future, including the number, types, locations, and qualifications for them..... | (1) | (2) | (3) | (4) | (5) |
| 3. You receive adequate information about the duties and responsibilities for positions in your branch..... | (1) | (2) | (3) | (4) | (5) |
| 4. You receive adequate information about the duties and responsibilities for positions in other Office of the General Manager areas..... | (1) | (2) | (3) | (4) | (5) |
| 5. You receive adequate information about the duties and responsibilities for positions in other divisions..... | (1) | (2) | (3) | (4) | (5) |
| 6. You receive adequate information about training programs available in the Office of the General Manager..... | (1) | (2) | (3) | (4) | (5) |
| 7. You receive adequate information about training programs available in other divisions..... | (1) | (2) | (3) | (4) | (5) |
| 8. You receive adequate information about rules and procedures for obtaining TVA educational assistance..... | (1) | (2) | (3) | (4) | (5) |
| 9. You receive adequate information about educational programs available at schools or colleges in your geographic area..... | (1) | (2) | (3) | (4) | (5) |
| 10. You receive adequate information about short-term training programs available outside TVA (e.g., UT's Executive Development Program, NTL Workshops in Human Resources Administration, etc.)..... | (1) | (2) | (3) | (4) | (5) |
| 11. You receive adequate information about procedures for applying on vacancy announcements within TVA..... | (1) | (2) | (3) | (4) | (5) |
| 12. You receive adequate information about job-related correspondence courses you can take..... | (1) | (2) | (3) | (4) | (5) |

B. Please indicate to what extent you agree with the following personal statements.

- | | | | | | |
|---|-----|-----|-----|-----|-----|
| 13. You are aware of your career interests and areas of employment corresponding to them..... | (1) | (2) | (3) | (4) | (5) |
|---|-----|-----|-----|-----|-----|

	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
14. You are aware of your abilities.....	(1)	(2)	(3)	(4)	(5)
15. You are aware of the actual skills you use on the job or skills which you possess which could be used on another job.....	(1)	(2)	(3)	(4)	(5)
16. You desire job advancement.....	(1)	(2)	(3)	(4)	(5)
17. You are aware of the various job goals which you could achieve by using all your skills and abilities.....	(1)	(2)	(3)	(4)	(5)
18. You are aware of the level of responsibility you believe you could handle on the job.....	(1)	(2)	(3)	(4)	(5)
19. You are aware of your personal career goals.....	(1)	(2)	(3)	(4)	(5)
C. Please answer the following work-related questions.					
20. You would like to have more job responsibility....	(1)	(2)	(3)	(4)	(5)
21. You feel committed to your present job.....	(1)	(2)	(3)	(4)	(5)
22. You have self-confidence in your skills and abilities.....	(1)	(2)	(3)	(4)	(5)
23. You feel you have good decision-making ability.....	(1)	(2)	(3)	(4)	(5)
24. It is important that you do your job well.....	(1)	(2)	(3)	(4)	(5)
25. You would be satisfied with an increase in authority and responsibility rather than in salary.....	(1)	(2)	(3)	(4)	(5)
26. You feel that your work serves a useful purpose.....	(1)	(2)	(3)	(4)	(5)
27. You feel that you have control over decisions about how to do your own work.....	(1)	(2)	(3)	(4)	(5)
28. You feel over-trained for the work which you perform on your job.....	(1)	(2)	(3)	(4)	(5)
29. You feel under-trained for the work which you perform on your job.....	(1)	(2)	(3)	(4)	(5)
30. Your job responsibilities are clearly defined and unambiguous.....	(1)	(2)	(3)	(4)	(5)
31. There are adequate opportunities for advancement within your branch.....	(1)	(2)	(3)	(4)	(5)
32. You already possess the qualifications necessary to successfully perform job duties at the next higher schedule grade.....	(1)	(2)	(3)	(4)	(5)
33. You feel "stuck" at your present pay grade.....	(1)	(2)	(3)	(4)	(5)
34. Participation in programs such as career planning would interfere with the performance of your job.....	(1)	(2)	(3)	(4)	(5)

	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
35. Top management (directors, assistant directors, branch and staff chief) respect your rights as a person.....	(1)	(2)	(3)	(4)	(5)
36. If you were starting over again you would like to work here.....	(1)	(2)	(3)	(4)	(5)
37. There is a friendly feeling in your branch between employees and management.....	(1)	(2)	(3)	(4)	(5)
38. Your branch is a good one for a person trying to get ahead.....	(1)	(2)	(3)	(4)	(5)
39. Your branch is a better place to work than most of TVA.....	(1)	(2)	(3)	(4)	(5)
40. You would be willing to relocate to another TVA site in order to advance your career.....	(1)	(2)	(3)	(4)	(5)

D. The following statements refer to various training program topics designed for employee career development. Please signify the extent to which you would be interested in attending each of the following workshops if they were offered in your division.

	VERY INTERESTED	INTERESTED	UNCERTAIN	UNINTERESTED	VERY UNINTERESTED
41. A program on improving skills used in an employment interview, such as, what questions to ask and how to phrase them, and in general, how to develop a comfortable, confident interviewing style in order to communicate most effectively with the interviewer.....	(1)	(2)	(3)	(4)	(5)
42. A program created to improve formal writing skills for such things as job applications and resumes.....	(1)	(2)	(3)	(4)	(5)
43. A program designed to assist you in developing your career goals and a path which will help you reach them.....	(1)	(2)	(3)	(4)	(5)
44. A program of job rotation which involves changing jobs with another employee temporarily to broaden one's skills.....	(1)	(2)	(3)	(4)	(5)
45. A program designed to prepare employees for possible advancement to the M-schedule.....	(1)	(2)	(3)	(4)	(5)
46. A program to improve general communication skills.....	(1)	(2)	(3)	(4)	(5)
47. A program designed to develop effective presentation skills (for example, skills used in a meeting).....	(1)	(2)	(3)	(4)	(5)
48. A program on first-line supervisory training.....	(1)	(2)	(3)	(4)	(5)
49. A human relations workshop.....	(1)	(2)	(3)	(4)	(5)

	VERY INTERESTED	INTERESTED	UNCERTAIN	UNINTERESTED	VERY UNINTERESTED
50. A program designed to assist with job searching strategies for positions outside TVA.....	(1)	(2)	(3)	(4)	(5)
51. Inhouse training programs to provide specific skills you would use on your job (please specify skills).....	(1)	(2)	(3)	(4)	(5)
52. Any other program of interest (please specify).....	(1)	(2)	(3)	(4)	(5)

E. The following statements refer to various employee career planning activities. To what extent would you actually use the following if they were made available.

	DEFINITELY USE	PROBABLY USE	UNCERTAIN	PROBABLY NOT USE	DEFINITELY NOT USE
53. Watch an audiovisual presentation (for example, videotape, slides, movies) about career planning activities.....	(1)	(2)	(3)	(4)	(5)
54. Have an individual conference with a career counselor to discuss career opportunities and job requirements.....	(1)	(2)	(3)	(4)	(5)
55. Participate in a career planning workshop which includes learning to identify your abilities, skills, and experiences and how these apply to career opportunities within TVA.....	(1)	(2)	(3)	(4)	(5)
56. Read material (for example, books, pamphlets, training program outlines) designed to aid you in career planning.....	(1)	(2)	(3)	(4)	(5)

F. Please signify the extent to which you would use each of these sources of career information.

57. Immediate supervisor.....	(1)	(2)	(3)	(4)	(5)
58. Career planning staff officer located in your office.....	(1)	(2)	(3)	(4)	(5)
59. Personnel officer.....	(1)	(2)	(3)	(4)	(5)
60. Personal friends and contacts in TVA.....	(1)	(2)	(3)	(4)	(5)
61. Branch/staff chief.....	(1)	(2)	(3)	(4)	(5)
62. Printed information mailed to you.....	(1)	(2)	(3)	(4)	(5)
63. Printed and audiovisual materials available in a central location in your division.....	(1)	(2)	(3)	(4)	(5)

- | | DEFINITELY USE | PROBABLY USE | UNCERTAIN | PROBABLY NOT USE | DEFINITELY NOT USE |
|---|----------------|--------------|-----------|------------------|--------------------|
| | (1) | (2) | (3) | (4) | (5) |
| 64. Other (please specify)..... | | | | | |
| 65. Have you used any of the above sources of career information in the past? | | | | | |
| | (1) YES | (2) NO | | | |

If yes, which one(s)? _____

G. The next group of questions focuses on your satisfaction with various job and career related topics. Please signify how satisfied you are with each topic.

- | | VERY SATISFIED | SATISFIED | UNCERTAIN | DISSATISFIED | VERY DISSATISFIED |
|---|----------------|-----------|-----------|--------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) |
| 66. In general, how satisfied are you with your present job (i.e., the type of work you do)?..... | | | | | |
| 67. How satisfied are you with the career progress you have made in TVA?..... | | | | | |
| 68. How satisfied are you with the opportunities you may have for getting ahead in your area?..... | | | | | |
| 69. How satisfied are you with the opportunities you may have for getting ahead in other areas in the Office of the General Manager?..... | | | | | |
| 70. How satisfied are you with the opportunities you may have for getting ahead outside of your division in TVA?..... | | | | | |
| 71. Considering everything about TVA, how satisfied are you with it as a place to work?..... | | | | | |

H. In order to advance in a career, individuals may sometimes find it necessary to acquire additional education or training. Please indicate to what extent you would be willing to do each of the following.

- | | VERY WILLING | WILLING | UNCERTAIN | UNWILLING | VERY UNWILLING |
|---|--------------|---------|-----------|-----------|----------------|
| | (1) | (2) | (3) | (4) | (5) |
| 72. Attend education/training program on TVA time..... | | | | | |
| 73. Attend education/training program after work (e.g., evening school) and be fully reimbursed for tuition and expenses..... | | | | | |
| 74. Attend education/training program after work (e.g., evening school) and be reimbursed for one-half of tuition..... | | | | | |
| 75. Attend education/training program after work (e.g., evening school) and pay all expenses yourself..... | | | | | |
| 76. Attend education/training program fulltime while on leave without pay..... | | | | | |

I. The following questions are designed to measure your feelings on important dimensions that have been shown to be related to a successful employee career planning environment. Please respond to each of the questions by circling the number corresponding to the response that best represents how you feel about that question.

77. How would you describe the communication that goes on between you and your supervisor(s)?
- (1) POOR; I CAN NEVER TALK OPENLY WITH MY SUPERVISOR(S) REGARDING MY WORK AND CAREER PLAN.
 - (2) FAIR
 - (3) GOOD
 - (4) VERY GOOD
 - (5) EXCELLENT; THERE IS COMPLETE OPENNESS AND TRUST IN DISCUSSING MY WORK AND CAREER PLANS WITH MY SUPERVISOR(S).
78. How would you describe your supervisor's(s') concern for the direction which you would like to see your career follow?
- (1) POOR; MY SUPERVISOR'S(S') ONLY CONCERN IS WITH ORGANIZATIONAL GOALS, NOT INDIVIDUAL PLANS.
 - (2) FAIR
 - (3) GOOD
 - (4) VERY GOOD
 - (5) EXCELLENT; MY SUPERVISOR(S) ALWAYS SEEMS TO BE INTERESTED IN WHAT I WANT TO DO WITH MY FUTURE.
79. How would you describe the feedback you receive from your supervisor(s)?
- (1) POOR; MY SUPERVISOR(S) SELDOM INFORMS ME ABOUT MY JOB PERFORMANCE.
 - (2) FAIR
 - (3) GOOD
 - (4) VERY GOOD
 - (5) EXCELLENT; MY SUPERVISOR(S) INFORMS ME OF MY PERFORMANCE AND HELPS ME FIND WAYS TO IMPROVE.
80. How would you describe the guidance for your career plans, which your supervisor(s) aids you in finding?
- (1) POOR; MY SUPERVISOR(S) IS NOT CONCERNED WITH GIVING ME ANY ASSISTANCE IN FINDING CAREER GUIDANCE.
 - (2) FAIR
 - (3) GOOD
 - (4) VERY GOOD
 - (5) EXCELLENT; MY SUPERVISOR(S) ALWAYS INFORMS ME OF CURRENT AND FUTURE INSTRUCTIONAL PROGRAMS WHICH WOULD BENEFIT MY CAREER.
81. How would you describe the quality of information about career opportunities presented to employees in TVA?
- (1) POOR; EMPLOYEES SELDOM LEARN ABOUT AVAILABLE POSITIONS OR CAREER OPPORTUNITIES THAT MAY DEVELOP IN TVA.
 - (2) FAIR
 - (3) GOOD
 - (4) VERY GOOD
 - (5) EXCELLENT; THE INFORMATION AN EMPLOYEE FINDS OUT ABOUT NEW POSITIONS AND CAREER OPPORTUNITIES IS BENEFICIAL AND ACCURATE.
82. To what extent would a career planning program benefit you?
- (1) VERY MUCH
 - (2) SOMEWHAT
 - (3) UNCERTAIN
 - (4) NOT MUCH
 - (5) NOT AT ALL

APPENDIX B

APPENDIX B

NINE SCALES DERIVED FROM METHOD I RELIABILITY ANALYSIS

Availability of Job Training Information

You receive adequate information on jobs TVA will have in the future, including the number, types, locations, and qualifications for them

You receive adequate information on jobs your division will have in the future, including the number, types, locations, and qualifications for them

You receive adequate information about the duties and responsibilities for positions in your branch/staff

You receive adequate information about the duties and responsibilities for positions at other branches

You receive adequate information about the duties and responsibilities for positions in other divisions

You receive adequate information about training programs available in your division

You receive adequate information about training programs available in other divisions

You receive adequate information about rules and procedures for obtaining TVA educational assistance

You receive adequate information about educational programs available at schools or colleges in your geographic area

You receive adequate information about short-term training programs available outside TVA

You receive adequate information about procedures for applying on vacancy announcements within TVA

You receive adequate information about job-related correspondence courses you can take

Cronbach's Alpha = .91; Scale Mean = 2.78; Standard Deviation = .74

Awareness of Career Goals and Abilities

You are aware of your abilities

You are aware of the actual skills you use on the job or skills which you possess which could be used on another job

You desire job advancement

You are aware of the various job goals which you could achieve by using all your skills and abilities

You are aware of the level of responsibility you believe you could handle on the job

You are aware of your personal career goals

Cronbach's Alpha = .79; Scale Mean = 4.15; Standard Deviation = .48

Career Confidence and Commitment

You would like to have more job responsibility

You feel committed to your present job

You have self-confidence in your skills and abilities

You feel you have good decisionmaking ability

It is important that you do your job well

You feel that your work serves a useful purpose

You feel that you have control over decisions about how to do your own work

Cronbach's Alpha = .66; Scale Mean = 4.11; Standard Deviation = .44

Satisfaction

Top management (directors, assistant directors, branch and staff chief) respect your rights as a person

If you were starting over again you would like to work here

There is a friendly feeling in your branch between employees and management

Your branch is a good one for a person trying to get ahead

Your branch is a better place to work than most of TVA

In general, how satisfied are you with your present job
(i.e., the type of work you do)?

How satisfied are you with the career progress you have made
in TVA?

How satisfied are you with the opportunities you may have for
getting ahead in other areas of TVA?

How satisfied are you with the opportunities you may have for
getting ahead outside of your division in TVA?

Considering everything about TVA, how satisfied are you with it
as a place to work?

Cronbach's Alpha = .86; Scale Mean = 3.26; Standard Deviation = .65

Interest in Career Planning Activities

A program on improving skills used in an employment interview,
such as, what questions to ask and how to phrase them, and in
general, how to develop a comfortable, confident interviewing
style in order to communicate most effectively with the
interviewer

A program created to improve formal writing skills for such
things as job applications and resumes

A program designed to assist you in developing your career
goals and a path which will help you reach them

Watch an audiovisual presentation (for example, videotape,
slides, movies) about career planning activities

Have an individual conference with a career counselor to
discuss career opportunities and job requirements

Participate in a career planning workshop which includes
learning to identify your abilities, skills, and experiences
and how these apply to career opportunities within TVA

Read material (for example, books, pamphlets, training program
outlines) designed to aid you in career planning

Cronbach's Alpha = .87; Scale Mean = 3.85; Standard Deviation = .72

Interest in Career Development Activities

A program of job rotation which involves changing jobs with another employee temporarily to broaden one's skills

A program designed to prepare employees for possible advancement to the M-schedule

A program to improve general communication skills

A program designed to develop effective presentation skills (for example, skills used in a meeting)

A program on first-line supervisory training

A human relations workshop

Cronbach's Alpha = .82; Scale Mean = 3.92; Standard Deviation = .68

Sources of Career Information

Immediate supervisor

Career planning staff officer located in your office

Personnel officer

Personal friends and contacts in TVA

Branch/staff chief

Printed information mailed to you

Printed and audiovisual materials available in a central location in your division

Cronbach's Alpha = .77; Scale Mean = 3.66; Standard Deviation = .65

Willingness to Acquire Additional Training

and Education

Attend education/training program on TVA time

Attend education/training program after work (e.g., evening school) and be fully reimbursed for tuition and expenses

Attend education/training program after work (e.g., evening school) and be reimbursed for one-half of tuition

Attend education/training program after work (e.g., evening school) and pay all expenses yourself

Attend education/training program fulltime while on leave without pay

Cronbach's Alpha = .78; Scale Mean = 3.41; Standard Deviation = .72

Supervisory Support for Career Planning

How would you describe the communication that goes on between you and your supervisor(s)?

How would you describe your supervisor's(s') concern for the direction which you would like to see your career follow?

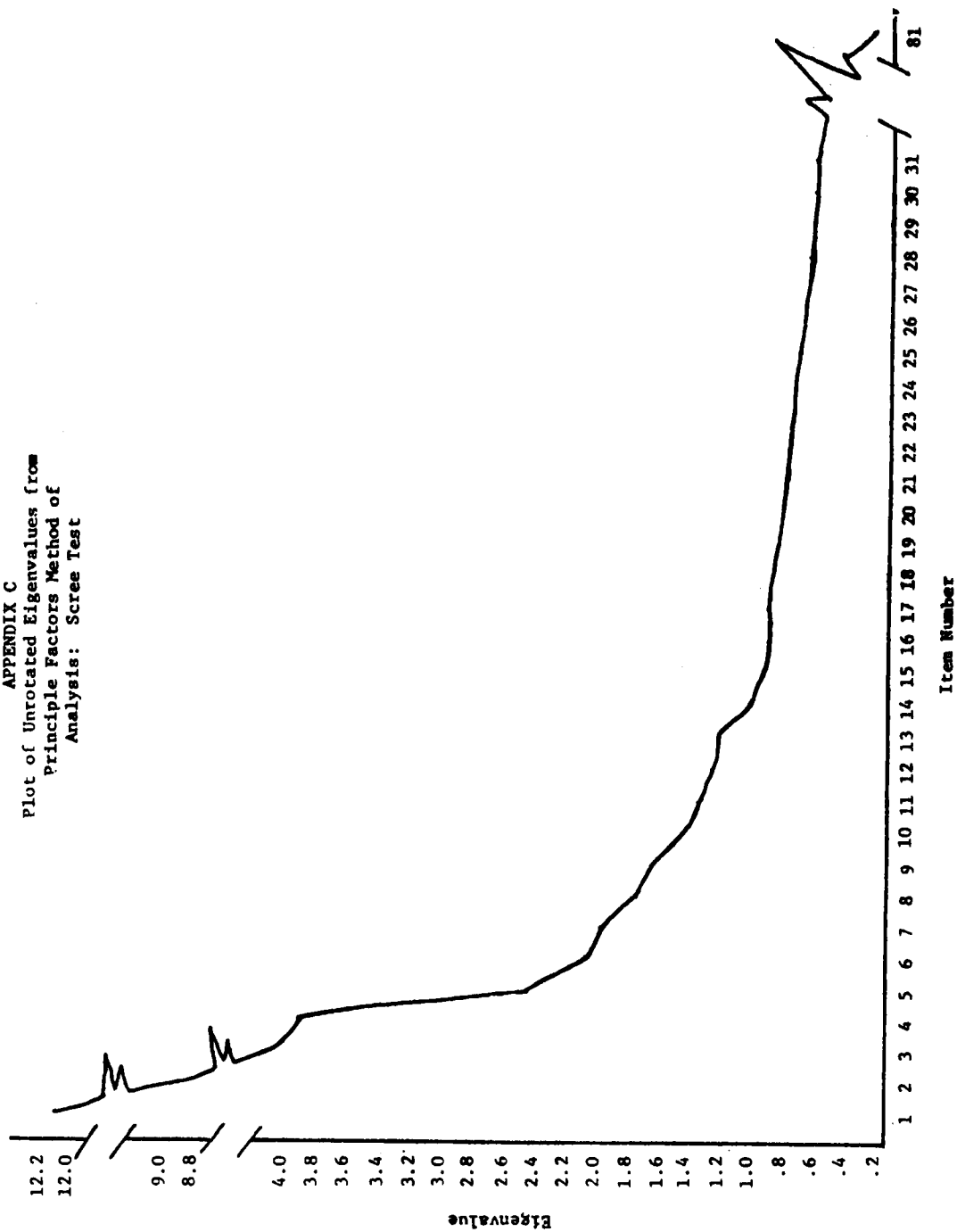
How would you describe the feedback you receive from your supervisor(s)?

How would you describe the guidance for your career plans, which your supervisor(s) aids you in finding?

Cronbach's Alpha = .94; Scale Mean = 2.68; Standard Deviation = 1.15

APPENDIX C

APPENDIX C
 Plot of Unrotated Eigenvalues from
 Principle Factors Method of
 Analysis: Scree Test



APPENDIX D

APPENDIX D

FACTOR PATTERN MATRIX FROM 14 FACTOR, OBLIQUE ROTATION, PRINCIPAL FACTORS ANALYSIS*

Item #	Factor Number													
	1	2	3	4	5	6	7 ^a	8	9	10 ^b	11 ^c	12	13	14 ^d
1	05	-01	80	-05	02	-01	02	04	02	-04	-01	-06	03	-19
2	-01	-02	76	03	61	-02	-04	01	-02	-02	-02	-04	07	-13
3	-09	22	56	04	-07	00	-03	04	02	-05	03	-03	-02	10
4	01	03	84	02	-02	00	02	00	-08	02	05	05	-04	13
5	04	-07	80	01	01	04	03	06	-03	02	01	08	-01	11
6	05	04	21	08	-06	-03	03	56	05	-01	-03	13	01	13
7	06	-10	33	06	01	01	00	53	04	-04	-03	13	03	16
8	-05	97	-03	01	00	01	-01	79	-03	04	-02	-02	-02	-01
9	-03	-04	-06	-04	-05	-02	02	78	-06	03	01	-08	-03	-09
10	05	-05	04	-03	-03	07	-05	64	01	-03	00	08	00	03
11**	05	03	21	04	-06	03	02	29	12	-02	01	-01	04	-11
12	-01	-03	12	05	-05	-07	-10	60	02	-06	02	06	03	05
13**	-09	-01	10	42	-11	00	03	07	08	-06	03	02	05	-04
14	00	-11	-02	55	-10	02	-03	-10	-05	06	15	05	02	-03
15	00	02	-01	64	01	00	00	-05	12	03	00	-05	09	-07
16	14	-04	-05	23	03	-02	01	-04	-24	03	09	-19	-14	-13
17	-04	09	05	74	12	-04	-06	05	-01	-04	-11	02	-02	03
18	02	05	-02	69	05	04	03	03	-06	04	11	00	-06	08
19	02	-01	-04	62	01	00	-02	03	-08	09	10	-02	04	03

Item #	Factor Number													
	1	2	3	4	5	6	7 ^a	8	9	10 ^b	11 ^c	12	13	14 ^d
20	12	-02	-01	16	-01	11	01	06	-34	02	21	-16	-20	-21
21	04	07	-03	08	-10	07	-01	12	21	-21	30	-05	01	-05
22	-01	-13	-02	24	01	-09	-10	-06	-12	08	64	00	02	-01
23	-06	-17	00	19	-05	-05	-09	-09	-14	09	52	-04	-01	-01
24	12	11	05	00	-02	11	06	-05	02	-04	46	01	-04	-03
25**	-01	15	-03	01	07	22	-04	13	-10	00	03	-12	03	-05
26	04	16	02	-03	03	07	-01	02	26	-17	46	-08	09	00
27	-15	27	08	-03	-07	-01	-08	-06	08	05	32	-06	-01	13
28	01	01	-01	-06	-05	-14	-02	-03	07	-68	07	06	10	-01
29	14	16	-06	03	-04	-02	02	-03	06	52	03	07	02	02
30**	-04	25	17	02	-15	01	-11	-01	05	07	08	07	03	21
31	-10	24	02	04	-08	02	-05	04	-36	-18	-05	02	46	09
32	-10	-15	-01	17	-01	00	05	04	-01	31	28	-15	-09	-07
33	-03	04	02	-07	-09	06	01	-08	-29	-21	-01	05	51	-04
34**	38	04	-03	02	05	05	14	-07	-05	04	08	-06	-04	.12
35	-05	45	08	06	-19	-03	-11	05	01	03	-01	00	06	-01
36	12	54	01	04	-05	04	14	05	10	-02	12	-01	15	-06
37	02	62	02	05	-23	00	-10	00	-02	06	-11	01	-01	-11
38	-06	51	02	06	-11	01	-02	02	-17	-07	-06	-01	33	10
39	-07	52	06	-01	-10	-11	-04	01	03	-03	02	-06	00	02
40**	04	-09	08	-01	04	24	04	-03	-23	01	06	-11	-03	03
41	14	-13	-01	00	-01	04	06	01	12	03	-01	-50	-05	37

Item #	Factor Number													
	1	2	3	4	5	6	7 ^a	8	9	10 ^b	11 ^c	12	13	14 ^d
42	21	-08	-01	-02	-05	-03	07	01	04	01	-01	-52	-05	33
43	45	-03	04	-04	03	00	06	00	-11	00	05	-38	-02	08
44	22	01	-06	02	04	07	06	05	-19	05	04	-28	-08	07
45	17	00	03	01	00	01	00	-06	-25	07	11	-46	-05	-11
46	06	05	-04	-05	00	02	01	-02	00	01	07	-70	04	05
47	-08	07	-07	00	-02	11	-08	-01	01	02	01	-82	12	-01
48	02	01	00	08	02	-06	-06	-03	-06	-04	06	-69	01	-04
49	19	02	03	08	-03	07	-04	-07	15	-07	-09	-58	-08	-03
50	05	-19	-06	-04	07	08	-03	03	-16	02	-03	-22	-06	32
51**	17	01	-03	16	-03	19	-01	-01	-03	-22	-07	-14	-08	16
53	66	05	03	-01	03	-06	-10	-05	17	-03	-11	-17	03	01
54	62	-03	02	-07	08	08	-12	-03	-05	07	04	-14	-05	05
55	59	-03	-01	-02	06	13	-06	-02	03	-01	03	-20	-06	07
56	60	-03	-02	02	00	11	-12	-07	-02	05	02	-13	02	03
57	10	07	03	02	-42	-01	35	-02	-08	-16	00	-01	00	-01
58	56	-08	-03	07	02	02	36	01	-09	06	12	-01	-02	00
59	25	03	09	00	07	07	-57	01	04	-03	09	-03	-04	03
60**	18	-06	-01	04	-02	04	-24	-01	-17	08	00	02	-01	05
61	06	05	-07	07	00	09	-65	08	06	-04	01	-04	01	-04
62	64	-01	-04	-04	-02	06	-10	01	-10	03	02	05	-03	00
63	64	00	01	-03	01	00	-10	03	06	07	00	-09	07	09
66	10	24	.05	02	-09	-02	-06	08	14	-25	23	10	14	08

Item #	Factor Number													
	1	2	3	4	5	6	7 ^a	8	9	10 ^b	11 ^c	12	13	14 ^d
67	00	21	-10	01	-06	04	11	10	05	-15	12	00	43	09
68	-08	16	-04	07	-10	02	-05	05	-11	-14	07	-03	66	16
69	-01	08	57	00	-02	-03	-04	03	01	01	-03	-04	67	-02
70	07	-14	07	07	01	03	02	02	12	07	-01	-03	56	-08
71	18	37	31	-05	-10	00	07	15	09	-03	19	03	19	-03
72	34	09	-08	13	02	25	14	-08	-14	-11	02	-09	-08	03
73	22	-02	-04	09	-03	57	12	-12	-11	00	04	-04	-05	04
74	06	-03	00	05	-08	93	02	-11	06	-03	03	09	-01	-02
75	-02	04	-01	-02	-03	85	-03	-05	04	-01	00	07	02	01
76**	10	-08	03	-05	04	47	-14	05	04	08	-05	-04	06	01
77	-05	07	00	-02	-84	-04	00	-01	-03	01	05	-02	-06	00
78	00	-06	-04	-02	-98	03	06	03	-02	-02	-05	-04	00	00
79	02	01	04	-07	-86	04	04	05	01	07	05	01	-01	-01
80	-04	-02	00	01	-84	03	01	08	03	03	-05	-04	06	01
81	06	-03	25	06	-13	-03	05	27	-08	04	-01	01	24	-05

*Decimals have been omitted.

**Indicates items with communality of less than .30.

a, b, c, and d were uninterpretable and were not included in the final scales representing the measurement dimensions of the survey instrument.

VITA

Marilyn S. Hitchcock was born Marilyn S. Gnadtt in Joplin, Missouri on June 8, 1951. She attended elementary school and high school in Norris, Tennessee. She graduated from Norris High School in May 1968. She entered Tennessee Technological University in Cookeville, Tennessee in June of 1968 and continued until June 1969. At that time she began a seven year leave of absence from further formal education. During that seven years she married; had two children, Robert and Jason; and worked in several jobs including assistant warehouse manager.

While employed as an employment interviewer for the State of Tennessee Job Service in Jasper, Tennessee, she returned to school as a part-time student at Northeastern State Junior College in the spring of 1976. In January of 1977, she moved to Knoxville, Tennessee and entered the University of Tennessee as a full-time student in the College of Business. She was awarded a Bachelor of Science degree with a major in personnel management in August of 1978. In September of that same year she entered the Graduate School of the University of Tennessee, Knoxville and began study in the area of industrial and organizational psychology. She was awarded the Master of Science degree in that area of specialization in August of 1981.

She began employment at the Tennessee Valley Authority (TVA) in October of 1979 as a program evaluator for the Division of Personnel while pursuing the masters degree. Since 1979, she has been involved in organizational consulting and personnel research at TVA.

Ms. Hitchcock is a member of Beta Gamma Sigma Honorary Society and Federally Employed Women. She is also an associate of the American Psychological Association, a member of the Academy of Management, and the Knoxville Chapter of the American Society for Training and Development.