

To the Graduate Council:

I am submitting herewith a dissertation written by Barbara Kay Fuller entitled "Predicting Retail Sales Productivity Using Pre-Employment Interview Data." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

Jacquelyn D. DeJonge
Jacquelyn D. DeJonge, Major Professor

We have read this dissertation
and recommend its acceptance:

Charles E. Cox

Carl E. Dyer

Herald O. Lintell

Accepted for the Council:

Lewminkel
Vice Provost
and Dean of the Graduate School

PREDICTING RETAIL SALES PRODUCTIVITY USING
PRE-EMPLOYMENT INTERVIEW DATA

A Dissertation
Presented for the
Doctor of Philosophy
Degree

The University of Tennessee, Knoxville

Barbara Kay Fuller

December 1986

Copyright © Barbara Kay Fuller, 1987
All rights reserved

ACKNOWLEDGEMENTS

The author wishes to express her appreciation to the members of the dissertation committee for the generous contribution of their time and support: Dr. Charles E. Cox, Jr., Dr. Jacquelyn O. DeJonge, Dr. Carl Dyer, and Dr. Gerald Sentell. Also, the help of Dr. William L. Sanders as a statistical consultant was invaluable. A very special and sincere thanks is extended Dr. Charles Cox for his enduring patience and insightful guidance throughout the many years of study and dissertation research.

The author is indebted to the vice president of personnel and the retail store that so graciously supported this project, without whose support this study would not have been possible. An additional note of thanks is due Dr. Ron Trego for sharing his initial work with computer structured interviews.

Appreciation is extended to three deans at Winthrop College that encouraged and supported my work towards this degree Dr. Ruth Hovermale, the late Dean of the School of Home Economics; Dr. June Mohler, the Dean of the School of Consumer Science and Allied Professions, and Dr. Jerry Padgett, the Dean of the School of Business Administration.

Finally, the author is grateful to her parents, Mr. and Mrs. William F. Fuller and sister, Diana, for their support and encouragement during this long research and educational process.

ABSTRACT

This study attempts to contribute to a more comprehensive understanding of the characteristics that influence salesperson productivity in a retail department store setting. The purpose is to identify those factors which singularly or collectively are predictive of sales productivity. The analysis is restricted to those characteristics which can be measured in a pre-employment interview.

The determinant variables investigated in the study include the personality dimensions of extroversion-introversion, thinking-feeling, intuition-sensing, and perception-judgement; measures of interest, experience and skill associated with selected sales tasks; experience in retailing and other fields; an honesty test score; a math test score; biographical data of years of school and grade point average; and an interviewer's evaluation. The sales productivity criterion or dependent variable is sales per hour.

Data used in this research is obtained by means of a series of instruments completed in a pre-employment interview by 148 salespeople who are hired for the

Christmas season to work in one of seven branches of a South Central United States department store.

Correlations indicate no systematic or very low correlations between all of the determinant variables and sales productivity.

An equations is generated using stepwise regression techniques, with the independent variables being the 14 determinant variables and the dependent variable being sales productivity measured by sales per hour. Departmental average sales is also used as a variable to adjust for any initial differences which might have been present because of the salesperson's placement. The Statistical Analysis System Maximum R^2 routine was use to generate the best one variable through best 15 variable model. The best three variable model in which all of the variables are significant at the .05 level includes departmental average sales, honesty test scores, and math test scores, and accounts for 36.5 percent of the variance. The majority of the variance, 31.9 percent, is accounted for by the department average sales leaving very little of the variance to be accounted for by the honesty test scores and the math test scores.

The results of the data analysis using correlation, multiple correlation and regression, and factor analysis indicate little evidence of significant relationships

between the determinant variables and sales productivity. It may be concluded that, for this sample, honesty test scores and math test scores show significant relationships to sales productivity. However, the measured relationships are not strong and the regression equation cannot be considered a strong predictor.

The findings suggest some intriguing avenues for additional research particularly in the area of honesty testing. Additionally, the study results are consistent with a number of other studies in concluding that a lot of what retailers do in pre-employment testing contributes little to an ability to pre-select productive employees.

TABLE OF CONTENT

CHAPTER	PAGE
I. THE PROBLEM	1
Introduction	1
Importance of the Study	6
Statement of the Problem	12
Scope of the Study	13
Organization of the Study	14
II. REVIEW OF LITERATURE	16
Introduction	16
Conceptual Framework	17
Aptitude: Physical Factors	24
Aptitude: Personality Tests	41
Aptitude: Ability Tests	49
Skills Level	55
Productivity	58
Meta-analysis	63
Summary	67
III. RESEARCH METHODOLOGY	69
Introduction	69
Description of the Instruments	69
Data Collection Procedures	80
The Sample	83
Plan for Analysis	85
Summary	87
IV. RESULTS OF THE STUDY	88
Introduction	88
The Sample	88
Correlations Between Determinant Variables and Salesperson Productivity	90
Multiple Correlation and Regression	94
Factor Analysis	107
Summary	111
V. CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS FOR FURTHER STUDY	112

Introduction	112
Conclusions	112
Implications	118
Suggestions for Further Study	120
LIST OF REFERENCES	123
APPENDIXES	136
A. EMPLOYMENT APPLICATION	137
B. INTERVIEW EVALUATION	140
C. MATH TEST	142
D. COMPUTER ASSISTED PLACEMENT SYSTEM	145
E. MEMORANDUM VICE PRESIDENT PERSONNEL	152
VITA	154

LIST OF TABLES

TABLE		PAGE
1-1.	Productivity Trends in United States Industries	2
1-2.	Manufacturing Productivity in Ten Countries: Average Annual Rates of Change 1973-1984	3
1-3.	Sales Per Square Foot of Selling Space Produced by the Typical Department Store with Annual Total Company Sales Over \$1 Million	9
2-1.	Validity Coefficient As A Function of Type of Criterion	61
4-1.	Distribution of Sample According to Branch of Store	89
4-2.	Description of Sample by Department	91
4-3.	Correlations of Sales Productivity and the Determinant Variables	92
4-4.	Listing of Determinant Variables	94
4-5.	Variables Included in the Best One Variable Through the Best Fifteen Variable Model	98
4-6.	Regression Results for the Best Three Variable Model	103
4-7.	Variables' Loading on Six Varimax Rotated Factors	109

LIST OF FIGURES

FIGURES		PAGE
2-1.	The Model--Determinants of Salesperson's Performance	19
4-1.	Model of the Multiple Regression Equation Used in the Empirical Test . . .	96
4-2.	The Best Three Variable Sales Productivity Model	102

CHAPTER I

THE PROBLEM

I. INTRODUCTION

In the past two decades, productivity has become a national as well as an international concern. The term productivity has been used increasingly by businessmen, politicians, economists, journalists, academicians and the general public. Much of the concern is derived from several widely published studies which indicate a decrease in the productivity rate in developing countries. Evidence of this concern is seen in a series of articles run in major business publications. One series "Working Smarter" was published by Fortune (Burck, 1981a; Main, 1981a; Lubar, 1981; Burck, 1981b; and Main, 1981b) and a second series "Productivity: Key to Revitalizing American Industry" was published by Industry Week (Day, 1981; Cook, 1981a; Cook, 1981b; Much, 1981; McClenahan, 1981). In addition, the Journal of Retailing published a special issue on "Productivity in Retailing" (Achabal, 1984).

The Bureau of Labor Statistics, an agency of the Department of Labor, is responsible for monitoring productivity in the United States. With the exception of

slight increases in 1983 and 1984, this agency reports a slowdown in the growth rate of productivity in the United States for the period 1951 through 1982 (U.S. Department of Labor, 1985). Table 1-1 indicates the percentage of productivity growth for selected industries in the United States, based on output per employee hour. With the exception of manufacturing and communications, every industry for the period analyzed, experienced a decline in output per work hour (Bennett, 1979). This decline is also observed in other countries including Canada, Denmark, France, Italy, Japan, the Netherlands, Sweden,

Table 1-1. Productivity Trends In United States Industries

Industries	Average Annual Percentage Change in Output Per Man Hour	
	1948-67	1967-78
Communications	5.4	5.9
Construction	2.7	-2.9
Finance, Insurance, Real Estate	2.1	0.9
Manufacturing	2.6	2.6
Mining	4.1	-1.1
Public Utilities	5.9	2.2
Retail Trade	2.4	1.8
Services	1.6	1.4
Transportation	2.8	2.6
Wholesale Trade	3.0	2.7

Source: Paul Bennett, "From American Productivity Growth: Perspectives on the Slowdown," 1979, Federal Reserve Bank of New York Quarterly Review, 4, p. 28.

the United Kingdom and West Germany (U.S. Department of Labor Statistics, 1985b). Measures of industrial productivity comparing workers in the United States to workers in other countries is also disappointing. Table 1-2 shows the average annual rate of change for ten countries for the time period 1973-1984. In examining the average annual rate of change for output per man hour the United States ranks second to the last.

Table 1-2: Manufacturing Productivity in Ten Countries:
Average Annual Rates of Change, 1973-1984

Country	Average Percent Change in Output Per Hour 1973-1984	Country	Average Percent Change in Output Per Hour 1973-1984
United States	2.0	Germany	3.3
Canada	1.7	Italy	3.7
Japan	7.3	Norway	2.3
Denmark	3.7	Sweden	2.9
France	4.6	United Kingdom	2.3

Source: Office of Information, International Comparisons of Manufacturing Productivity and Labor Cost Trends, Preliminary Measures for 1984, Washington, DC: United States Department of Labor, June 10, 1985.

Department store retail trends follow much the same pattern of declining productivity. Specifically, in retailing, Enis and Chonko (1984, p. 281) observe that:

Economic conditions seem to be improving, the computer promises to raise productivity, and

the regulatory climate appears less restrictive. But these positive notes will be more than offset in many companies by the dismal performance of the salesforce, . . .

Furthermore Enis and Chonko (1984, p. 269) describe the current status of retail selling as "abysmal, benighted, contemptible, duplicitous, enervated" and salespeople as "apathetic rather than aggressive, abrasive rather than empathetic, ignorant of merchandise, and indolent of manner."

There are many characteristics unique to retailing that influence productivity, and specifically, salesperson productivity. Among the many personnel pitfalls inherent to retail sales are the high rate of employee turnover, high employee absenteeism, the perceived low prestige of sales positions, the high incidence of employee theft, the high percentage of the workforce which is part time, and the increasing unionization of retail employees. In spite of these difficulties retail sale personnel are a strategic and valuable component in the development of consumer perception of retail store image and positioning in the marketplace (Jolson and Sapth, 1973; Berry, 1969; Burstiner, 1975-1976). The sales associate is in the sensitive position of having the most direct contact with the consumer during an important stage of the decision making process, and yet, he or she still maintains a low-

prestige, low-paying position in the retail firm. To aggravate this situation, the sales associate is often inadequately trained with the retailer shortsightedly viewing sales personnel as little more than order fillers. Burstiner (1975-1976, p. 4) enumerates several factors which contribute to the problem.

1. The belief that people decide to enter retailing only after all other opportunities have been investigated and exhausted--and that because of this, entry-level sales employees must be scraped from the dregs of the labor pool;
2. The attitude that, because personnel constitutes the largest single segment of the operating budget, the store cannot afford to pay much more than the prevailing minimum hourly wage;
3. The conviction that store management is powerless to control the customary high rate of employee turnover;
4. The maturation and proliferation of modern packaging, labeling, etc.;
5. The preselling of consumers through national advertising;
6. The rapid growth of self-service;
7. The trend toward extending store hours--and Sunday openings, precipitating the need for more "coverage";
8. Difficulties involved in competing with other retail stores for the same labor pool;
9. Doubt that sales training can help improve the situation.

In examining Burstiner's analysis it is clear that there is a serious attitude problem with respect to salespersons. A better understanding of salespersons characteristics and of the factors that influence their productivity would be advantageous to the retailer. A vital step toward accomplishing this objective is to

identify those factors that affect salesperson productivity. Knowing the variables which influence productivity may provide dividends in the form of increased revenues, reduced turnover, improved customer satisfaction, as well as the efficient scheduling and motivation of sales associates.

II. IMPORTANCE OF THE STUDY

Labor productivity is important in all types of businesses because of its direct influence on profitability. In retailing, productivity is especially significant since labor expenses represent roughly 50 percent of all operating expenses (Lusch and Serpkenci, 1983). Also labor's share of the value added in retailing has increased from 45.3% in 1950 to 64.6% in 1980 (Lusch and Serpkenci, 1983). To deal with high labor costs, many retailers try to decrease the number of sales employees to the bare minimum. Cotham (1968) warns that cuts in the number and quality of sales people for the purpose of minimizing costs may be self defeating in the long run and may lead to a lack of adequate emphasis on recruitment, selection, training and compensation. Additional repercussions include being short staffed, complaints from customers about finding no one to serve them, and high inventory shrinkage (Barmash, 1982).

Retailers have also sought to minimize costs through operational policy changes such as increased use of self service, decreasing wages to minimum levels, and reduced fringe benefits.

Berry (1981) emphasizes the importance of sales personnel in the classification of stores. He classifies department stores as high-contact goods retailers, meaning that they primarily offer goods for sale but have a high contact with the ultimate consumer. Berry suggests that because of this high contact, the quality of sales personnel is important. The salesperson interacts with customers at a strategic point of the sale when being rude or thoughtless can have irreversible effects on the consumer's propensity to buy.

Perceptions regarding the amount and type of service needed vary within the industry. Some evidence exists to support the idea that the significance of salesclerk service as perceived by the customer is greater than that perceived by the retail store manager (Jolson and Spath, 1973). Enis and Chonko (1984) indicate that to achieve company objectives, the salesperson is asked to play many diverse roles including counselor, company representative, complaint handler, money collector, and package wrapper. However, from the salesperson perspective, the duties are often demeaning, instructions

are not clear, and adequate resources are not available. Therefore, a climate is created in which little effort is made by the salesperson to contribute to the overall good of the company.

Employee Training

Evidence that retailing is presently trailing behind the manufacturing industries in its training practices may be having a significant impact on productivity. Retail training is generally underdeveloped and includes only procedural information such as register operation, credit checking, and shoplifting prevention techniques (Ornati, 1983). Seldom is the salesperson trained in selling techniques. Ornati (1983) compares personnel expenditures on training in manufacturing versus retailing. In department stores with sales between \$50 and \$100 million, personnel expenditures are 45 cents per \$100 sales compared to \$1.50 in manufacturing companies.

Financial and Operating Costs

Using merchandising and operating reports from the National Retail Merchants Association, Table 1-3 outlines the decline in sales per square foot when converted to constant dollars. Ellsworth (1981) examines inventory and space productivity of department stores and discovers marked declines in annual stock turnover, sales per

Table 1-3. Sales Per Square Foot of Selling Space
Produced by the Typical Department Store
with Annual Total Company Sales Over \$1
Million

Year	Purchasing Power of 1967 Dollars	Sales Per Square Foot of Selling Space	
		Current Dollars	1967 Constant Dollars
1948	\$1.39	\$96	\$133
1950	1.39	97	135
1955	1.25	98	123
1960	1.13	85	96
1963	1.09	78	85
1965	1.04	81	86
1967	1.00	83	83
1970	.86	80	69
1972	.80	86	69
1975	.62	92	57
1976	.59	93	55
1977	.55	98	54
1978	.51	103	53
1979	.46	111	51
1980	.41	115	47
1981	.37	122	45
1982	.35	124	43
1983	.34	136	46
1984	.32	155	50

Sources: Bureau of Economic Analysis, Survey of Current Business: Business Statistics. U. S. Department of Commerce, Washington, DC: U. S. Government Printing Office, 1974 and 1984; Financial and Operating Results of Department and Specialty Stores, New York: National Retail Merchants Association, 1948-1984.

dollar cost of inventory, and sales per square foot of selling space. Concurrently, Ellsworth notes increases in the cumulative markon percentage, markdowns, and stock shortages. He concludes that corrective action is necessary in order to reverse the direction of increasing markon percentages, high operating expenses, and personnel cut backs.

Characteristics of the Retail Labor Force

Major changes have occurred in the characteristics of the retail labor force. There have been significant changes in wage structures, employment opportunities and the age composition of retail employees (Bluestone, Hanna, Kuhn, & Moore, 1981). The polarized wage structure in the retail industry has evolved into a dual labor market with a well-paid, highly trained professional management group at the top and a low-paid, unskilled, high turnover, part-time clerical and sales worker at the bottom (Ornati, 1983). The wage rate for this unskilled group is generally near the legal minimum wage. This level is inadequate to provide a living for a household head. In essence, this structure financially prohibits the participation of the middle segment of the skills market in retail. (Bluestone, Hanna, Kuhn, & Moore, 1981).

The low wage structure in retail sales positions is realized in the current self-selection process by the labor force. Individuals looking for higher wages do not consider retail sales as an occupation. Instead retail selling is viewed as a means to advance further in the industry or as an interlude between other types of occupations. Low wages have also been brought about by the changing nature of the job. Retailers have increased expenditures on advances in technology and media usage to disseminate information to consumers. These efforts reduce the skill level required by salespeople and thus encourages the use of inexpensive labor (Bluestone, Hanna, Kuhn, & Moore, 1981).

The retail industry is also characterized by a large number of part-time workers. Since the inception of the discount store there has been a rise in the number of part-time workers. However, other factors have also contributed to this increase include expanded fringe benefits for full-time workers and the need for flexible scheduling to cover peak selling hours. Of these two factors, fringe benefits are the most significant. Stores have avoided the payment of expensive fringe benefits by hiring a higher percentage of part-time employees (Bluestone, Hanna, Kuhn, & Moore, 1981).

The lack of career opportunity for full-time retail employees influences the composition of the labor force. Increasingly more women and youth are employed in retailing because these individuals are willing to accept part-time work at minimum wage. This demographic composition contributes to a department store salesforce with high turnover and short tenure. Department stores add to the problem by reducing skill requirements, paying minimum wage, and tolerating increased turnover in the labor force. Qualified workers who might otherwise choose retail sales as a career are effectively eliminated (Bluestone, Hanna, Kuhn, & Moore, 1981). In the end, a vicious cycle is created which systematically reduces the quality of the labor force.

III. STATEMENT OF THE PROBLEM

The purpose of this study is to identify those factors which singularly or collectively are predictive of sales productivity. The analysis is restricted to those characteristics which can be measured in a pre-employment interview. The following hypotheses are tested:

- I. (A) There is a positive correlation between sales productivity and
 1. personality characteristics
 - (a) extroversion - introversion
 - (b) thinking - feeling

2. computer structured interview sales task scores
 - (a) interests
 - (b) experiences
 - (c) skills
3. experience
 - (a) retailing
 - (b) other than retailing
4. math test scores
5. biographical data
 - (a) years of school
 - (b) grade point average
7. interviewer's evaluation

which is statistically significant at the .05 level.

- (B) There is a negative correlation between sales productivity and honesty test scores which is statistically significant at the .05 level.
- II. Experience, personality dimensions, biographical data and the computer structured interview sales task scores considered together will constitute the best four variable predictor model.

IV. SCOPE OF THE STUDY

Labor productivity in retailing is a broad field of study, and its measurement is complex. Due to the limitations of time and money, this study deals only with sales per hour as a measure of salesperson productivity.

Second, use of the correlation technique only shows a relationship between variables and cannot establish cause-and-effect. Therefore, the research only indicates if a relationship exists between sales productivity and the defined determinants of sales productivity.

Third, this study deals only with the factors of sales productivity that can be measured in the pre-employment interview. There are many other factors that may have an influence on sales productivity, which can not be evaluated until the individual is actually working on the job.

Fourth, the poor reading and comprehensive skills of the job applicants may affect the results on some of the instruments used in the pre-employment interview.

Finally, the data are collected in seven branches of one department store in the South Central United States. Therefore, this research is tied to the unique deficiencies or strengths of this particular store. Although this store is similar to many department stores across the South Central United States, it does hire a large ethnic population that may be somewhat unique. It also is more sophisticated in its utilization of the computer for evaluation of employee productivity.

V. ORGANIZATION OF THE STUDY

Chapter I presents an introduction to the study, the importance of the study, a statement of the problem, the scope and limitations of the study, a brief explanation of the procedures and source of data, and the organization of the study by chapter.

Chapter II reviews relevant literature and research dealing with the significant areas of interest to this study: aptitude (which includes physical factors, mental abilities and personality characteristics), and skills level. The major focus is on research studies where these factors are used as a basis for prediction of salesforce productivity.

Chapter III describes the methodology utilized in the study and consists of sections discussing the sample, the procedure, the research instruments, and the plan for analysis of the data.

Chapter IV contains the presentation and analysis of data and test of hypotheses.

Chapter V discusses the conclusions of this study and makes recommendations for further research.

CHAPTER II

REVIEW OF LITERATURE

I. INTRODUCTION

The concept of sales productivity and the factors that influence it are of interest to business and industry because of the effect these factors have on revenues and profits. From the beginning of this century employers have searched for cost effective, reliable, and valid factors to predict performance. However, productivity studies in the industrial and retail setting, which may be predictive of the salespersons productivity, have produced inconsistent results. The problem remains unresolved in that there is no agreement about which factors discriminate among potential employees, and therefore, deserve support and continued use as a means of employee selection.

The one fact that is universally accepted is that there exist vast differences among individuals in productivity on the job. Therefore, predicting which individuals will have low and which will have high productivity is of great value to employers. The purpose of this study is to identify those factors used in the pre-employment interview which prove successful in

predicting sales productivity in the retail environment.

This chapter initially outlines a conceptual framework for sale productivity followed by a review of the relevant research literature. There is a large volume of research on personal selling. However, past studies have focused largely on salespersons who have been employed by life insurance companies and by industrial firms. Since this body of knowledge is available, it seems important to evaluate all research on salespeople to have a better understanding of similarities and differences among individuals in sales occupations. However, problems do exist in making broad generalizations from life insurance and industrial salespersons to the retail setting. Differences related to the degree of complexity or simplicity of the job greatly affect the magnitude and direction of the productivity variables. The chapter concludes with an assessment of the literature as it relates to the present study.

II. CONCEPTUAL FRAMEWORK

Walker, Churchill and Ford (1979) developed a model outlining the determinants of salesperson's performance in the retailing environment. They identified five determinants which effect performance: (1) role

perception, (2) motivation, (3) aptitude, (4) skills level, and (5) personal, organizational and environmental variables (Figure 1-1). These factors are interdependent, however, the exact nature of the interactions are unknown.

Role Perception

The role perception component of the model involves how an individual defines his/her job and the behavior that is appropriate in that job. There are three variables associated with role perception. Role accuracy compares the individual's perception of the job with the supervisor's perception of the job. Role conflict occurs when an individual receives different orders from two or more supervisors. And finally, role ambiguity surfaces when inadequate information is available for the individual to perform the job properly. Inappropriate role perceptions can cause a significant amount of discomfort and stress for employees. Role perception research is most applicable in analyzing the performance of the existing work force where role conflict may be occurring.

Motivation

The second component discussed by Walker, Churchill and Ford is motivation. Motivation is defined as "the

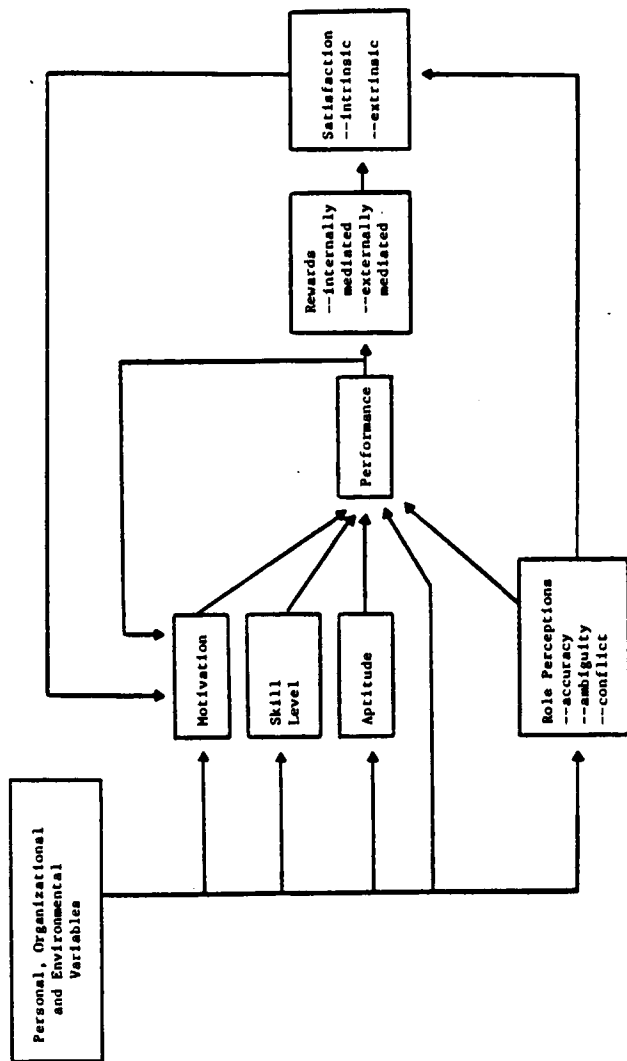


Figure 1. The Model--Determinants of Salesperson's Performance

Source: O. C. Walker, Jr., G. A. Churchill, Jr., & N. M. Ford, "Where Do We Go From Here? Selected Conceptual and Empirical Issues Concerning the Motivation and Performance of the Industrial Salesforce." In G. Albaum and G. A. Churchill, Jr., (eds). Critical Issues in Sales Management: State-of-the-Art and Future Research Needs. Eugene: College of Business Administration, University of Oregon, 1979, p. 15.

amount of effort a salesperson desires to expend on each of the activities or tasks associated with his or her job" (Walker, Churchill, and Ford, 1979, p. 44).

Motivation is based on three types of perceptions: (1) the expectancies which link effort and job performance, and (2) the instrumentalities which link job performance and rewards, and (3) the valence which looks at the desirability of increased rewards. Research in this area has grown significantly in recent years, however, findings have been only moderately successful in predicting sales performance. The influence of motivation continues to be examined in on going longitudinal research with current employees (Teas, 1982).

Aptitude

Aptitude deals with an individual's innate abilities to perform a job. These include a group of enduring personal and psychological characteristics defined in Walker, Churchill, and Ford (1979) as:

- 1) physical factors, such as age, sex, height, and physical attractiveness;
- 2) mental abilities, such as verbal intelligence, mathematical abilities, educational attainment, and previous sales experience;
- 3) personality characteristics, such as empathy, ego strength, sociability, aggressiveness and dominance.

In this study factors from each of these areas are evaluated. The physical factors are obtained through an application blank. Mental ability is measured using a mathematical skills test. And Finally, the Myers Briggs Type Indicator evaluates personality dimensions.

Skills

Skills level is differentiated from aptitude in that it refers to an individual's acquired proficiency in performing a specific task. Skills level , unlike aptitude, can change with learning and experience. The components of skills level in the sales area may include salesmanship skills, interpersonal skills, and technical skills. However, a comprehensive listing of skills necessary or desirable in specific occupations or tasks has not been developed to date. This research develops a list of tasks based on specific skills which are performed by salespersons in the retail department store environment. Using a computerized self-assessment instrument applicants evaluated their interests, experiences, and skills which in turn correspond to several identified selling tasks.

Personal, Organizational and Environmental Variables

The personal, organizational, and environmental variables relate to performance in two ways. First,

there is a direct influence on performance. Secondly and simultaneously, these variables interact with the other four determinants of performance. Personal variables include factors such as age, education, and family size. Organizational variables associated with sales performance consist of the company's advertising expenditures, market share and policy of supervision. Environmental variables involve factors such as the concentration of customers, the amount of workload, and the intensity of competition. In this study personal variables are obtained through the application blank. Data concerning the effects of organizational and environmental variables on sales productivity can not be collected in the pre-employment interview and therefore is not included in the study.

Performance

Sales force performance in the retail store is defined in a number of ways. Unidimensional measures such as sales per hour are used or a group of measures are sometimes combined to create a multidimensional score. The results of the performance measurement may influence the type and amount of reward received by salespersons. Both extrinsic rewards, such as pay, recognition, promotion, and higher order intrinsic rewards such as feelings of accomplishment and

opportunities for career development, circle back to influence motivation. A more comprehensive view of the measurement of productivity is included in this Chapter in Section VII.

Satisfaction

In the final step of the model, rewards lead to both extrinsic and intrinsic satisfaction with the job and the work environment. The amount of satisfaction in turn is influenced by role perception and goes on to influence motivation. Therefore, rewards and satisfaction are not only influenced by performance, but also through motivation, have a significant effect on performance. The relationship between performance and satisfaction is not investigated in this study. However, research in this area has grown in the last decade (Bagozzi, 1978; Bagozzi, 1980; Teas, 1981).

Summary

This research is restricted to components of the model that pertain to the pre-employment interview and relationships to productivity as measured by sales per hour. By limiting the components to this criterion, the role perception and motivational components are not evaluated as a part of this study. Aptitude measures are incorporated, including physical factors, mental

abilities, and personality characteristics. Skills associated with the retail sales position are evaluated by utilizing a computer-structured interview. Personal variables are evaluated under aptitude, however, organizational and environmental variables are not pertinent to this study since they can not be measured in the pre-employment interview. This study hopes to delineate those factors which can be recognized through pre-employment interviews to predict salesperson productivity.

III. APTITUDE: PHYSICAL FACTORS

Research in this area correlates physical factors of the salesperson with measures of productivity. The most common approach uses socioeconomic and personal background data as indicators for the aptitude of salespeople. Age, education, work experience, income, and family backgrounds have been used as independent variables to correlate aptitude with productivity. The list of personal history items found to be predictive of job success can be quite extensive. England (1971) identifies 86 items, which he subdivides into ten categories. These categories include personal information, background, education, employment, experience, skills, socioeconomic level, social finesse,

interests, attitudes, and miscellaneous. In general, the findings of research correlating physical variables with success have shown inconsistent results.

Interview

Of the instruments used in personnel selection the interview consistently tops the list. Substantial evidence indicating the lack of validity and reliability of this instrument has not deterred its use. Avery and Campion (1982) have identified four reasons why the interview persists in light of its lack of ability to predict productivity.

The reason for this persistence seems to fall into four major categories: (1) the interview is "really" valid, (2) the interview is not valid but certain practical considerations make it the popular choice, (3) the interview may not be valid but certain psychological processes act to maintain great faith in the selection tool, and (4) the interview is not valid but it does other things well. . . .

Therefore, since the interview is a popular instrument that will continue to be used in selection of personnel, a better understanding of the interview process and the factors which influence decisions made during an interview would be useful to employers.

The overall objective of the interview is to review factual and psychological information that will enable the interviewer to make a valid prediction of how the

individual will perform on the job. Arvey and Campion (1982), following the lead of Schmitt (1976), develop a model outlining the variables affecting the employment interview and its outcome. They identify applicant characteristics, interviewers characteristics, and situational factors as three influences affecting interview outcome. Applicant characteristics include: age, race, sex; physical appearance, educational and work background; job interest and career plans; attitude, intelligence and motivation; experience and training as interviewee; perceptions regarding interviewer, job and company; and verbal and nonverbal behavior. Interviewer characteristics mirror many of the applicant characteristics with a few exceptions. The interviewer sets the goals for the interview. He also has prior knowledge of the applicant; experience and training as an interviewer; and a perception of the job requirements. The situational factors include political, legal and economic forces in the marketplace and the organization; the role of the interviewer in the selection system; the selection ratio; the comfort, privacy, and number of interviews; and the interview structure. Any one of these factors can affect the interview outcome. The majority of research has focused on the interviewee characteristics. Not until recently have researchers

analyzed the interview from the perspective of the interviewee.

There have been several reviews of the literature dealing with the selection interview (Wagner, 1949; England and Paterson, 1960; Mayfield, 1964; Ulrich and Trumbo, 1965; Schmitt, 1976; and Arvey and Campion, 1982). Although these summaries cover different time periods they all arrive at the same conclusion. The literature indicts the selection interview as being low in reliability and validity.

The earliest summary by Wagner (1949) consists of 106 articles. Of these only 25 are research oriented. The remainder of the articles deal with opinions about the selection interview. Wagner (1949, pp.24-25) describes the selection interview as a method of ". . . taking different aspects of an individual into consideration, weighing each according to its relevance, and basing an estimate on the best combination of these factors." Overall he identified 96 traits in various studies with reliability coefficients ranging from (0.23) to (0.96) and validity coefficients ranging from (0.09) to (0.94).

Wagner (1949) supports the use of a structured or patterned interview. He also suggests that from the studies included in his summary, the interview is most

useful in substantiating the overall fitness and physical appearance of the applicant and is not as useful in looking at intelligence, education, personality, experience, and job skills. Wagner identifies three situations in which the interview would be particularly useful: (1) for rough screening, (2) for screening of small numbers of applicants and (3) for traits that are most accurately accessed by interviewers.

The earliest interview research pertaining to sales occupations is an investigation by Scott (1915). In this study, six sales managers predicted the suitability of thirty-six applicants for a sales position. The results indicate wide disagreement in the ranking of these applicants. Similar results are found in another early study of salesmen by Snow (1924). He examines twelve applicants for a sales position with a trucking company. Judges were able to agree on the top two and the bottom two candidates, but there were large differences in rankings for the remaining candidates.

Ulrich and Trumbo (1965) review 20 articles predicting proficiency ratings in various occupations from teaching to military offices. There was only one article on salesperson proficiency included in this review of research articles. In this article, Prien (1962) evaluates the interview as a predictor of job

productivity in sales and non-sales jobs. The results are significant for non-sales jobs. However, the study indicates that interviewers were unable to predict sales performance from an interview. This research suggests that the type of occupation or the job requirements may make a difference in predicting success.

In other research dealing with specific aspects of the interview, Denton (1964) compares written interviews with oral interviews. His study indicates that success of industrial salesmen can be predicted from a written interview.

Kurtz's (1969) research finds that physical appearance and stature are positively related to sales success. Physical appearance was also found to be more important in industrial goods firms than in consumer goods firms. Large firms and small firms, as opposed to medium-sized firms, rate appearance as important.

Arvey and Campion's (1982) summary includes substantially more research in the area of methodological issues, decision making, interviewer training, minority characteristics, nonverbal behavior, interviewee perceptions, and interviewee training than on the issue of reliability and validity. However, of the articles examined by Arvey and Campion none of the six using reliability and validity deal with salespersons.

A summary of alternative selection procedures by Reilly and Chao (1982) states that biodata and peer evaluation are the most useful factors for predicting productivity. Of the 12 articles on interview validity reported by Reilly and Chao (1982) none deal directly with sales, and only one indicates a significant validity coefficient with a sample of entry level pulp workers (Latham, Saaram Pursell, and Campion, 1980). Four articles in their review indicate a significant correlation between peer evaluations and sales productivity (Weitz, 1958; Mayfield, 1970; Waters and Waters, 1970; and Mayfield, 1972). In all four studies, peer evaluation is significantly related to success.

Summary

The majority of research on interview validity was completed several decades ago. Perhaps little research has been initiated in recent years as a result of low reliability and validity on previous research regarding predictive ability of interviews and federal guidelines concerning discrimination (Reilly and Chao, 1982). Current research emphasis has shifted to investigations of the internal characteristics of the interview which directly influence the interview outcome.

Biographical Data

Biographical data is generally collected through application forms and covers the same type of information as the employment interview. However, validation studies using interview data and biographical data frequently produce opposite results. There is substantial evidence indicating that biographical data is a valid predictor of training criteria, tenure, and productivity (Schuh, 1967; Asher, 1972; and Owens, 1976). Reilly and Chao (1982) and Owens (1976) respectively indicate the average correlation between biographical data and sales productivity for salespersons is (0.40) and (0.35). Biographical data is easily obtained, low in cost, and a good predictor of sales success. These features insure the continued use of biographical data in the selection process.

Life Insurance. The life insurance industry in an effort to select successful salespeople and to decrease the high turnover rate in its salesforce invests considerable time and resources into research dealing with the selection of salespeople based on productivity. Much of the research is sponsored by a nonprofit trade association called LIMRA, the Life Insurance Marketing and Research Association. This group is responsible for early biographical research under Albert K. Kurtz and

personality test research under Arthur W. Kornhauser (Thayer, 1977). The major contribution of this group is the development and validation of the Aptitude Index which combines biographical information and personality variables. The test was revised and revalidated after World War II by Peterson and Wallace (1966). Age is found to have a significant impact on the validity of the Aptitude Index, and therefore, the selective criterion varies with age. The life insurance research indicates significant correlations between background information and sales productivity.

In an early study, Goldsmith (1922) uses biographical information to predict life insurance sales success. The items included on the personal history blank which correlate with success are education, age, previous occupation, marital status, insurance ownership, full-time verses part-time employment status, club membership, confidence, and life insurance sales experience.

Bills (1941) uses Strong's Vocational Interest Blank and a personal history bank to predict the success of casualty insurance agents. As seen in earlier research, he finds that age influences the predictors of productivity. Using a composite measure of job productivity, Baier and Dugan (1957) delineate three

factors which related to sales performance. A life insurance salesman's belief in his product, motivation, and technical knowledge are positively correlated with performance. According to Baier and Dugan, no significant relationship between job performance and length of employment as a salesman is found to exist.

Brown (1978) examines three samples of life insurance agents over a period of 38 years. The same personal history item scoring key developed in 1933 is used to re-evaluate agents in 1939 and 1969-1971. The results indicate that the 1933 key still predicts survival and performance using the 1939 and 1969-1971 data. These personal history key items include the number of dependents, present occupation, present employment status, time with most recent employer, membership in organizations, offices held in organizations, net worth, minimum current living expenses, amount of life insurance owned, and length of negotiations.

In other studies little or no relationship between personal variables and productivity is found. Results of research by Tanofsky, Shepps and O'Neill (1969) dealing with life insurance salesmen indicate that earnings are positively related to the agents previous income and the interaction of income and number of dependents. However,

no significant correlations are documented comparing earnings with age, sales experience, marital status, or education. In a study examining new life insurance agents, Schultz (1935) states that age, education, experience, racial stock and length of service are not significantly related to job performance ratings or sales production records.

A study by Meranda and Clarke (1959) reveals that only five of 20 personal history variables are positively related to performance. These include number of children, educational level, number of offices held, minimum living expenses, and amount of life insurance. Conversely, other personal history variables such as age, marital status, military status, experience, number of organizational memberships, years at present residence, unearned income, debts, sales courses, wife's employment status, sales experience, recreational activities, number of friends, and number of professional friends show no relationship to performance.

Kahn and Hadley (1948) divide life insurance agents into upper and lower groups based on size of policy applications written, number of calls made, ratio of requests to purchase, and the number of applications written. Their study does not significantly distinguish between the two groups based on personal history

variables of age, number of dependents, and minimum living expenses. However, Kahn and Hadley find that the amount of insurance owned is positively related to performance.

Vincent and Dugan (1962) also study life insurance agents and they find no correlation between aptitude tests and tenure which is measured in terms of number of years on the job.

Industrial. In the area of industrial sales, correlations between background information and sales productivity are not totally consistent, but generally indicate that a positive relationship exists. Kirchner, McElvain, and Dunnette (1960) investigate the relationship between age and performance in a mining and manufacturing company. They conclude that age is positively related to managers ratings of effectiveness. However, a plateau is reached, and older persons (over 45) may be less effective. Waldman and Avolio (1986), using meta-analysis with 40 samples of age differences and job performance, confirm the results of Kirchner, McElvain, and Dunnette. Basically, meta-analysis is a technique which cumulates knowledge across studies.

Baehr and Williams (1968) identify 8 factors as having the most potential for operational use in predicting sales performance. These are financial

responsibility, leadership group participation, parental family adjustment, early family responsibility, school achievement, high educational achievement, drive, and stability. In a later study Baehr and Williams (1968) use the same factors to predict performance of salesmen of a food manufacturer. The five measures of performance derived in this study are the paired-comparison performance, the mean sales volume rank, the maximum sales volume, route difficulty, and tenure as a salesman. A multiple correlation using the personal background factors is then calculated for each of the performance measures. The resulting significant factors, with the exception of vocational satisfaction are among the original eight operational factors.

Scollay (1956) studies the relationship between 68 personal history items and average salary increases of a heterogeneous population of people, including some salesmen. The results indicate that 53 items were significantly related to salary increases while 15 items were not related to the average salary increase.

Lamont and Landstrom (1977) analyze industrial salesmen of building supplies. Their study indicates that personal history variables are not successful in predicting industrial selling success as measured by

management ratings, level of selling activity, or the compensation levels of salesmen.

Otis (1941) establishes coefficients of (0.31) and (0.37) when personal data are correlated with selling cost and gross sales of laundry detergent salesmen. However, no correlation is seen for personality traits.

Scott and Johnson (1967) investigate unskilled workers and are able to predict long and short tenure employment. Convenience and family responsibility are the major factors explaining the variance.

A study by Dunnette and Maetzold (1955) deals with predicting turnover rates of seasonal employees. The personal history variables of age, marital status, and participation in social and professional organizations are found successful in predicting length of service. In examining one company, they find that manpower needs in many ways reflect fluctuations in the retail selling needs for time periods such as summer and Christmas. Sources of labor to meet the demands are primarily derived from the same pool: housewives, high school and college students, and transients. They conclude that positions during peak times must continually be filled with new untrained employees.

Retailing. In the retailing area, a number of studies have been undertaken using personal data. One of

the first, done by Stead (1936), uses several tests to predict job success of department salespersons. Success is measured using eight objective and subjective non-clerical criteria combined into a single measure of job proficiency. Statistical manipulations allow comparisons to be made among departments. Stead concludes that a personal appearance rating is not related to job success. However, his studies indicate that three other tests are related to success. The personal data sheet documenting height, education, types of previous jobs held, and social economic status has the highest relationship with success. The personality items and an interest questionnaire place second and third, respectively in their relationship to job success. When combined, using simple multiple regression, the three tests provided a multiple correlation coefficient of (0.65).

French (1960) researches salespersons in a retail furniture store over a four-year period. The results indicates there are no significant relationships between production as measured by sales volume and money earned and age, education, time on the job, and job satisfaction. However, there is a positive association between social status and production and a negative association between relations with co-workers and production. French implies that "In a retail sales group

high production, as measured by sales volume and money earned, seems to depend upon the individual's disposition to violate the group's norms" (French, 1960, p. 128).

In examining the background data of retail appliance salesmen Cotham (1969) finds little or no relationships among the personal background variables of age, civic club membership, amount of time wife works, formal education, and retail experience when matched with four measures of performance including achieved sales volume, adjusted sales volume, adjusted earnings, and management ratings.

Mosel (1952), on the other hand, documents significant relationships between selling cost percent and personal background data in the retail department store setting. Twelve factors that distinguish between high and low selling cost percentages are age, years of formal education, years of previous selling experience, weight, height, time on last job, time on next to last job, domicile, type of principal experience, number of dependents, marital status, and time lost on job in the last two years. Using similar personal background data, Mosel and Wade (1951) analyze short and long job tenure of female department store clerks in two different stores in the same city. In the first store, 12 items discriminate between the long and short tenure groups.

However, in a second store the same 12 items using the weights obtained in the first store are unable to discriminate on the basis of long and short tenure. Also, the unweighted items themselves are unable to discriminate between long and short tenure.

Weaver (1969) uses the present sales force in a national retail chain store to evaluate relationships between personal-background data on the application form and sales performance. His research reveals significant relationships between performance as measured by sales incentives and average daily sales and age, education, and marital status. The correlation between age and average daily sales revenue is (0.90) whereas the correlation between education and average daily revenue is (0.80).

A study by Taylor and Weiss (1972) of a discount store chain employing 475 people indicates that tenure is best predicted by the Minnesota Satisfaction Questionnaire. Taylor and Weiss, using discriminate function analysis, conclude that four other tests including intelligence, aptitude, interest, and personality are not successful predictors of termination when used alone or combined with the above satisfaction test.

Summary

Biographical data produces some mixed conclusions regarding their ability to predict salesperson productivity. However, a significant amount of the research indicates that biographical data is, at least, a moderately good predictor. In spite of its drawbacks biographical data is consistently able to predict salesperson productivity with more accuracy than the employment interview. In the majority of cases, biographical data is also more predictive of productivity than personality tests.

IV. APTITUDE: PERSONALITY TESTS

Each individual is uniquely different from every other human being. There are variations in thoughts and behavior, but, at the same time, there are certain aspects of that individual that resemble others or conform to similar patterns of behavior. Personality inventories consider both the similarities and the differences among people. In the employment area, personality tests are used before hiring a perspective employee to help predict future job productivity. Personality tests are often used in conjunction with other personnel functions.

Life Insurance. Achilles and Schultz (1934) use a battery of tests on 557 insurance salesmen and find that ascendance and extraversion are predictive of success. As mentioned earlier, Schultz (1935) did not find personal history variables successful in predicting productivity but did predict success in selling with three personality constructs: extroversion, ascendance, and intelligence.

On the other hand, Hedberg and Baxter (1957) evaluate personality using the Guilford-Zimmerman Temperament Survey as it relates to tenure of 18 months. The results did not indicate a systematic relationship between the personality survey and tenure.

Meranda and Clarke (1959) also use personality constructs to evaluate life insurance salesmen, in addition to the personal history data. They find that high aggressiveness and sociability are positively related to success, while emotional control and social adaptability are negatively related to success.

Greenberg and Maher (1964) use a four and one-half hour battery of personality tests to predict success of several types of salespersons (automobile, life insurance, real estate, and mutual funds). They find this battery successful in predicting sales across all four types of salespersons.

Industrial. Lovett and Richardson (1934) use a population of Procter and Gamble salesmen and document results different from those Achilles and Schultz (1934) find in the insurance industry. However, Lovett and Richardson agree that ascendance predicts success of salesmen, but do not support the Achilles and Schultz findings on extroversion.

Otis (1941) uses the Strong Interest Blank and the Bernreuter Personality Inventory to predict gross sales and selling cost of salesmen in the detergent industry. The Strong scores show a (0.50) correlation with selling cost. However, the Bernreuter scores produce no significant correlations.

Ryan and Johnson (1942) analyze 130 industrial salesmen of a machine accounting division. They find that an ability key, developed by comparing the answers of the highest rated salesmen with the lowest rated salesmen, can be used successfully to differentiate the best from the poorest salesmen.

Rodgers (1959) gave a series of extensive tests to a small sample of 12 salesmen in the food industry. Results indicate that the two-role description inventories that discriminate between successful and unsuccessful salesmen are persona (what the sales manager thought each subject was like), and the clinical picture

based on a battery of tests. The manager perceives successful salesmen as "success-oriented, determined and rather dominant" whereas the test indicates the successful salesman as "more dominant, vigorous, controlled and self-satisfied" (Rodgers 1959, p.237). Age and length of time in sales are also correlated with success in this study.

Harrell (1960) concludes that using the Bernreuter Personality Inventory, high scores on the traits of stability, dominance, self-confidence, aggressiveness and drive power would predict success in terms of production records for 21 petroleum salesmen.

Dunnette and Kirchner (1960) distinguish between predictors of industrial and retail salesmen. The Dominance Scale of the Edward Personal Preference Schedule correlates with both industrial and retail sales, however, the ability measure is found to be significant only for industrial salesmen. Several of the Strong Vocational Interest Blank scales also differentiate between types of salesmen. Industrial salesmen lean more towards scientific and technical interests, whereas, retail salesmen indicate interest in independent business pursuits and actual performance activities.

Miner (1962) utilize a variety of personality and ability tests in an effort to predict success of salesmen in a petroleum company. Success measures are defined as the percent gain or loss over a four-year period. The Wechsler Adult Intelligence Scale Arithmetic ability test and the Tomkin-Horn Picture Arrangement Test discriminate between successful and unsuccessful salesmen. Miner predicts that using these scales' personality traits of dependence, sociophilia, confidence and happiness are associated with successful salesmen.

Pruden and Peterson (1971) report positive association with productivity between self ratings on performance and industrial building materials salesmen's perceptions of power and marginality.

A study by Mattheiss, Durand, Muczyk and Gable (1975) administers the Ghiselli Self-Description Inventory to two food wholesalers and an appliance distributor. Managers classified salesmen in order of ability as a means of defining success. Intelligence, initiative and the decision-making approach were related to success in the two food wholesalers. Supervisory ability, occupational level, and sociometric popularity are related to success in the appliance distributor.

Muczyk, Mattheiss and Gable (1974) again investigate productivity by administering the same test to managers

of a chain of greeting card stores. The vice-president of store operations classifies store managers in order of ability as a means of defining success. Initiative, perceived occupational level, and sociometric popularity are factors on the test which correspond to the upper and lower half rankings given by the vice-president.

Lamont and Lundstrom (1977) did not correlate success of industrial salesmen using personal history data, however, they did predict managerial ratings with three personality constructs: endurance, empathy, and ego strength.

Small and Rosenberg (1977) conclude that in Fortune 500 firms both life history and personality variables are significant in explaining sales performance as measured by the average sales dollars generated over a three year period. The multiple correlation coefficient between job performance and the seven life history variables of age, marital status, experience, interview's evaluation, sales aptitude test, education, and salary records is (0.47) and is significant at the (0.05) confidence level. The multiple correlation coefficient between performance and eight personality variables of ascendancy, cautiousness, emotional stability, original thinking, personal relations, responsibility, sociability, and vigor is (0.36) and is significant at the (0.05) confidence level.

However, the combined set of 15 independent variables is (0.81) which is superior to using either life history or personality variables alone.

Retailing. Ghiselli (1966, 1973) summarizes validation studies done in a wide variety of occupational fields as they relate to five categories of aptitude: intellectual ability, spatial and mechanical abilities, perceptual accuracy, motor abilities, and personality tests. Moderate validity is found with at least one of the five categories for training criteria and job productivity in 21 occupational groups. Data from these studies indicate there is a sharp distinction between salesclerks in lower sales occupations and salesmen in higher sales occupations. In the selection of salesclerks, intellectual ability, perceptual accuracy, and motor abilities are of no value in predicting productivity. Spatial and mechanical abilities are also poor predictors of productivity. However, Ghiselli finds personality tests are rather good predictors of productivity with a correlation for salesclerks of (0.35) for personality traits.

After surveying 248 salespersons, Anderson (1929, p. 243) identifies specific personality traits which differentiate between high-cost-of-selling employees and low-cost-of-selling employees.

Our data shows that the low-cost-of-selling employee is predominantly an extraverted, active, alert, aggressive, convincing, ambitious, responsive, pleasant, and well-integrated individual, while the high-cost-of-selling employee is more frequently likely to show such characteristics as introversion, under-activity, tendency to mental reverie, lack of ambition, unresponsiveness, instability and the like.

Dodge (1938) identifies traits that are characteristic of retail salesperson success. They include: not moody, aggressive and willing to assume responsibility, social, free from self-consciousness, little tendency to talk about self, not resentful of criticism or discipline, radical and unconventional, and self-confident and self-sufficient.

Husband (1936) also investigates salesclerks in retail stores. He finds that better salespersons were well balanced, more extraverted, less neurotic, more self-confident, and more self-sufficient than a control group of undergraduate students. This study indicates that age and experience are not related to salesperson efficiency.

Summary

As the personnel field begins looking for more scientific means of selecting salespersons, the personality test, along with other psychological measuring devices, grows in importance. Research efforts

increasingly deal with the validity of these tests. Only modest and often inconsistent results are found in establishing predictors of productivity in the sales area. This, together with the federal guidelines on discrimination, leads to a decline in the use of personality tests. However, in the area of retail sales, there are currently no strong individual predictors of sales productivity. Of the possible factors that may affect sales productivity, personality is a factor to be seriously considered during the employment process.

V. APTITUDE: ABILITY TESTS

Logically speaking, ability should be an important part of any selection procedure. Schmidt, Hunter, McKinzie, & Muldrow (1979), using a test of ability on a group of computer programmers, report significant productivity gains produced through valid selection procedures. They indicate that in hiring programmers in a one-year period a productivity gain from \$5.6 million to \$92.2 million can be obtained depending on the selection ratio and validity of the previous selection procedures.

In an effort to increase their ability to generalize to a large population Schmidt, Hunter, Outerbridge, & Trattner (1986) expand their research on productivity

gains through valid selection using a group of white-collar jobs in the federal government. Cognitive ability and non test procedures including education and experience are correlated with output of newly hired employees. The results indicate that the selection of employees based on the cognitive abilities test increase output up to \$600 million for each year the new employees remains on the job.

Hunter and Hunter (1984) investigate numerous studies dealing with the validity of ability tests. From the results of their research, they conclude that cognitive ability is valid across all jobs in predicting job proficiency and training success. However, validity varies with job complexity. They state that ability tests overall can predict an individual's productivity on the job with a validity of about (0.53). However, in Schmidt and Hunter's (1981a) reanalysis of Ghiselli's (1973) work on mean validity, the multiple correlation coefficient for ability for sales clerks is (0.28), the lowest of any occupation analyzed. This may be because of all of the job families listed, the sales clerk job requirements have the least amount of cognitive complexity. However, Hunter and Hunter (1984) indicate that small differences in the mean validity can make substantial differences in labor savings in selection.

Intelligence Tests

Intelligence tests are among the first scales incorporated in the selection of salespersons appearing on the market a couple of decades before the personality inventories. In an early study Kenagy and Yoakum (1925, p. 274) make comparisons and conclude:

Salesmen differ from other occupational groups in mental alertness, these differences depending upon the complexity of the sales job and the complexity of the occupation to which the sales job is being compared.

The simplicity of the operations performed by the retail salesperson help to explain Kenagy and Yoakum's results showing a low negative relationship of (-0.11) for one group and (-.026) for the second group between retail success and intelligence.

The great variation in intelligence scores within the same company among salespersons with a median score of 33, office clerks with 75, buyers with 95, managers with 97 and superintendents (home office executives) with 108 is perceived by the researchers to be attributable to the difference in the work requirements for the various positions.

Lovett and Richardson (1934) do not find that intelligence is predictive of successful salespersons for Procter and Gamble. Ohmann (1941) documents the same results at Tremco Manufacturing. Achilles and Schultz

(1934) also obtain similar results with intelligence measures and life insurance agents. Oliver's (1974) study of life insurance salesmen is not successful in predicting production volume for a six-month period from an ability measure consisting of an in-house intelligence test.

Schultz (1935) and Taylor and Weiss (1972) indicate intelligence measures are of little importance in two studies at the retail level. Oschrin (1918) indicates mental tests correlate positively with sales ability. In particular three tests mixed relations, opposites, and rearrangement of animals correlate with sales ability. However internal validity of the study may be confounded by the small sample size of 18 retail department store salespersons.

Anderson (1929) examines intelligence as it relates to low- and high-selling cost groups in retail stores. He documents that intelligence is of little importance in distinguishing between the two groups. However, overall, very few salespersons score in the superior intelligence range (5.6 percent) which is of particular interest. The majority of this group scores in the average range (46.4 percent) and dull-average range (33.8 percent). This leads one to conclude in the words of Husband (1949, p.

137) "that one need be no genius to sell in a New York department store."

Mathematical Ability

There is an underlying assumption that mathematical ability is a necessary prerequisite of sales success. Math tests continue to be given by many companies to sales applicants in the interviewing process. However, few studies examine the relationship between math tests and productivity, with the few studies that have been done indicating little, if any, relationship to selling success.

In the retailing area, the continual move toward more technology decreases the amount of knowledge needed in the math area. Computerized registers calculate sales tax, discounts, and the amount of change to return to the customer.

Miner (1962) uses a number of personality and ability tests to look at the success of salesmen in a petroleum company. Success is measured by sales figures over a four year period. In the math area, Miner finds that oral tests requiring the salesman to solve arithmetic problems predicts sales success whereas written arithmetic measures do not predict sales success. He concludes that to be successful "One must be able to think effectively in numerical terms while in close

proximity to and interaction with, other people" (Miner, 1962. p. 10).

Bingham and Davis (1924) evaluate salesmen and managers based on a comparison of the relative proficiency of the subjects on six types of questions. The mean proficiency for salesmen is higher for disarranged sentences and lower for arithmetic and number completion questions.

Rush (1953, p. 11) uses the number of accounting courses, previous sales experience, and three numerical measures in evaluating the objective sales achievement of Burroughs salesmen. The numerical measures include:

Numerical reasoning--Contained 50 multiple choice items designed to measure ability to reason in quantitative terms. . . .

Number Copying--This test consists of 50 numbers which the subjects were to copy on the reverse side of the test paper. Numbers increased in length, the first being three digits and the last number 12 digits. . . .

Business Arithmetic--This test consisted of 34 multiple choice items in business arithmetic. Included were problems of discount, fractions, depreciation and interest.

Rush finds the number of accounting courses and previous experience to be the most significant variables equaling a multiple correlation coefficient of (0.35). The addition of the three numerical tests increases the multiple correlation coefficient very little.

Summary

Intelligence, although one of the first instruments to be used in attempts to predict sales productivity, is one of the least effective measures. The efforts of store management to simplify the job by reducing skills requirements coupled with advances in technology and increases in media usage to disseminate information to consumers have reduced the level of intelligence required of salespersons in the retail setting. With the advances in point-of-sales terminals, mathematical ability specifically is a questionable predictor of sales productivity. The terminal does all calculations such as the amount of tax or employee discount and even calculates the amount of change to return to the customers. Math test scores consistently show no positive relationships to retail sales productivity and in some instances a low negative correlation.

VI. SKILLS LEVEL

Several researchers have tried to improve selection by better matching of applicant skills with job requirements. Bemis, Belenky, and Soder (1983, p.1) state:

There is no single or simple solution to these interacting pressures on employers, but a focus point for addressing them is at the level of the jobs that people perform in the

organization. An understanding of how a job is designed, how people are sought and selected for a position, and how they are evaluated or rewarded by an organization is crucial for efficient human resource management. The first step in looking at jobs for human resources management purposes is job analysis.

The importance of human resource management is even further emphasized in a labor-intensive industry such as retailing. Laking and Roach (1975, p. 1) in their analysis of retail jobs reason that

In retailing, the cost of people represents a significant investment, the return from which is contingent upon the degree to which people-performance leads to the attainment of the organizations goals.

Job analysis is defined as "a systematic procedure for gathering, documenting, and analyzing information about three basic aspects of the job: job content, job requirements, and the context in which the job is performed (Bemes, Belenky, and Soder, 1983, p. 1). Detailed information stating the duties and tasks necessary in performing a particular activity compose the job content. Job requirements are the skills and abilities needed to perform the activity. And finally, the context of the job includes the various guidelines and working conditions associated with the job.

The National Retail Merchants Association uses job analysis and job evaluation techniques to develop job descriptions for managerial and non-managerial positions

in retailing. These job descriptions are useful to both managers and employees in delineating what is expected of individuals filling the jobs. The National Retail Merchants Association currently utilizes the following job content information for various retail salesperson positions. (Laking and Roach, 1975, pp. 6-7)

Job Title: _____

Supervisor's Position: _____

Store Department: _____

Store Name: _____

Location: _____

1. Major Function: (Write a brief statement on the reason for the job's existence).
2. Dimensions: (This section should give pertinent statistics about the job.
What is the individual sales volume?
What are the department and store sales volumes? What are the numbers of sales people on the floor, on average, during store-opening time?)
3. Merchandise: (List here the lines sold-- number and/or types of merchandise).
4. How is the department merchandised?
5. Does merchandise need fitting or alteration?
6. Are deliveries involved?
7. List specific duties:
 - a.
 - b.
 - c.
 - d.
8. Who assigns, reviews, and/or approves work?
9. What responsibility are decision-making authority have you?
10. Do you prepare reports and, if so, what are they and what are they used for?
11. Do you operate or service any equipment, fixtures or machinery?
12. What is the hardest part of the job?
13. What experience is necessary to perform the job adequately?
14. How long does it take to learn the job adequately?
15. How would you describe the working conditions in which you perform?
16. Additional useful information.

Using this format 28 separate job descriptions are developed for retail salespersons in department and specialty stores. The various job descriptions are based on the different behavior required in different departments or types of stores (Laking and Roach, 1975).

Summary

The general skills required for salespersons are listed in textbooks on personal selling, but a comprehensive listing of specific skills that predict sales productivity has not been developed for the retail setting.

VII. PRODUCTIVITY

The measure of sales productivity is a complex problem. Many authors conclude that the measurement instrument is situation specific (Guion, 1965) and/or multi-dimensional in nature (Rush, 1953). Others have divided sales productivity into objective measures as opposed to subjective measures of productivity.

The measurement of productivity that is most often used was developed by the Bureau of Labor Statistics. "The Bureau's output per hour measures are constructed as the ratio between gross domestic product - GDP - originating in the private business economy and its

subsectors, and the corresponding hours of all persons engaged in each sector" (U.S. Department of Labor, 1982). Most economists would agree that this is an inadequate measure.

In this study, only the labor component of productivity is investigated. There are several reasons for using labor productivity as a definition and means of measurement in retailing. Labor is easier to measure than other input factors and is used in all aspects of retailing. In addition, the cost of labor is very high and retailing is labor intensive (Ingene, 1982).

Retailers have experimented with a variety of input and output factors looking for a way to measure productivity. Some of these include: sales per hour, average dollar sales per transaction, number of transactions (Bilon, 1979), average earnings per hour, number of items per sale or multiple sales, average selling cost percent or dollar payroll divided by dollar sales, and selling cost or current hourly rate of the salesperson divided by the average selling productivity which is usually sales per hour (Good, 1982). Most of these measures are easily quantified but do not answer questions about quality or the impact of the output on consumers.

Schmitt, Gooding, Noe, and Kersch (1984) summarize validity studies from 1964-1982 in an effort to see if the validity coefficient is influenced by the criterion employed in the study. According to Hunter and Schmidt (1982, p. 295) "The validity coefficient of a selection procedure is defined to be the correlation between the applicant's score on the predictor and performance on the job. The coefficient varied from .00 for chance level prediction to 1.00 for perfect prediction." Schmitt, Gooding, Noe, and Kirch identify seven types of criterion variables. These criterion are listed in Table 2-1 along with the number of validity studies using each criterion variable and the average validity coefficient for each variable. The validity coefficients range from (0.208) for productivity to (0.401) for work samples with an average of (0.280). Productivity is defined as objective measures of sales performance.

In this study, salesperson productivity is measured as the dollar sales produced (output) divided by the number of hours worked to achieve those sales (input). There are problems with this method of measurement. Salespersons may spend some hours in nonselling activities such as stocking shelves. Secondly, the average size of a sale may vary by department thus giving

Table 2-1. Validity Coefficients As A Function of Type
Of Criterion

Criterion	Number of Validities	$\bar{r}$	Number of Validities Sales
Performance ratings	140	0.260	15
Turnover	48	0.246	11
Achievement/ grades	43	0.270	4
Productivity	30	0.208	20
Status Change	46	0.359	0
Wages	33	0.378	0
Work Sample	24	0.401	0
Total	366	0.280	50

Source: N. Schmitt, R. Z. Gooding, R. A. Noe, and M. Kirsch. "Meta-analysis Of Validity Studies Published Between 1964 and 1982 and the Investigation of Study Characteristics," 1984, Personnel Psychology, 37, 411.

individuals unequal opportunity to produce sales. Third, work schedules vary from slow to peak periods, therefore, creating varying opportunities to sell merchandise. Fourth, inflation will increase sales per hour without increasing productivity.

Selling cost percent is another measure of productivity. It is expressed as the hourly rate of the salesperson divided by the average sales per hour of the employee. Selling cost percent can be used in comparison with a standard or with other sales persons in the department. Selling cost percent also has problems

including the establishment of standards, accounting for nonselling activities and dealing with the effects of inflation. Any measure using sales in the ratio will be affected by external factors such as inflation or a change in customer demand which are not within the employees' control.

Sales per square foot as a measure of productivity may be influenced by the geographical location of the store, the amount of advertising, or the inventory investment per square foot of space.

Service oriented measures are extremely difficult to implement because of the difficulty in collecting accurate quantitative information that can be used in analysis. Measures such as number of credit card applications, number of customer transactions, number of multiple sales, number of attempts to trade up, and customer comments or letters are seldom recorded in store records and are difficult areas in which to collect data. Other factors such as attitude toward the job or toward customers, helpfulness, and willingness to assist fellow employees are difficult to quantify.

Commissions and bonuses paid are possible measures in the industrial setting or in retail areas where these items are used. However, when dealing with part-time

employees, most are hired at minimum wage and do not receive additional incentives.

Ratings by supervisors are one of the most used subjective methods of measurement. Supervisor's evaluations allows the inclusion of items such as personality traits, quality of service to the company and clients and can make allowance for differences in geographical location or opportunities to sell. However, often times the reliability and validity of raters are low. There are also low correlations between objective measures and rater evaluations.

VIII. META-ANALYSIS

Meta-analysis is a form of secondary analysis. It takes studies by many individual researchers on a particular subject, integrates the findings, and draws conclusions with more statistical power because of the larger sample size. The first step in meta-analysis is to develop a data base of the many research studies dealing with a particular topic such as salesperson productivity. Each of the studies uses one or more predictor variables for salesperson productivity. The predictor variables are then analyzed separately using the entire data base on productivity as the criterion variable.

Statistical techniques allowing researchers to use raw statistics or summary statistics are incorporated in this process. Schmidt & Hunter (1981b, p. 44-45) explain the process as follows:

One starts with a fairly large number of validity coefficients for a given test-job combination, and computes the variance of the distribution. From this variance, one then subtracts variance due to various sources of error.

Once all sources of error are corrected for the residual variance is very small or zero. This lends support to the hypothesis that situational variables are unimportant and that general job descriptions are adequate for generalized validity testing (Schmidt, Hunter, & Pearlman, 1981).

Using meta-analysis Schmitt, Gooding, Noe, and Kirsch (1984) analyze 99 validity studies with 840 validity coefficients published between 1964 and 1982. They conclude that cognitive ability, assessment centers, work samples, and supervisory/peer evaluations are better predictors than personality measures. However, a great deal of variance still remains unexplained after correcting for sample-size differences. Their findings indicate an average overall validity of (0.28). This is consistent with (0.22) reported by Boehm (1982), and (0.28) reported by Ghiselli (1973). Although the study examines several occupational areas, the sales area was

of particular interest. Only sales and the skilled labor groups have validity coefficient of (0.17). Validity coefficients for all other occupations are above (0.30). They also observe that biographical information and personality tests are most often used as predictors and turnover is used more often as a criterion variable in studies dealing with sales. They conclude that low validity associated with personality (0.15) and turnover (0.25) may be the cause for the results seen in the sales area.

Using meta-analysis Churchill, Ford, Hartley and Walker (1985) overview 116 studies that deal with predictors and salesperson performance criteria. In these studies they found 1,653 observations or individual associations with performance with a mean of (0.188). The impact of each of the major determinants is evaluated using their model of salesperson performance. Both the weighted mean correlation and the attenuation corrected correlation are reported for each determinant. The respective correlations for each determinant are: aptitude (0.138) and (0.193), skill (0.268) and (0.320), motivation (0.184) and (0.258) role (0.294) and (0.379), personal factors (0.161) and (0.292), and organizational and environmental factors (0.104) and (0.104).

Based on these correlations, after the variance attributed to sampling error is removed, the six determinants are ordered according to their association with performance as follows: (1) personal factors, (2) skill, (3) role variables, (4) aptitude, (5) motivation, and (6) organizational and environmental factors. However, none of these factors alone accounts for a significant amount of the variance in performance.

This leads the authors to conclude that "theoretical models which hypothesize multiple determinants--and categories of determinants--of sales performance are probably on the right track" (Churchill, Ford, Hartley, & Walker, 1985, p. 117).

This study also postulates that the type of customer or the type of product sold is a possible influence on sales performance. Conclusions of the study indicate that the type of customer has very little effect on performance. However, the type of product produces some differences in sales performance. The salesperson in the service sector is most influenced by personal factors, whereas the salesperson in the industrial goods area is most influenced by organizational and environmental factors. However, organizational and environmental factors have the least influence on the salesperson dealing with consumer goods.

IX. SUMMARY

There is a considerable amount of research dealing with retail personnel. However, much of it is fragmented, outdated, and consists of small sample sizes. McMurry (1939) expresses the difficulty encountered in predicting salesperson success.

Unfortunately, of all employment groups, salesmen are the most difficult to select. There are several reasons for this. First, and most important is the fact that a salesman's success is determined largely by his personality make-up and his motivation (his will to work and his industry), two very difficult matters for anyone to evaluate without special aid. The applicant's intelligence, his education, and his technical knowledge (which can be measured by tests) are of secondary importance. And further to complicate matters, certain of the characteristics, e.g., appearance and manner, which are most commonly used as a basis for judgments of sales ability, may be extremely misleading.

A significant amount of the existing research has been done using the industrial salesman. The life insurance industry has also made a major contribution to the body of literature in personal selling.

The amount of research at the retail level is quite small compared to other selling areas. There is debate among researchers about the importance of breaking jobs into basic tasks for specific situations using job analysis as opposed to general ability classifications.

In this context, retail selling provides some unique challenges. Those who support general ability classification (Schmidt, Hunter, & Pearlman, 1981) recognize that the correlations based on cognitive ability become higher as the complexity of the occupation increases, and lower as the occupation becomes less complex. Retail sales positions are among the least complex jobs available and continue to decline in complexity with new innovation in computerized registers and preselling through mass media.

Correlations between retail sales productivity and ability tests are low, thus making valid predictions using ability as a criteria of job productivity difficult. Background information and personality tests have been more successful in this area, even though personality has not always been a consistently valid predictor. The use of multiple factors is suggested by Chruchill, Ford, Hartley, & Walker (1985). The factors proven to be significant are background information, personality, and skills level.

CHAPTER III

RESEARCH METHODOLOGY

I. INTRODUCTION

Methodology refers to the particular methods, techniques, and procedures used in research. This chapter begins with the selection and description of the various instruments used in the study. Data collection procedures and the sample selection are discussed in the following section. The chapter ends with the plan used for data analysis.

II. DESCRIPTION OF THE INSTRUMENTS

The multiple factor framework used to predict sales productivity is outlined in the conceptual model. Those factors that can be measured in the pre-employment interview are identified along with appropriate instruments of measurement. Those variables are: (1) background information collected from the application blank and an interviewer's evaluation; (2) a personality test, the Myers Briggs Type Indicator; (3) an ability test dealing with simple mathematics; and (4) a computer-assisted placement system consisting of a self-

evaluation of interests, experiences, and skills associated with the content of the salesperson job.

Application Blank

The store analyzed in this study presently uses a two-page application blank. The application blank provides basic background characteristics for each salesperson. These data include age, level of education, grade point average, years of experience in retailing, and years of experience in fields other than retailing. All applicants applying for a position with the store are required to complete the application blank as the first step in the selection process. A sample of the employment application is provided in Appendix A.

Interviewer's Evaluation

The use of an interview evaluation form provides a more structured and uniform assessment of applicants. It consists of personal characteristics about the applicant which could be evaluated in the interview situation. Personality, education, and experience evaluations were not included since this information is collected by other means thought to be more objective. The traits evaluated in the interview include: grooming, voice quality, manner, confidence, expression of ideas, mental alertness, motivation, and ambition. Each trait is

evaluated by the interviewer based on a set of five-word descriptions. The descriptions for each scale trait ranges from unsatisfactory to outstanding. Weights are assigned to each description and are then added together to obtain an overall interviewer's evaluation. A copy of the interviewer's evaluation form is provided in Appendix B.

Mathematics Test

As computerized registers become more efficient, the need for math ability becomes less and less apparent. However, the salesperson is still in a situation of dealing with numbers on a daily basis. Every transaction on the register requires that money exchange hands whether it is cash, charge, or lay-way.

The math test consists of word problems. Questions deal with sales tax, lay-away sales, multiple sales, charge sales, discount sales, and combinations of these math tasks. A copy of the math test is in Appendix C.

Myers Briggs Type Indicator

This study utilizes the Myers Briggs Type Indicator (Form F) to obtain the personality profile of applicants for salesperson's positions. This test is recommended by Dr. David Campbell at the Center for Creative Leadership. The Center for Creative Leadership, established in 1970

in Greensboro, North Carolina, is a nonprofit educational institute whose purpose is to conduct research, provide training, and produce publications in the area of leadership. Dr. Campbell is on the staff and has worked with the Leadership Development Program. He has published with Ellen Von Velsor, The Use of Personality Measures in the Leadership Development Program, and has done a significant amount of research and publishing in the field of personality testing.

The Myers Briggs Type Indicator is a self-administered forced choice questionnaire consisting of 166 items in a seven-page booklet. The instrument is simple to take and requires about 45 minutes to administer although there is no time limit. All instructions are printed on the form.

Scoring is accomplished through the use of standard answer sheets and may be scored by hand or machine. Different forms are required for the thinking and feeling index for males and females which are incorporated in this study. Procedures are also established for the elimination of zero scores and for conversions to continuous scores for statistical purposes.

The Myers Briggs Type Indicator is based on Jung's theory of type. The test determines the individual's personality based on four basic preference scales. The

first preference scale is the extraversion or introversion index (EI). The extravert focuses on people and things in the outer world. The introvert focuses on concepts and ideas in the inner world. The second preference scale is the sensing or intuition index (SN). It deals with perceptions. An individual with sensing perception would become aware of things directly through his/her five senses. An individual with intuition perception would become aware of things indirectly through his/her ideas or associations with the subconscious. The third preference scale is the thinking and feeling index (TF). It is concerned with judgement. The thinking individual discriminates between true and false. The feeling individual discriminates between valued and non-valued. The fourth preference scale is the judgement or perception index (JP). This index looks only at the extraverted portion of life and differentiates between judgments of true or false and perceptions of sensing or intuition (Briggs, 1962).

The indicator provides information on personality differences that can be used in educational, vocational, and counseling, as well as selection and placement in business and industry. Characteristics of each preference type as they relate to the work situation are

outlined in the test manual. Sensing and feeling preference types are prevalent in sales occupations.

Computer Assisted Performance System

The computer-assisted placement system was originally developed by an outside consultant to aid the personnel office of the company used in this study in the selection of hourly employees. The system differentiates among individuals applying for different types of positions in the store. Applicants are placed into one of four categories of work based on their responses to interests, skills, and experiences related to various tasks in the computer interview. The four categories considered are sales, clerical, maintenance, and warehouse. This study deals only with the sales segment of the computer-assisted personnel system. For this study, all other categories of work are disregarded, with the area of sales being analyzed, reorganized, and expanded in the study to include all responsibilities and job requirements associated with the sales position. The concept of evaluating each task based on the interests, skills, and experiences of the applicant is retained.

The tasks are then compared with the retail sales job description developed by Laking and Roach (1975) under the auspices of the National Retail Merchants Association. The revised task list is then reviewed by

academic, as well as store personnel. The final list is then pretested on a group of 63 college students with an interest in retailing. The results of the pretest indicate that the students could differentiate among the tasks on the basis of interest, skill and experience.

The final list of tasks is then put into the form of a computerized questionnaire. Three questions are designed to obtain information concerning the interests, experiences, and skills of the applicants as they relate to sales tasks. The tasks are divided into sets of five. A question appears on the screen along with a set of tasks with a scale for each task. The individual evaluates his or her own interests, experiences, and skills on a scale from 1 to 5, where 1 = none, 2 = little, 3 = moderate, 4 = quite a bit, and 5 = a great deal. The activities would appear three times on the screen, and the applicant would state first their level of interest, second their skill level and third their experience level. Each of these areas is defined as follows:

- 1) Interest is "How much you enjoy or like doing this kind of activity."
- 2) Skill is "How good you are in the task."
- 3) Experience is "The amount of an activity you have done, whether for pay or not."

The details of what appeared on the applicants screen is outlined in Appendix D.

The computer-assisted performance system utilizes the computer for the purpose of providing additional information to the interviewer pertaining to job tasks. The results of the test are made available to the interviewer immediately.

Honesty Measurement

For the past 20 years the use of employment tests have diminished steadily. This is due mainly to the difficulty and expense associated with test validity and reliability. However, recently this trend has been reversed with renewed interest for testing in areas such as genes, drugs, and honesty. Factors leading to the return to testing are based on four criteria:

alternative methods to testing are no better than testing, courts and legislatures have a better understanding of reliability and validity, more research is available supporting test results, and labor force numbers exceed the available jobs (Brown, 1985).

There are two means of evaluating honesty in the pre-employment interview conducted in retail stores: the polygraph or lie detector test and paper and pencil honesty tests. Sackett (1985) identifies 19 states that prohibit polygraph examination but only one, Massachusetts, that prohibits the use of paper and pencil honest tests. Therefore, many companies are presently

looking at the paper and pencil honesty test as a means to decrease theft and improve productivity. The paper and pencil honesty tests are based on the following criteria (Brown, 1986, p. 52):

The theory behind such tests is that attitudes are accurate predictors of behavior: A thief believes everybody steals, thinks he's normal, and will accept rationalizations for dishonest behavior.

The paper and pencil honesty test also has advantages over the polygraph test in that it is cheaper, easier to administer and score, and presents fewer legal problems.

Sackett and Harris (1984) indicate that over 5000 firms are using honesty tests with retailing being a large user because employees have access to cash and merchandise. In their review and critique of honesty tests, they note that much of the research on these tests is unpublished. Private companies producing these tests have conducted studies to look at the validity and reliability of the instruments. Their review of a combination of published and unpublished materials indicates that the reliability of these tests is consistently high. However, validity tests although usually positively correlated have greater variation in results. The problem arises in that each of the five categories of validity strategies: polygraph comparisons, future behavior, admissions, shrinkage

reduction, and contrasted groups, has major flaws. None of the categories provides a good measure of honesty to correlate with the test for validation. The fact remains however, that there is consistently a positive correlation between paper and pencil honesty tests and all five of the validity strategies.

This study uses the Stanton Survey in the pre-employment interview of a retail department store. The Stanton Survey score derived from the 73 item honesty attitude section is used as a measure of the personality trait, integrity. Carl S. Klump developed the Stanton Survey based on the three following assumptions (Harris, 1986, p. 1):

- (1) Individuals engaged in criminal acts in the past are likely to continue to perform criminal acts in the future.
- (2) Criminally active individuals form attitudes and behaviors differing from individuals not engaged in such deviant activities. And,
- (3) An intrinsic part of the personality makeup of individuals involved in deviancy and counterproductivity is the ego defense mechanism of "rationalization" (Harris, 1986).

Reliability and validity continue to be tested by Stanton Corporation. However, research reported in the testing manual indicates that scores are "...meaningful and generalizable across different setting and individuals" (Harris, 1986, p. 21).

Integrity tests can include more than honesty. The London House's Personal Security Inventory includes

measures for "...violence, safety consciousness and emotional instability, in addition to theft and substance abuse" (Abend, 1986, p. 59). When this test was challenged in the Massachusetts courts, the company switched to another test, the Employment Productivity Index. This test is

...less an integrity index than a productivity scale. It measures things like ability to take orders, how people feel about being supervised, how they will interact with their superiors and colleagues.

Yet honesty can be implied from the results, according to the company, because its research shows that certain kinds of characteristics correlate with integrity; if someone scores high the person is likely to be stable and reliable, and if, conversely the score is low, honesty will be in question.

This particular test also has a "drug avoidance scale" - . . . - and a safety segment . . . that is an overview of the applicant's total productivity picture (Honesty Tests, 1986, p. 59).

The use of computers for improving the quality of initial interviewing will continue to increase especially in the retailing area. The on line computer interview such as the Greentree Job Interview needs further research to substantiate validity and reliability. However, computer structured interviews offer advantages of time, consistency, and the opportunity to specialize the interview for a specific store. The computer program can give almost instantaneous results to the employer and at the same time ask the employee only pertinent questions through a programmed branching system. The

computer interview can effectively cover as many areas as the retailer feels are important from honesty to biographical data.

Productivity Measurement

Sales productivity information is collected starting on the first day of the applicant's employment. Through computerized registers the store collects data on individual salespersons such as dollar sales and hours worked, as well as information by department such as department sales in dollars and average department sales. Comparisons are made with individual stores, and with the entire seven-store chain. Information is tied to payroll and therefore, is available on a biweekly basis. Productivity in this study is measured by sales per hour.

Since the retailer starts the seasonal hiring process in November, the length of the sales record is four weeks from December 1st through December 24th. Productivity information is taken for all sales associates hired during this period. Individuals who quit or were employed for a shorter period of time are removed from the sample.

III. DATA COLLECTION PROCEDURES

Initial conferences were held with the vice president of personnel and a member of the consulting

firm that originally developed the computer-assisted placement system. Because of this earlier work, computer terminals are in place at each of the branch stores. These terminals are connected to the computer at the main store. Since software had already been written and was functional for the original computer interview, this study required only the rewriting of the software program to make the system operational. Once the changes had been identified, the researcher rewrote the instructions for the computer programmer to use in developing the computer-structured interview in Appendix D.

Systems that were already in place for the selection of salespersons continued to be used. However, additional instruments as identified above were also incorporated in this study. The personnel managers in each store are responsible for the collection of the data. A letter is sent to each personnel manager from the vice-president of personnel explaining the new procedures and asking for their cooperation. The author of this dissertation visited each of the store sites to explain the data collection procedures and answer any questions from store personnel managers. During the visits, the overall purpose of the study was explained and the importance of their cooperation in obtaining each piece of the data was emphasized. Since the data

collection includes additional steps in the interviewing process, as well as the arrangement of computer terminals in each store, the entire interviewing process was reviewed with all of the people involved in the data collection.

All data, with the exception of sales productivity, are collected at the time of the interview. The applicant first completes an application blank, a math test and an honesty test. Next the applicant completes a computer structured interview in which he/she answers questions about his/her interests, skills, and experiences concerning job tasks associated with sales. After leaving the computer terminal, the applicant is interviewed by the personnel manager or a member of the personnel staff. An interview evaluation form is filled out during, or immediately following, the interview. If the interviewee is hired, he/she is then asked to fill out a Myers Briggs Type Indicator. Because of the time involved in collecting the data, some Myers Briggs Type Indicators are filled out the first day of the employee's training session. After the completion of the data collection, the researcher visits the stores again to insure proper recording of the data and to obtain some additional productivity information.

All data for this study deals with information of a highly confidential nature. Therefore, all information which identifies individual salespersons is removed from the data before it is recieved by the researcher.

IV. THE SAMPLE

To accommodate shoppers during the Christmas season, retail stores hire a large number of additional full-time and part-time salespersons. The pool of applicants consists of individuals who walk into the store seeking employment. The personnel department must interview, select, and train an individual within a very short period of time. The period beginning with the job application to the end of the Christmas employment season may be only four to six weeks. The screening just before this time period is an enormous task. Many quick yet accurate decisions must be made using the information immediately available. There is no time for extensive testing or interviewing.

Bluestone, Hanna, Kuhn, & Moore (1981) indicate that the seasonality of the labor force in the retail department store can be compared to the agricultural industry. Their figures suggest that only one-third of the sales staff are employed year-round. Some figures estimate that as few as 15% to 25% of the retail

salesforce is full-time. The remaining workers are part-time employees that work less than one quarter of the year. The majority of these workers are under the age of 25 and work during the Christmas season or for summer vacation. Birnes and Markman (1985, p. 162) emphasize the importance of the Christmas season in the following statement.

Each industry has its moment of truth, a time when the collective mettle of all its workers is tested. In the retail sales industry that moment is Christmas. The workers at retail stores prepare for and view the Christmas season as a campaign. In many retail chains and department stores, preparations for Christmas begin well before April and continue until the season actually begins. . . .

The research for this study is conducted using the applicants hired for sales positions at a major retail department store which has been listed in the nation's top 100 stores for many years. Its seven stores are located in the south central United States in three major market areas. Productivity has been a major emphasis, as can be seen in their excellent record as one of the nation's leading department stores in sales per square foot. The company has doubled its sales volume every five years for the past quarter of a century. In 1984 their sales volume approached \$200 million.

The sample consists of salespersons who work in all departments of the store from lingerie to housewares.

The salespersons all deal with inside sales in which customers are responsible for choosing the location of the store and for providing their own transportation to and from the store.

All salespersons in the sample are new hires. Those who had worked for the store at some previous time such as over the summer vacation were eliminated from the study. None of the subjects are assigned formal managerial or other responsibilities than selling.

V. PLAN FOR ANALYSIS

The plan for analysis of the data is devised as part of the overall research plan. Measures for departmental average sales and fourteen determinant variables as well as sales productivity are obtained by various instruments already described. The store presently stores a significant amount of these data on computer. This includes information from the application blank, math test scores, honesty test scores, past employment including employers and time periods of employment, and computer structured interview scores on interests, experiences, and skills. The researcher personally keys in the personality test scores and productivity information. This is done to minimize errors and to get a feel for the data before computer analysis. A tape

containing all data stored on the store's computer is merged with the additional information keyed in by the researcher to complete the database. All data is then downloaded to a microcomputer for editing. Finally all data is formatted in the mainframe for SAS analysis.

Techniques for analyzing the data include correlation analysis, multiple correlation and regression analysis and factor analysis. Correlation analysis is used to measure the degree of association between the determinant variables and sales productivity.

Multiple correlation and regression analysis look at departmental average sales and the fourteen determinant variables using a SAS stepwise procedure developed by James H. Goodnight called the maximum R^2 improvement technique (MAXR).

The MAXR method begins by finding the one-variable model producing the highest R^2 . Then another variable, the one that would yield the greatest increase in R^2 , is added.

Once the two-variable model is obtained, each of the variables in the model is compared to each variable not in the model. For each comparison, MAXR determines if removing one variable and replacing it with the other variable would increase R^2 . After comparing all possible switches, the one that produces the largest increase in R^2 is made.

Comparisons begin again, and the process continues until MAXR finds that no switch could increase R^2 . The two-variable model thus achieved is considered the best two-variable model the technique can find.

Another variable is then added to the model, and the comparing-and-switching process is repeated to find the "best" three-variable

model the technique can find (Helwig and Council, 1979).

For the research being done in this study using the maximum R^2 will yield the best equation in which the alpha risk is set at (0.05).

The determinant variables as they relate to sales productivity are factor analyzed by the use of the principal component method and rotated using the varimax rotation which produces some high loading and some near-zero loading on each factor.

VI. SUMMARY

This chapter presents the research method and research instruments used in this study to obtain data on sales productivity and the fourteen determinant variables. The data collection procedures, the sample and the plan for analysis are described. Chapter IV will contain the results of the study.

CHAPTER IV

RESULTS OF THE STUDY

I. INTRODUCTION

The purpose of this chapter is to present the results of the study using the methodology of chapter III. First the chapter begins with a description of the sample. Second, the results of correlation analysis using the Pearson product moment correlation coefficients are presented. Third, the determinant variables are combined for further analysis using multiple correlation and regression. Fourth, the factor analysis of the determinant variables as related to sales productivity is presented. The research findings will be interpreted in accordance with the hypotheses of the study.

II. THE SAMPLE

The original sample consists of 321 salespersons. Of this group, complete data is collected on 148 individuals. The major source of incomplete data is due to a lack of productivity information for the full four week period. Lack of information on productivity indicates that the individual is hired late in the Christmas season or leaves the company before the

Christmas season is over. The late hiring of salespersons is due to unusually hot weather in the fall resulting in a late selling season for Christmas merchandise. Other salespersons are eliminated because of the lack of results on one or more of the instruments used to predict productivity. Table 4-1 shows the number of salespersons included from each of the seven branches of the store. The distribution indicates differences in the number of individuals across the stores. This reflects differences in store size and location.

Table 4-1. Distribution of Sample According to Branch of Store

Store	Salespersons Hired
1	1
2	58
3	19
4	25
5	32
6	10
7	3

The subjects for this study consist of 26 males and 122 females ranging in age from 17 years to 64 years with the average age being 24 years. Education ranges from the tenth grade in high school to completion of a graduate degree. Information on experience is collected

in retailing as well as in other fields. Experience in retailing ranged from no experience to 13 years with experience in other fields ranged from no experience to 35 years. A description of departments and number of salespersons in each department can be seen in Table 4-2.

III. CORRELATIONS BETWEEN DETERMINANT VARIABLES AND SALESPERSON PRODUCTIVITY

The correlations testing the relationships of hypothesis 1 appear in Table 4-3. The first hypothesis states that there is a positive relationship between sales productivity and the determinant variables consisting of: the personality dimensions of extroversion-introversion, thinking-feeling, intuition-sensing, and perception-judgement; computer scores of sales tasks associated with interests, experiences, and skills; experience in retail and in other fields; math test scores; biographical data of years of school and grade point average; and the interviewer's evaluation which is statistically significant at the .05 level. And, there is a negative correlation between sales productivity and honesty test scores which is statistically significant at the .05 level.

The personality dimension has little effect on sales productivity. The relationship between sales productivity and the four personality dimensions are

Table 4-2 Description of Sample by Department

Dept #	Description	Number
5	Boys	4
10	Collegiate	4
11	Young Miss Dress Furnishings	1
15	Infants	3
20	Children	1
25	Girls	1
35	Cosmetics	9
45	Interior Design	4
50	Hose	2
55	Fashion Jewelry	4
60	Linens	3
65	Lingerie	5
75	Men's Furnishings	5
76	Men's Sportswear	10
82	GQ	1
83	Men's Suits	2
85	Notions	6
86	Candy	1
98	Designer	1
102	Coats and Budgets	2
103	Bridal Salon	1
104	Today's Woman	2
110	Ladies Shoes	5
115	Handbags	2
125	Sportswear	7
126	Jr. Sportswear	3
127	Jr. Sportswear	9
132	Luggage	1
135	Housewares	2
145	Sporting Goods	9
175	Flyers	12
176	Inventory	14
177	XOC's	10
180	Boutique	2
190	Fine Jewelry	3

Table 4-3 Correlations of Sales Productivity and the Determinant Variables

Determinant Variables	Correlation Coefficient
Grade Point Average	0.001
Honesty Test Scores	-0.060
Math Test Scores	-0.120
Years of School	0.013
Extroversion-Introversion	0.218
Intuition-Sensing	0.034
Feeling-Thinking	-0.180
Perception-Judgement	0.016
Interview's Evaluation	0.062
Months Experience Retailing	-0.005
Months Experience Other than Retailing	-0.090
Computer Sales Task Interest Score	0.010
Computer Sales Task Experience Score	0.004
Computer Sales Task Skills Score	0.054

(0.016) for perception, (0.218) for introversion, (0.034) for intuition, and (-0.180) for thinking. The only dimension that shows a systematic relationship is introversion. This correlation indicates a low positive relationship between sales productivity and introversion.

The computer structured interview scores dealing with sales tasks appears to be even less important to sales productivity. Correlations between sales productivity and each of the three computer scores are (0.101) for interests, (0.004) for experience, and (0.054) for skills indicating no systematic relationship between the variables.

Both measures of experience show very low negative correlations with sales productivity (-0.005) for retail experience and (-0.090) for experience other than retail. This is an unexpected direction. However, the correlation is so low that no systematic relationship is thought to exist in this study.

Honesty test scores show a ($-.060$) correlation with sales productivity. Although this is an extremely low correlation, the direction indicates that the more honest the individual the greater the sales productivity. However, the low correlation would lead to the conclusion of no systematic relationship exists.

Math test scores also show a very low negative correlation of (-0.120) with sales productivity. The negative correlation here indicates that lower math scores are related to higher productivity. The simplicity of the job functions performed could account for this direction. However, the relationship between sales productivity and math test scores is so very weak as to preclude inference based on the data.

The correlation between sales productivity and both biographical data and the interviewer's evaluation show positive but very weak relationships.

The correlations in Table 4-3 indicate no systematic relationships or low correlation between all of the

determinant variables and sales productivity measured by sales per hour. Therefore, hypothesis 1 which states that there is a positive relationship between the criterion measure and the determinant variables is not substantiated.

IV. MULTIPLE CORRELATION AND REGRESSION

The determinants of sales productivity are described in the conceptual framework in Chapter II, Figure 2-1. The determinant variables that can be evaluated in the pre-employment interview are used in this study. They serve as the basis for selection of variables to be involved in the multiple regression equation. A listing of the determinants can be seen in Table 4-4.

Table 4-4. Listing of Determinant Variables

<u>Categories</u>	<u>Number</u>	<u>Determinant Variables</u>
Personality	1	Extroversion-Introversion
	2	Thinking-Feeling
	3	Intuition-Sensing
	4	Perception-Judgement
Computer Scores	5	Sales Task Interest Score
	6	Sales Task Experience Score
	7	Sales Task Skills Score
Experience	8	Retailing
	9	Other Than Retailing
Honesty	10	Honesty Test Score
Math Ability	11	Math Test Score
Biographical Data	12	Years of School
	13	Grade Point Average
Interview	14	Interviewer's Evaluation

The mathematical expression of the model to be tested is presented in Figure 4-1. Based on the analysis of hypothesis 1 the expectation is that all of the sales productivity and determinant variable relationships in Figure 4-1 will not be significant in the final equation. That is, some of the regression coefficients will not be significantly different from zero and those variables will not appear in the final sales productivity equation derived for this retail store.

In this analysis sales productivity defined as sales per hour is regressed against the average department sales and 14 determinants of sales productivity. The results of this analysis are presented and some interpretations of the results are indicated in this section.

To take into account the initial difference in the potential sales, an allowance must be made before further statistical analysis can be initiated. The average departmental sales figure for the four week period is used to adjust for any initial differences which might have been present because of the salesperson's placement. The type of merchandise, the location of the department in the store or the price of the merchandise may also influence the salesperson's potential to sell.

$$\begin{aligned}
 \text{Sales} \\
 \text{Productivity} &= A + \text{DEPTAVG} + B1 (\text{DSP1}) + B2 (\text{DSP2}) + \\
 &\quad + B14 (\text{DSP14})
 \end{aligned}$$

where: A = sales productivity when all determinants of sales productivity are zero

DEPTAVG = average departmental sales

B_i = regression coefficient for each determinant variable

DSP_i = determinant variables of sales productivity (one for each of the 14 determinant variables in Table 4-4)

Figure 4-1 Model of the Multiple Regression Equation Used in the Empirical Test

The Statistical Analysis System regression program using the Goodnight Maximum R^2 routine is used for the multiple regression analysis. The best one variable through the best 15 variable model are generated. Results of these analyses are presented in Table 4-5. In Table 4-5 the first column identifies the variable number, the second column describes the variable, the third column indicates the significance level, the fourth column the overall F value and the final column indicates the R^2 value. The results shown in Table 4-5 are examined to determine the final model. The equation with the largest number of variables and thus the highest R^2 and yet still reporting each variable in the equation at the (0.05) level of significance will be the best choice from Table 4-5. Column three indicates the $\text{PROB} > F$ or the significance level of the regression coefficient associated with each of the specific variables.

The best three variable model was the final choice that meets all of the criteria stated. This model is presented in the equation in Figure 4-2.

The four or more variable models are not used because the individual variable significance criterion does not meet the (0.05) significant level criterion.

The regression analysis results for the three variable model are summarized in Table 4-6. The F ratio

TABLE 4-5. Variables included in the best one variable through the best fifteen variable model.

No. Variable in the Model	Variables Included	PROB > F	Overall F for Model	R ²
1	DEPTAVG	0.0001	68.80	0.319
2	DEPTAVG HONTEST	0.0001 0.0159	38.54	0.345
3	DEPTAVG HONTEST MATHTEST	0.0001 0.0141 0.0373	27.76	0.365
4	DEPTAVG HONTEST MATHTEST FT	0.0001 0.0197 0.0554 0.1388	21.55	0.374
5	DEPTAVG HONTEST MATHTEST FT INTER	0.0001 0.0223 0.0489 0.1578 0.3242	17.43	0.379
6	DEPTAVG HONTEST MATHTEST FT PJ INTER	0.0001 0.0169 0.0441 0.1165 0.4659 0.2955	14.57	0.381
7	DEPTAVG HONTEST MATHTEST FT PJ INTER MOEXPRET	0.0001 0.0152 0.0462 0.1043 0.4071 0.2922 0.5323	12.49	0.383

Table 4-5. Continued

No. Variable in the Model	Variables Included	PROB > F	Overall F for Model	R ²
8	DEPTAVG	0.0001	10.89	0.384
	GPA	0.6640		
	HONTEST	0.0167		
	MATHTEST	0.0452		
	FT	0.0987		
	PJ	0.3929		
	INTER	0.2880		
	MOEXPRET	0.5214		
9	DEPTAVG	0.0001	9.63	0.384
	GPA	0.6579		
	HONTEST	0.0170		
	MATHTEST	0.0453		
	NS	0.7204		
	FT	0.0971		
	PJ	0.4618		
	INTER	0.3073		
	MOEXPRET	0.5215		
10	DEPTAVG	0.0001	8.62	0.385
	GPA	0.6508		
	HONTEST	0.0178		
	MATHTEST	0.0460		
	NS	0.7479		
	FT	0.1010		
	PJ	0.4477		
	INTER	0.3076		
	MOEXPRET	0.4914		
	TOT SKL	0.7827		
10	DEPTAVG	0.0001	8.62	0.385
	GPA	0.6369		
	HONTEST	0.0174		
	MATHTEST	0.0482		
	FT	0.1025		
	PJ	0.4305		
	INTER	0.3504		
	MOEXPRET	0.5154		
	TOT INT	0.7267		
	TOT SKL	0.6681		

Table 4-5. Continued

No. Variable in the Model	Variables Included	PROB > F	Overall F for Model	R ²
11	DEPTAVG	0.0001	7.80	0.385
	GPA	0.6314		
	HONTEST	0.0176		
	MATHTEST	0.0484		
	NS	0.7324		
	FT	0.1007		
	PJ	0.5046		
	INTER	0.3739		
	MOEXPRET	0.5242		
	TOT INT	0.7126		
	TOT SKL	0.6918		
12	DEPTAVG	0.0001	7.11	0.386
	GPA	0.6278		
	HONTEST	0.0173		
	MATHTEST	0.0602		
	YRS SCH	0.7646		
	NS	0.7203		
	FT	0.0972		
	PJ	0.5137		
	INTER	0.3603		
	MOEXPRET	0.5269		
	TOT INT	0.7070		
	TOT SKL	0.6719		
13	DEPTAVG	0.0001	6.53	0.386
	GPA	0.6592		
	HONTEST	0.0203		
	MATHTEST	0.0590		
	YRS SCH	0.7359		
	NS	0.7309		
	FT	0.0948		
	PJ	0.5911		
	INTER	0.3525		
	MOEXPRET	0.5770		
	TOT INT	0.7276		
	TOT EXP	0.7588		
	TOT SKL	0.6087		

Table 4-5. Continued

No. Variable in the Model	Variables Included	PROB > F	Overall F for Model	R ²
14	DEPTAVG	0.0001	6.03	0.386
	GPA	0.6634		
	HONTEST	0.0201		
	MATHTEST	0.0582		
	YRS SCH	0.6996		
	NS	0.7236		
	FT	0.0976		
	PJ	0.5794		
	INTER	0.3526		
	MOEXPRET	0.5981		
	MOEXPOTH	0.7798		
	TOT INT	0.7008		
	TOT EXP	0.7649		
	TOT SKL	0.6023		
15	DEPTAVG	0.0001	5.58	0.386
	GPA	0.6802		
	HONTEST	0.0209		
	MATHTEST	0.0592		
	YRS SCH	0.6894		
	EI	0.9052		
	NS	0.7220		
	FT	0.0981		
	PJ	0.5789		
	INTER	0.3625		
	MOEXPRET	0.5977		
	MOEXPOTH	0.7690		
	TOT INT	0.7014		
	TOT EXP	0.7632		
	TOT SKL	0.6040		

WHERE: DEPTAVG = Average sales per hour for the department
 GPA = Grade point average
 HONTEST = Honesty Test
 MATHTEST = Mathematics Ability Test
 YRS SCH = Years of school completed
 EI = Extroversion - Introversion
 NS = Initiation - Sensing
 FT = Thinking - Feeling
 PJ = Perception - Judgement
 INTER = Interviewer's Evaluation (Appearance)
 MOEXPRET = Months of experience in retail
 MOEXPOTH = Months of experience other than retail
 TOT INT = Total sales interest score
 TOT EXP = Total sales experience score
 TOT SKL = Total sales skill score

$$\begin{aligned} \text{Sales} \\ \text{Productivity} &= 82.209 + 0.596(\text{DEPTAVG}) \\ &\quad - 1.476 (\text{HONTEST}) - 0.407(\text{MATHTEST}) \end{aligned}$$

WHERE: DEPTAVG = Average sales per hour for the
department

HONTEST = Honesty Test

MATHTEST = Mathematics Ability Test

Figure 4-2. The Best Three Variable Sales Productivity
Model

Table 4-6. Regression Results for the Best Three Variable Model

Variable	B Value	Std Error	Partial F	PROB > F
DEPTAVG	0.596	0.067	79.88	0.0001
HONTEST	-1.476	0.593	6.17	0.0141
MATHTEST	-0.407	0.194	4.42	0.0373
(CONSTANT)	82.209			
Multiple R	0.604		Overall F	27.76
R ²	0.365		Standard Error	33.17

is used to evaluate the significant of each regression coefficient in the equation represented in Table 4-6 as B values. Each B value is tested against the null hypothesis that B is equal to zero. The results of the test are shown in Table 4-6 under the partial F. The judgement as to significance is based on the PROB > F column. The PROB > F column shows the significance level of the regression coefficient based on three and 145 degrees of freedom at a significance level of (0.05). The overall F test indicates that the three variable model is significantly related to the dependent variable sales productivity. The significance levels in this column indicate that the null hypothesis can be rejected for all three of the regression coefficients in the model.

The overall F for the model equation is 27.76. This is larger than the critical value of F which is equal to 2.66701.

The R^2 statistic ranges from zero indicating no variation accounted for to one indicating a perfect linear relationship. The R^2 is a measure of the prediction accuracy for the equation as well as a measure of the strength of the association between the dependent variable and all independent variables in the equation. Therefore, in this equation the independent variables account for about 36.5 percent of the variation in the dependent variable sales productivity.

The standard error shown in Table 4-6 is the estimate of the standard deviation of each of the regression coefficients.

The independent variables included in the model are those which show a highly significant relationship to the dependent variable, sales productivity. The average departmental sales is the first variable in the stepwise regression equation. This indicates that there is a strong significant relationship between productivity and the departmental placement of the salesperson in the store.

Although the average departmental sales is the first and strongest variable it is not treated as a true

independent variable. Its affect on the productivity of the salesperson is accounted for first thus allowing analysis to continue stepwise with the rest of the variables.

The average departmental sales have an F value of 68.80, are significant at the (0.001) level and account for 31.9 percent of the variance. The honesty test scores have an F value of 38.54, are significant at the (0.0159) level and account for 2.6 percent of the variance. Together the departmental average sales and the honesty test scores account for 34.5 percent of the variance. The math test scores have an F value of 27.76, are significant at the (0.0373) level and account for 2 percent of the variance.

This section will discuss the meaning of the three independent variables that are included in the equation. The discussion will focus on the meaning associated with the individual variables and the combination of variables. Both the content and direction of the relationship will be discussed.

The positive or negative sign of the regression coefficient indicates the direction of the relationship between an independent variable and the dependent variable. In this research, the results indicate that the direction of the relationship between productivity as

measured by sales per hour and the honesty test is negative. To interpret the results of this negative sign an understanding of the scoring procedures of the honesty test is necessary. The test uses an honest to dishonest continuum where the more honest the individual, the lower the individuals score. Thus the negative sign can be interpreted to mean that the value for the salespersons productivity tends to increase as the value for the honesty test decreases (e.i. the more honest the individual)

The second variable, mathematics ability also indicates a negative relationship with productivity. Therefore, as productivity increases the score obtained on the math test decreases.

Evaluating the content of variables included in the equation is far more difficult than evaluating there direction. Each independent variable was chosen for its possible relationship to the dependent variable based on the literature and other experience. However, some independent variables were believed more likely to be significantly related to sales productivity than others.

The sales productivity regression equation shows that two of the four independent variables honesty test scores and math test scores are significantly related to the dependent variable. Because of their negative

relationship, the sales productivity equation indicates that the higher the sales productivity the more honest the salesperson and lower his or her score on the math test.

It is emphasized that the regression equation measures relationships. There is no claim of demonstrating causality with this approach and the resulting equation. Thus, there is no claim that the equation shows that sales productivity is caused by honesty or the lack of math skill. The equation only shows that these independent variables are statistically related through regression analysis to the dependent variable and gives the measures of these relationships. The strength of the relationship, does however, indicate a weak case for the use of honesty tests or math tests individually or in combination to predict productivity.

V. FACTOR ANALYSIS

Factor analysis enables one to study possible interactions among the variables and examine the strength of the overall association among variables. It is basically a parsimonious technique which allows the researcher to reduce the number of variables needed to explain variation or to uncover underlying commonalities among variables which are not readily apparent.

Fourteen variables are factor analyzed in a effort to identify unique salesperson traits. The variables are subjected to the principal component analysis technique for extracting factors. Six factors are extracted and retained by the mineigen criterion. These six factors are rotated using the varimax rotation method. The factor loadings can be seen in Table 4-7. The following paragraphs present a brief discussion of these factors.

Factor one accounts for 26 percent of the total variance in the factor analysis. Variables 12, 13, and 14 which are all scores on the computer structured interview dealing with sales tasks (interest (0.626), experience (0.858) and skills (.876) respectively) are highly correlated with factor one. This suggests that attempting to measure interest, experience, and skill separately was not successful since they all loaded on the same factor. Perhaps they are measuring the same thing or respondents were unable to discriminate among them. The variance of the scores on factor one is 2.27196 and this also equals the sum of the squared correlations of each original variable.

Factor two represents 19 percent of the total variance. Variable eight, the perception-judgement dimension of the personality test correlates highly with factor two. Two other personality factors intuition-

Table 4-7. Variables' Loading on Six Varimax Rotated Factors

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	COMMUNALITY
Grades	0.03847	0.01774	-0.07076	0.15606	0.76907	0.19671	0.661319
Honesty	-0.06208	0.15636	-0.01684	-0.10156	0.08696	0.87040	0.804052
Math	-0.01519	0.36499	0.52913	0.07629	-0.12468	-0.13689	0.453529
School	0.10936	-0.03522	0.67216	0.38132	-0.08247	0.01857	0.617550
EI	0.11405	-0.02392	-0.02134	0.37444	-0.63465	0.44591	0.755853
NS	0.14183	0.61027	0.10276	0.14042	0.20531	0.01085	0.465087
FT	-0.17946	0.57282	-0.07808	-0.16306	-0.26917	-0.01361	0.465652
PJ	-0.10852	0.77647	-0.09610	-0.08688	0.04652	0.26339	0.703002
Intw	-0.01869	-0.05869	0.07592	0.79875	0.04969	-0.08801	0.657768
Exp-Ret	0.51950	0.27395	-0.11327	0.08027	-0.09848	-0.13286	0.391555
Exp-Oth	0.09435	-0.22749	0.72357	-0.27212	0.11259	0.05292	0.673742
Interest	0.62633	-0.13243	0.18560	-0.42630	-0.10503	-0.09047	0.645227
Exp	0.85870	-0.21652	-0.05455	0.04755	0.10114	0.05128	0.802340
Skill	0.87667	-0.01448	0.05043	0.02403	0.04966	0.03797	0.775790
Variance	2.27196	1.65812	1.34553	1.28301	1.18949	1.12433	8.872464
Sum Sq	0.25607	0.18688	0.15165	0.14461	0.13407	0.12672	
Cum Var	0.25607	0.44295	0.59461	0.73921	0.87328	0.99999	

Grades = Grade Point Average; Honesty = Honesty Test Scores; Math = Math Test Scores; School = Years of School; EI = Extroversion-Introversion; NS = Initiative-Sensing; FT = Feeling-Thinking; PJ = Perception-Judgement; Intw = Interviewer's Evaluation; Exp-Ret = Experience in Retailing; Exp-Oth = Experience Other than Retailing; Interest = Interest in Selling Tasks; Exp = Experience in Selling Tasks; Skill = Skill in Selling Tasks; Sum Sq = Sum of Squares Correlation; and Cum Var = Cumulative Proportion of Variance

sensing (0.610) and feeling-thinking (0.572) also show correlations but not as strong. These three dimensions may constitute some underlying personality variable. The variance of the scores on factor two is 1.65812.

The third factor appears to be highly correlated with variable 11, months of experience other than retail (0.723). This suggests that the third factor is composed of the single variable experience outside retailing. Factor three accounts for 15 percent of the total variance. The variance of the scores on factor three is 1.34553.

Fourteen percent of the total variance can be accounted for in factor four. Only one variable loads on this factor indicating that it is a good single variable measure. Variable nine, the interviewer's evaluation is highly correlated with factor four (0.798). The variance of the scores on factor four is 1.28301.

Factor five accounts for 13 percent of the total variance. Grade point average, variable one has a (0.769) correlation with factor five. This indicates that factor 5 is made up of grades and is a good single variable measure. The variance of the scores on factor five is 1.18949.

Finally, variable two, the honesty test is highly correlated (0.870) with factor six. Factor six accounts

for 12 percent of the total variance. Honesty is a good single variable measure since it alone loads on factor six. The variance of the scores on factor six is 1.12433.

Summary

The factor analysis identified six factors: sales tasks, personality dimensions, experience, interviewer's evaluation, grades, and honesty as separate salesperson traits. Three variables loaded on both factors one and two indicating that they may be measuring some underlying factor associated with sales tasks in factor one and personality in factor two. For the other four factors only one variable loads on each indicating that they are good single variable measures.

CHAPTER V

I. INTRODUCTION

The conceptual model in chapter II identifies several determinant variables of salesperson productivity in a retail setting. In this chapter the model is discussed with reference to the data analysis presented in chapter IV and pertinent conclusions are drawn. Implications for further research are also identified where appropriate.

II. CONCLUSIONS

The specific research conclusions from the empirical tests of the study hypotheses are discussed in this chapter. The conceptual model shown in Chapter II, Figure 1-1 identifies the determinants that may potentially influence sales productivity. The relationships between the determinant variables and sales productivity were examined with the aim of identifying those determinants which singularly or collectively are related to sales productivity and which can be measured in a pre-employment interview.

The determinants in this study include aptitude factors of the interview, biographical data, experience,

and personality dimensions; mathematical ability; skills level; and honesty. The results indicate that by taking into account the departmental average sales and two determinant variables, honesty test scores and math test scores, 36.5 percent of the variance in sales productivity can be explained.

Departmental average sales contributes a major portion of the explained variance in the model, 31.9 percent. The other two variables, honesty test scores and math test scores, show a significant relationship but account for a low percentage of the variance in sales productivity.

The ability to predict or explain variation in performance based on the data collected in this study is very tenuous. There may be several possible reasons for this result. Perhaps most obvious is the conclusion that elements most predictive of productivity were not included in the study. The study was not a comprehensive test of the conceptual model in Figure 1.1 but instead was confined to variables which could be measured in the pre-employment interview. Research directed at one or more of these other variables might prove more fruitful in understanding productivity in general but, of course, would not solve the goal of improving pre-employment selection.

Another problem lies in the definition and measurement of sales productivity. This study uses a unidimensional measure of sales productivity, sales per hour. However, in looking at a salesperson's job, there are many different activities performed other than ringing up sales. Several of these other tasks are important to a retail stores' overall success and performance and these "other" tasks may have correlates among the variables measured in the pre-employment setting. For example a store that places a premium on producing a friendly shopping atmosphere may be well served by a personality test that selects people based on an extrovert-introvert scale. A high supervisor rating on "How friendly is the employee with fellow employees and customers?" would then be expected to have a high correlation with the score on the extrovert-introvert scale. To follow this tack would deemphasize sales performance as a dependent variable but that may not be altogether bad in some settings. The development of a multi-dimensional productivity measurement may provide more understanding of sales productivity and thus produce a stronger prediction equation.

As data collection progressed, there was some feeling on the part of personnel officials that generally poor reading and comprehension skills of job applicants

might effect the results. It is difficult to access whether or not this is true but it is mentioned as a possible limitation of the study.

The results of this study indicate that a negative relationship exists between sales productivity and honesty test scores generated by the Stanton Survey. This is interpreted to mean that the honest salesperson is also more productive. There are several possible explanations for this finding. A person who is basically honest may exhibit a more conscientious attitude toward the job than a dishonest person. In other words, giving 100 percent on the job is viewed as a form of honesty. Also, the honesty test looks at behavior both past and present. Questions deal with the future potential of the applicant and evaluate both attitudes and values. The Stanton Survey score used in this study deals with the attitude section of that test. Attitude questions in the Stanton Survey as well as other honesty tests may include some measures relevant to productivity.

The development of honesty tests is still in its infancy stage. Validity testing is far from conclusive. The components measured may grow and change as various legal and practical issues arise. For example, after Massachusetts recently declared polygraph as well as paper and pencil honesty tests illegal, one publisher

switched from an honesty test to a Productivity Index which measured attitudes, beliefs, and values of an individual and from which honesty as well as productivity could be analyzed in the pre-employment interview. The implications these results suggest are intriguing. One might take the attitude that selection programs should concentrate on an individual's basic values, beliefs, and attitudes in an effort to select people with high moral and ethical standards. The "work ethic" held by such a person should lead to a corresponding high level of productivity.

The results of the math test scores indicate a negative relationship with sales productivity. Therefore, the more productive the individual the lower the score obtained on his or her math test. There are several possible explanations for this finding. It is possible that other organizational or environmental factors in the store may have influenced the amount of mathematical ability needed in the retail setting. The fact is that presently little opportunity exists for exceptional mathematical ability to improve performance. Electronic point of sale terminals have all but relieved the salesperson of having to perform arithmetic calculations.

Personality dimensions show very little if any relationship to sales productivity. It is important that retailers properly select productive Christmas "extras" because, for many stores, Christmas makes or breaks the year. However, because of the rushed atmosphere during this time the salesperson may be forced into an "order taker" role. If little opportunity exists for a salesperson to use his/her skills to differential advantage we might expect our sales per hour measure for productivity to be relatively insensitive. In other words if two salespeople with quite different abilities are working side by side in a busy store where demand is so high that they just ring sales for eight hours, their performance as measured by sales per hour will not discriminate between the two.

Only a small number of items were included in the biographical and experience data due to time restraints and to the utilization of information that was currently being collected on the computer. From these results it would appear that sales productivity is not influenced by biographical or experience data associated with the salesperson. Further research with a more extensive listing of variables may show different results. Other factors may have also affected the results as the conceptual model in chapter II outlines.

Computer scores on interest, experience and skills associated with 26 sales tasks are not related to sales productivity. The factor analysis indicates that these three scores may be measuring the same underlying concept. However, they do not account for a significant amount of the variance in the regression equation. This may indicate that other sales tasks need to be identified and added to the group to improve the explanation. The sales tasks used could also be too vague to identify the specific activities in which salespersons are involved in the performance of their job. Also evident here is the poor comprehension ability of the typical applicant which could serve to confound the results.

The interviewer's evaluation shows no relationship to sales productivity. Since most of the factors on this evaluation dealt with appearance and social mannerisms, it could be concluded that appearance and social mannerisms are not systematically related to sales productivity. This finding is consistent with the literature that indicates interviewer evaluations are not systematically related to sales productivity.

III. IMPLICATIONS

The regression equation model is developed for a department store in the South Central United States and

has limited generalization value. Conclusions should not be generalized to other sections of the United States or to other kinds of retail stores.

The regression analysis used in this study does produce a predictive equation. However, as discussed in chapter IV it does not show evidence of causality. Therefore, one cannot conclude that increasing honesty in turn will cause a higher rate of sale productivity. One can say, however, that the determinant variable of honesty is a primary candidate for further study and possible experimentation connected with efforts to increase sales productivity. In effect, there may be a causal relationship but the methodology used measures association only and no claim of causality is made.

Results might be used by the personnel manager to aid in the selection of salespersons if other measures are used in conjunction. Under the pressures of the Christmas season, there is a tendency to hire quickly using biographical data and the unstructured interview. Any additional data that gives insight into measured relationships could be of help to the personnel manager. The use of honesty tests may help not only with shrinkage problems but also aid in attempts to hire more productive people. The relationship between sales productivity and the honesty test may also be of interest to the

publishers of honesty instruments. Although the magnitude of the association between the honesty test and sales productivity is not great, the relationship could provide a direction for further research. An instrument that could measure basic beliefs, values, and attitudes as a proxy for productivity would be of great value to retailing as well as to other industries.

The negative results on the math test may indicate this is a skill needed in the past before electronic point-of-sale terminals but is no longer a necessary skill. The interviewing process could be shortened by eliminating the math test since increased math test scores are not related to increased sales productivity. Another alternative would be to use a minimum level of math as a criterion but not to look at higher math scores as an indication of higher productivity.

IV. SUGGESTIONS FOR FURTHER STUDY

The methodology used in this study may be extended to other geographic areas. The first logical extension of the research is to repeat this study in other department stores in areas of the United States other than the South Central United States. The regression model derived in this study could be applied to these additional data collected to determine whether or not the

model is predictive of sales productivity in these additional areas. This would essentially be a test of the generalization of this specific model. The data from both studies could then be combined to build a model of sales productivity.

In this study 148 salesperson are analyzed. A larger sample size might be more representative and thus provide a better measure of the determinant variables and their relationship to sales productivity. If stores in more than one company had been available, a larger number of salespersons could be evaluated. This would increase the ability to generalize the results of the study across a wider population. The unique operating conditions of a particular company would also be suppressed by including other retail settings.

A longitudinal study would allow one to look at sales productivity over time. However, the high percentage of part-time help employed for Christmas and dismissed December 24th does not lend itself to longitudinal studies.

The study could be expanded to include determinant variables outside the pre-employment interview that may influence sales productivity. These could include motivation or role perception factors. The interaction of salesperson and customers could be explored. Finally,

the strategies of successful and unsuccessful salesperson could be explored.

The dependent variable or sales productivity may also prove to be a fruitful area for future research. There has been a lack of research dealing with the sales productivity variable. The measurement of this variable has not been defined adequately to measure both quantitative and qualitative components of the salesperson's job. This may include the development of multi-dimensional productivity measures.

Overall there is lack of empirical evidence supporting the conceptual relationships between determinant variables and sales productivity. Therefore, few if any predictors of sales productivity can be utilized with a high degree of confidence in the retail setting.

LIST OF REFERENCES

LIST OF REFERENCES

- Abend, J. (1986, June). Employee theft. Stores, 68(6), 57-58.
- Achabal, D. D. (ed.). (1984, Fall). Productivity in retailing [Special issue]. Journal of Retailing, 60(3).
- Achilles, P. S., & Schultz, R. S. (1934). Characteristics of life insurance salesmen. Personnel Journal, 12, 260-263.
- Anderson, V. V. (1929). Psychiatry in industry, New York: Harper Brothers.
- Asher, R. D. (1972). Task performance as a function of perceived effort-performance and performance-reward contingencies. Organizational Behavior and Human Performance, 8, 423-433.
- Avery, R. D. (1972). Task performance as a function of perceived effort-performance and performance-reward contingencies. Organizational Behavior and Human Performance, 8, 423-433.
- Avery, R. D., & Campion, J. E. (1982). The employment interview: A summary and review of recent research. Personnel Psychology, 35, 281-323.
- Baehr, M. E., & Williams, G. B. (1968). Prediction of sales success from factorially determined dimensions of personal background data. Journal of Applied Psychology, 52, 98-103.
- Bagozzi, R. P. (1980). The nature and causes of self-esteem, performance, and satisfaction in the salesforce: A structural equation approach. Journal of Business, 53, 315-331.
- Bagozzi, R. P. (1978). Salesforce performance and satisfaction as a function of individual difference, interpersonal, and situational factors. Journal of Marketing Research, 15, 517-531.

- Bagozzi, R. P. (1976). Toward a general theory for the explanation of the performance of salespeople. Unpublished doctoral dissertation, Northwestern University, Evanston, Illinois.
- Baier, D. E., & Dugan, R. D. (1957). Factors in sales success. Journal of Applied Psychology, 41, 37-40.
- Bemis, S. E., Belenky, A. H., & Soder, D. A. (1983). Job analysis: An effective management tool. Washington DC: The Bureau of National Affairs, Inc.
- Bennett, P. (1979). American productivity growth: Perspectives on the slowdown. Federal Reserve Bank of New York Quarterly Review, 4, 28.
- Berry, L. L. (1969, Spring). The components of department store image: A theoretical and empirical analysis. Journal of Retailing, 45(1), 3-20.
- Bingham, W. V., & Davis, W. T. (1924). Intelligence test scores and business success. Journal of Applied Psychology, 8, 1-22.
- Bills, M. A. (1941). Selection of casualty and life insurance agents. Journal of Applied Psychology, 25, 97-104.
- Bills, M. A., & Ward, L. W. (1936). Testing salesmen of casualty insurance. Personnel Journal, 22, 97-104.
- Bilon R. L. (1979). Measuring sales productivity. Retail Control, 47(6), 35-42.
- Birnes, W. J. & Markman, G. (1985). Selling at the top: the 100 best companies in america to sell for, New York: Harper & Row, Publishers.
- Bluestone, B., Hanna, P., Kuhn, S., & Moore, L. (1981). The retail revolution: Market transformation, investment, and labor in the modern department store. Boston, Massachusetts: Auburn House Publishing Company.
- Boehm, V. R. (1982). Are we validating more but publishing less? (The impact of governmental regulation on published validation research--an exploratory investigation). Personnel Psychology, 35, 175-187.

- Bolanovich, D. J., & Kirkpatrick, F. H. (1943). Measurement and the selection of salesmen. Educational and Psychological Measurement, 3, 333-339.
- Brown, A. (1986). Employment tests: Issues without clear answers. Personnel Administrator, 30, 43-56.
- Brown, S. H. (1978). Long-term validity of a personal history item scoring procedure. Journal of Applied Psychology, 63, 673-676.
- Burck, C. G. (1981a, July 27). What happens when workers manage themselves. Fortune, 104 (2), 62-69.
- Burck, C. G. (1981b, June 15). Working Smarter. Fortune, 103(12) 68-73.
- Burstiner, I. (1975, Winter). Current personnel practices in department stores. Journal of Retailing, 51(4) 3-14, 86.
- Carlisle, L. T., III. (1982). Maximizing the productivity of human resources. Retail Control, 50(10), 37-44.
- Cleveland, E. A. (1947). Sales personnel research, 1935-1945: A review. Personnel Psychology, 1, 221-255.
- Chick, L. S. (1982). Controlling costs of salesperson labor. Retail Control, 50(10). 45-53.
- Chick, L. S. (1980). Employee productivity - key to profits. Retail Control, 48(6), 19-31.
- Churchill, G. A., Jr., Ford, N. M., Hartley, S. W., & Walker, O. C., Jr. (1985). The determinants of salesperson performance: A meta-analysis. Journal of Marketing Research, 22, 103-118.
- Churchill, G. A., Jr., Ford, N. M., & Walker, O. C. (1981). Managing the retail salesforce. In R. W. Stampfl & E. C. Hirshman (eds.), Theory in Retailing: Traditional and Nontraditional Sources (pp. 34-50). Chicago: American Marketing Association.
- Cook, D. D. (1981, April 6). Foreman: Where theory collides with reality. Industry Week, 209(1), 74-80.
- Cook, D. D. (1981, March 9). Labor faces the productivity challenge. Industry Week, 208(5), 60-65.

- Cotham, J. C., III. (1968). The case for personal selling: Some retailing myths exploded. Business Horizons, 68, 75-81.
- Cotham, J. C., III. (1969). Using personal history information in retail salesmen selection. Journal of Retailing, 45(2), 31-38.
- Day, C. R., Jr. (1981, January 26). Solving the mystery of productivity measurement. Industry Week, 208(2), 60-66.
- Denton, J. C. (1964). The validation of interview-type data. Personnel Psychology, 17, 218-287.
- Dodge, A. F. (1938). What are the personality traits of the successful salesperson? Journal of Applied Psychology, 22, 229-238.
- Dunnette, M. D., & Kirchner, W. K. (1960). Psychological test differences between industrial salesmen and retail salesmen. Journal of Applied Psychology, 44, 121-125.
- Dunnette, M. D., & Maetzold, J. (1955). Use of a weighted application blank in hiring seasonal employees. Journal of Applied Psychology, 39, 308-310.
- Ellsworth, T. D. (1982). The department store: A question of survival. Retail Control, 50(2), 34-39.
- Ellsworth, T. D. (1981). The department store: A troubled giant. Retail Control, 50(1), 2-28.
- England, G. W. (1971). Development and use of weighted application blanks. Duboque, Iowa: William. C. Brown Publishers.
- England, G. W., & Paterson, D. G. (1960). Selection and placement--The past ten years. In H. G. Henneman, Jr. (Eds.) Employment Relations Research: A summary and Appraisal (pp. 43-72). New York: Harper row, Inc.
- Enis, B. M., & Chonko, L. B. (1984). Improving retail selling: A corporate cultures perspective. In J. Jacoby and C. S. Craig (eds.). Personal selling: theory, research, and practice (pp. 269-283). Lexington: D. C. Heath and Company.

- French, C. L. (1960). Correlates of success in retail selling. The American Journal of Sociology, 66, 128-134.
- Friedland, D., Israel, R., & Lynch, E. (1980). People productivity in retailing. New York: Lebhar-Freidman, Inc.
- Ghiselli, E. E. (1973). The validity of aptitude tests in personnel selection. Personnel Psychology, 26, 461-477.
- Ghiselli, E. E. (1966). The validity of occupational aptitude tests. New York: John Wiley & Sons, Inc.
- Ghiselli, E. E., & Barthol, R. P. (1953). The validity of personality inventories in the selection of employees. Journal of Applied Psychology, 37, 18-20.
- Ghiselli, E. E., & Haire, M. (1960). The validation of selection tests in the light of the dynamic character of criteria. Personnel Psychology, 13, 225-231.
- Giniger, S., Dispensieri, A., & Eisenberg, J. (1983). Age, experience, and performance on speed and skill jobs in an applied setting. Journal of Applied Psychology, 68, 467-475.
- Glass, G. V., McGaw, B., & Smith, M. L. (1981). Meta-Analysis in social research. Beverly Hills: Sage Publications.
- Goldsmith, D. B. (1922). The use of personal history blank as a salesmanship test. Journal of Applied Psychology, 6, 149-155.
- Greenberg, H., & Mayer D. (1964). A new approach to the scientific selection of successful salesmen. The Journal of Psychology, 57, 113-123.
- Guion, R. M. (1965). Personnel Testing. New York: McGraw Hill.
- Harrell, T. W. (1960). The relation of test scores to sales criteria. Personnel Psychology, 13, 65-69.
- Harris, W. G. (1986). Stanton survey: A preliminary test manual. Unpublished manual. Stanton Corporation, Charlotte, NC.

- Helwig, J. T., & Council, K. A. (1979). SAS user's guide. Raleigh: SAS Institute Inc.
- Hedberg, R., & Baxter B. (1967). Asecond look at personality test validity. Personnel Psychology, 10, 157-160.
- Honesty tests (and other ways). (1986). Stores, 68(6), 59.
- Howells, G. W. (1968). The successful salesman personality analysis. British Journal of Marketing, 2, 13-23.
- Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternative perdictors of job performance. Psychological Bulletin, 96, 72-98.
- Hunter, J. E., & Schmidt, F. L. (1982). Ability tests: Economic benefits versus the issue of fairness. Industrial Relations, 21, 293-308.
- Hunter, J. E., Schmidt, F. L. & Jackson, G. B. (1982). Meta-Analysis: Cumulating Research Findings Across Studies, California: Sage Publications, Inc.
- Husband, R. W. (1936). Personality traits of salesmen. Journal of Psychology, 1, 223-233.
- Husband, R. W. (1949). Techniques of salesman selection. Educational and Psychological Measurement, 9, 129-148.
- Jolson, M. A., & Spath, W. F. (1973). Understanding and fulfilling shoppers' requirements: An anomaly in retailing? Journal of Retailing, 49(2), 38-50.
- Kahn, D. F., Hadley, J. M. (1948). Factors related to life insurance selling. Journal of Applied Psychology, 32, 132-140.
- Kenagy, H. G. & Yoakum, C. S. (1925). The selection and training of salesmen. New York: McGraw Hill.
- Kirchner, W. K., McElwain, C. S. and Dunnette, M. D. (1960). A note on the relationship between age and sales effectiveness. Journal of Applied Psychology, 44, 2, 92-93.

- Kurtz, D. L. (1969). Physical appearance and stature: Important variables in sales recruiting. Personnel Journal, 48, 981-983.
- Kurtz, Albert K. (1941). Recent research in the selection of life insurance salesmen. Journal of Applied Psychology, 25, 11-17.
- Laking, J., & Roark, R. (1975). Retailing job analysis and job evaluation. New York: National Retail Merchants Association.
- Lamont, L. M., & Lundstrom, W. J. (1977). Identifying successful industrial salesmen by personality and personal characteristics. Journal of Marketing Research, 14, 517-529.
- Latham, G. P., Saari, L. M., Pursell, E. D., and Campion, M. A. (1980). The situational interview. Journal of Applied Psychology, 65, 422-427.
- Lazar, R. G. (1981). Productivity and progress. Retail Control, 50(2), 2-18.
- Levine, E. L., Flory, A. P., & Ash, R. A. (1977). Self-assessment in personnel selection. Journal of Applied Psychology, 62, 428-435.
- Lovett, R. F., & Richardson, M. W. (1934). Selecting sales personnel: The significance of various types of test material. Personnel Journal, 12, 248-253.
- Lubar, R. (1981, July 13). Rediscovering the factory. Fortune, 104(1), 52-64.
- Lusch, R. F., & Serpkenci, R. R. (1983). Improving your financial performance in retailing. Business, 33, 9-18.
- Main, J. (1981, June 29). How to battle your own bureaucracy. Fortune, 103(13), 54-58.
- Main, J. (1981, August 10). Why government works dumb. Fortune, 104(3), 146-158.
- Mattheiss, T. H., Durand, R., Muczyk, J., and Gable, M. (1975). Personality and prediction of salesmen's success. In R. Curhan (ed.), 1974 Combined proceedings of the American Marketing Association. (pp. 499-502). Chicago: American Marketing Association.

- Mayfield, E. C. (1964). The selection interview--A re-evaluation of published research. Personnel Psychology, 17, 239-260.
- Mayfield, E. C. (1972). Value of peer nominations in predicting life insurance sales performance. Journal of Applied Psychology, 56, 319-323.
- McClenahan, J. S. (1981, June 1). How regulation shackles economic growth. Industry Week, 209(5), 64-68.
- McMurry, R. N. (1939). A scientific procedure for the selection of salesmen. Personnel, 15, 165-183.
- Merenda, P. F., & Clark, W. V. (1959). Predictive efficiency of temperament characteristics and personal history variables in determining success of life insurance agents. Journal of Applied Psychology, 43, 360-366.
- Miner, J. B. (1962). Personality and ability factors in sales performance. Journal of Applied Psychology, 46, 6-13.
- Miner, J. B. (1921). Standardizing tests for vocational guidance. School and Society, 13, 629-633.
- Mosel, J. N. (1952). Prediction of department store sales performance from personal data. Journal of Applied Psychology, 36, 8-10.
- Mosel, J. N., & Wade, R. R. (1951). A weighted application blank for reduction of turnover in department store clerks. Personnel Psychology, 4, 177-184.
- Much, M. (1981, May 4). The investment climate: Will it improve? Industry Week, 209(3), 56-61.
- Muczyk, J. P., Mattheiss, T. H., & Gable, M. (1974). Predicting success of store managers. Journal of Retailing, 50(2), 43-49.
- Myers, I. B. (1962). The Myers Briggs type indicator manual. Palo Alto, California: Consulting Psychologists Press.
- Nasar, S. (1984, December 10). Good news ahead for productivity. Fortune, 110(12), 40-50.

- Ohmann, O. A. (1941). A report of research on the selection at the Tremco Manufacturing Company. Journal of Applied Psychology, 25, 18-29.
- Oliver, R. L. (1974). Expenctancy theory predictions of salesmen's performance. Journal of Marketing Research, 11, 243-253.
- Ornati, O. A. (1981). Demographics and values of the changing work force. Retail Control, 50(1), 47-54.
- Ornati, O. A. (1983). A look at how department and specialty store chains plan for their staffing requirements: Help wanted. Stores, 65(6), 96-100.
- Oschrin, E. (1918). Vocational tests for retail saleswomen. Journal of Applied Psychology, 2, 148-155.
- Otis, J. I. (1941). Procedures for the selection of salesmen for a detergent company. Journal of Applied Psychology, 25, 30-40.
- Owens, W. A. (1976). Background data. In M. D. Dunnette (ed.) Handbook of industrial and organizational psychology (pp. 609-645). Chicago: Rand McNally.
- Parson, C. K., & Liden, R. C. (1984). Interviewer perceptions of applicant qualifications: A multivariate field study of demographic characteristics and nonverbal cues. Journal of Applied Psychology, 69, 557-568.
- PC program for better initial interviewing? (1986, June). Stores, 68(6), 61.
- Perreault, W. D., Jr., French, W. A., & Harris C. E., Jr., (1977). Use of multiple discriminant analysis to improve the salesman selection process. The Journal of Business, 50, 50-62.
- Peterson, D. A., & Wallace, S. R. (1966). Validation and revision of a test in use. Journal of Applied Psychology, 50, 13-17.
- Prien, E. P. (1962). Assessments of higher-level personnel: An analysis of interviewers' prediction of job performance. Personnel Psychology, 15, 319-334.
- Pruden, H. O., & Peterson, R. A. (1971). Personality and performance-satisfaction of industrial salesmen. Journal of Marketing Research, 8, 501-504.

- Rasmussen K. G., Jr. (1984). Nonverbal behavior, verbal behavior, resume' credentials, and selection interview outcome. Journal of Applied Psychology, 69, 551-556.
- Reilly, R. R., & Chao, G. T. (1982). Validity and fairness of some alternative employee selection procedures. Personnel Psychology, 35, 1-62.
- Rodgers, D. A. (1959). Personality of the route salesman in a basic food industry, Journal of Applied Psychology, 43, 235-239.
- Rush, C. H. (1953). A factorial study of sales criteria. Personnel Psychology, 6, 9-24.
- Ryan, T.A., & Johnson, B. R. (1942). Interest scores in the selection of salesmen and servicemen: Occupational versus ability-group scoring keys. Journal of Applied Psychology, 26, 543-562.
- Sackett, P. R. (1985). Honesty testing for personnel selection. Personnel Administrator, 30, 67-76.
- Sackett, P. R., & Harris, M. M. (1984). Honesty testing for personnel selection: A review and critique. Personnel Psychology, 37, 221-245.
- Schmidt, F. L., & Hunter, J. E. (1986). The economic impact of job selection methods on size, productivity, and payroll costs of the federal work force: An empirical based demonstration. Personnel Psychology, 39, 1-29.
- Schmidt, F. L., & Hunter, J. E. (1981a). Employment testing: Old theories and new research findings. American Psychologist, 36, 1128-1137.
- Schmidt, F. L., & Hunter, J. E. (1981b). The future of criterion-related validity. Personnel Journal, 33, 41-60.
- Schmidt, F. L., Hunter, J. E., McKenzie, R. C., & Muldrow, T. (1979). The impact of valid selection procedures on work-force productivity. Journal of Applied Psychology, 64, 609-626.

- Schmidt, F. L., Hunter, J. E., Outerbridge, A. N., & Trattner, M. H. (1968). The economic impact of job selection methods on size, productivity, and payroll costs of the federal work force: An empirically based demonstration. Personnel Psychology, 39, 1-29.
- Schmidt, F. L., Hunter, J. E., & Pearlman, K. (1981). Task differences as moderators of aptitude test validity in selection: a red herring. Journal of Applied Psychology, 66, 166-185.
- Schmitt, Neal (1976). Social and situational determinants of interview decisions: Implication for the employment interview. Personnel Psychology, 29, 79-101.
- Schmitt, N., Gooding, R. Z., Noe, R. A., & Kirsch, M. (1984). Meta-analysis of validity studies published between 1964 and 1982 and the investigation of study characteristics. Personnel Psychology, 37, 407-422.
- Schuh, A. J. (1967). The predictability of employee tenure: A review of the literature. Personnel Psychology, 20, 133-152.
- Schultz, R. S. (1935). Test selected salesmen are successful. Personnel Journal, 14, 139-142.
- Schwab, D. P., & Heneman, H. G., III. (1977). Effects of age and experience on productivity. Industrial Gerontology, 4, 113-117.
- Scollay, R. W. (1956). Validation of personal history items against a salary increase criterion. Personnel Psychology, 9, 325-335.
- Scott, R. D., & Johnson, R. W. (1967). Use of the weighted application blank in selecting unskilled employees. Journal of Applied Psychology, 51, 393-395.
- Scott, W. D. (1915). The scientific selection of salesmen. Advertising and Selling, 25, 5-6, 94-96.
- Small R. J., & Rosenberg, L. J. (1977). Determining job performance in the industrial sales force. Industrial Marketing Management, 6, 99-102.
- Snow, A. J. (1924). An experiment in the validity of judging human ability. Journal of Applied Psychology, 8, 339-346.

- Stead, W. H. (1936). The department store salesperson. Occupations, 15, 513-515.
- Tanofsky, R., Shepps, R. R., & O'Neill, P. J. (1969). Pattern analysis of biographical predictors of success as an insurance salesman. Journal of Applied Psychology, 53, 136-139.
- Taylor, K E., & Weiss D. J. (1972). Prediction of individual job termination from measured job satisfaction and biographical data. Journal of Vocational Behavior, 2, 123-132.
- Teas, R. K. (1982). Performance-reward instrumentalities and the motivation of retail salespeople. Journal of Retailing, 58, 4-23.
- Teas, R. K. (1981). A test of a model of department store salespeople's job satisfaction. Journal of Retailing, 57, 3-25.
- Thayer, P. W. (1977). Something old, something new. Personnel Psychology, 30, 513-524.
- U.S. Department of Labor. (1982). Bureau of Labor Statistics, BLS Handbook of Methods, vol. 1 (Bulletin No. 2134-1). Washington, DC: U.S. Government Printing Office.
- U.S. Department of Labor. (1985a). Bureau of Labor Statistics, Multifactor productivity measures: Private business, private nonfarm business, and manufacturing sectors annual measures for 1984 (USDOL 85-405). Washington DC: U.S. Government Printing Office.
- U.S. Department of Labor. (1985b). Office of Information, International comparisons of manufacturing productivity and labor cost trends preliminary measures for 1984 (USDOL 85-230). Washington DC: U.S. Government Printing Office.
- Ulrich, L., & Trumbo, D. (1965). The selection interview since 1949. Psychological Bulletin, 63, 100-116.
- Vincent, N. L. & Dugan, R. D. (1962). Validity information exchange no. 15-03. Personnel Psychology, 15, 223-226.
- Wagner, R. (1949). The employment interview: A critical summary. Personnel Psychology, 2, 17-46.

- Waldman, D. A., & Avolio, B. J. (1986). A meta-analysis of age differences in job performance. Journal of Applied Psychology, 71, 33-38.
- Walker, O. C., Jr., Churchill, G. A., Jr., & Ford, N. M. (1979). Where do we go from here? Selected conceptual and empirical issues concerning the motivation and performance of the industrial salesforce. In G. Albaum and G. A. Churchill, Jr. (eds.). Critical issues in sales management: State-of-the-art and future research needs (pp. 10-75). Eugene: College of Business Administration, University of Oregon.
- Waters, L.K. & Waters, C. W. (1970). Peer nominations as predictors of short-term sales performance. Journal of Applied Psychology, 54, 42-44.
- Weaver, C. N. (1969). An empirical study to aid in the selection of retail salesclerks. Journal of Retailing, 45(4), 22-26.
- Weitz, B. A. (1979). A critical review of personal selling research: The need for contingency approaches. In G. Albaum and G. A. Churchill, Jr. (ed.). Critical issues in sales management: State-or-the-art and future research needs (pp. 76-126). Eugene: College of Business Administration, University of Oregon.
- Weitz, J. (1958). Selecting supervisors with peer ratings. Personnel Psychology, 11, 25-36.
- Wright, O. R., Jr. (1969). Summary of reserch on the selection interview since 1964. Personnel Psychology, 22, 391-413.

APPENDIXES

APPENDIX A

EMPLOYMENT APPLICATION

MUST BE FILLED IN AT EMPLOYMENT OFFICE IN YOUR OWN HAND WRITING
APPLICATIONS DISREGARDED AFTER 30 DAYS

DO NOT WRITE IN THIS BOX

POSITION DESIRED _____

POSITION _____ DEPT _____ D.O.H. _____

Driver's License # _____ OK _____

 Store: ☐ Main Street ☐ Cortana ☐ Acadiana ☐ Clearview
☐ Plaza Lake Forest ☐ Westside ☐ Other _____

SALARY _____ HRS./DISC _____

 Name _____ Date ____/____/____ SS No. _____ Ph. (____) _____
 LAST FIRST MIDDLE Apt. No. Years at Address Maiden Name

Address _____ STREET CITY STATE ZIP CODE

 Previous Address _____ Years at this City _____ Own Home? ☐ Rent Board? ☐ Rent Furnished? ☐ Own Car? Yes ☐ No ☐
 Rent Unfurnished? ☐ Own Trailer? Yes ☐ No ☐

 Referred by: ☐ News ad ☐ Company employee ☐ Friends or Relatives ☐ Ever Applied Yes ☐ No ☐
☐ Self ☐ Magazine ad ☐ Working for us ☐ Here Before? Yes ☐ No ☐
☐ Another company ☐ Employment agency ☐ Why did you choose this store? _____
☐ State employment service ☐ Other _____

☐ Never Married ☐ Married ☐ Divorced ☐ Birth Date ____/____/____ Living ☐ Spouse ☐ Friend(s) ☐ No. of Dependent ☐ No. of Children
☐ Engaged ☐ Separated ☐ Widowed and Year: ____/____ With ☐ Family ☐ Alone ☐ Relatives ☐

Father's Name _____ ADDRESS _____ Father Employed by _____ Father's Occupation _____

Mother's Name _____ ADDRESS _____ Mother Employed by _____ Mother's Occupation _____

Spouse's Name _____ Spouse Employed by _____ Spouse's Salary _____ Spouse's Occupation _____

 Have you (or your parents) a Charge Acct. with this store? ☐ Yes ☐ No A/C # _____ Other Charge Accounts With _____ Work Preferred at: ☐ Men St. ☐ Plaza Lake Forest ☐
☐ Cortana ☐ Other ☐ Acadiana ☐ Any Store ☐

 Work Desired: ☐ Full Time ☐ Permanent ☐ Sales ☐ Office ☐ How long do you plan to work here? Mos. _____ Do you have income other than your salary? ☐ Yes ☐ No ☐ Monthly Amt. Salary Expected \$ _____
☐ Part Time ☐ Temporary ☐ Stock ☐ Other: _____ Yrs. _____

 Are you currently in school or college? ☐ Yes ☐ No ☐ No, but plan to return.
 Circle the highest year of schooling that you have completed.

 4 5 6 7 8 9 10 11 12 13 14 15 16 16+
 Grade School High School College College-Post-Grad

Rank in Class at last school _____ % of class or _____ of _____

 Name and Address, last School attended _____ Attended From _____ To _____ Average Grade: A B C D Diploma Received? ☐ Yes ☐ No ☐ May we request a Transcript? ☐ Yes ☐ No

 Were you ever discharged or asked to resign by an Employer? ☐ Yes ☐ No If yes, Explain: _____

 Were you ever convicted of a crime concerning taking the property of others? ☐ Yes ☐ No Give details if yes: _____

 Have you ever taken a lie detector test? ☐ Yes ☐ No Where and when if yes: _____

 Do you agree to take a lie detector test(s) before, during or after employment? ☐ Yes ☐ No If no, why? _____

ALL PREVIOUS EMPLOYERS (LEAVE NO LAPSE OR TIME UNACCOUNTED FOR. IF UNEMPLOYED AT ANY TIME, WRITE THE TIME AND "UNEMPLOYED")

CURRENT OR LAST EMPLOYER	TYPE OF WORK	SUPERVISOR (phone or address if other than co.)	DATE		SALARY/HRLY RATE		REASON FOR LEAVING
			STARTED	LEFT	STARTING	FINAL	
1 Name _____ Address _____ City _____ State _____							
2 Name _____ Address _____ City _____ State _____							
3 Name _____ Address _____ City _____ State _____							
Name _____ Address _____ City _____ State _____							
Name _____ Address _____ City _____ State _____							
Name _____ Address _____ City _____ State _____							

If you ever worked under a name other than your present or maiden name, please list: _____

Have You a Chronic Ailment or Congenital Disease? ☐ Yes ☐ No Ever Used Drugs? ☐ Yes ☐ No Ever Had for or collected Workmen's or Other Medical Compensation? ☐ Yes ☐ No Ever Felt a Physical? ☐ Yes ☐ No Time in Hospital in Last 5 Years? ☐ Yes ☐ No Missed More Than 1 Week of Work in Last 2 Years? ☐ Yes ☐ No

Ever Given Up a Job Because of Health? ☐ Yes ☐ No Ever been refused Employment for Health Reasons? ☐ Yes ☐ No Ever Had an Emotional Disorder? ☐ Yes ☐ No Ever Had a Drinking Problem? ☐ Yes ☐ No Any activity you cannot or are advised not to do? ☐ Yes ☐ No

Ever Had Back Trouble, Bone or Joint Disease? ☐ Yes ☐ No Have You Had: High Blood Pressure? ☐ Yes ☐ No Heart Trouble? ☐ Yes ☐ No Diabetes? ☐ Yes ☐ No Epilepsy? ☐ Yes ☐ No Rupture? ☐ Yes ☐ No Cancer? ☐ Yes ☐ No Dermatitis? ☐ Yes ☐ No T.B.? ☐ Yes ☐ No

Has an Operation Ever Been Recommended but not Performed? ☐ Yes ☐ No Has Insurance Ever Been Declined, Rated Up, or Postponed for You? ☐ Yes ☐ No Are You or Any of Your Dependents Now in Poor Health? ☐ Yes ☐ No Eye Problems? ☐ Yes ☐ No Hearing Problems? ☐ Yes ☐ No

Are You Under a Doctor's Care? ☐ Yes ☐ No Will you take a physical? ☐ Yes ☐ No Describe Accidents, Illnesses, Operations in Past 10 Years: _____

Have you any physical, mental condition or other reason that would interfere with regular, continued employment in the work for which you are applying? ☐ Yes ☐ No If yes, explain: _____ List all medication taken in last 2 weeks: _____

YEARS OF MILITARY SERVICE _____ RANK ATTAINED _____

LIST BROTHERS' AND SISTERS NAMES	AGE	EDUCATIONAL LEVEL	OCCUPATION	EMPLOYER

LIST ORGANIZATIONS TO WHICH YOU BELONG AND POSITIONS HELD _____

LIST SKILLS AND SPECIAL TRAINING OR EXPERIENCE _____

INTEREST, HOBBIES: _____

HAVE YOU TAKEN ANY COURSES THAT RELATE, EITHER DIRECTLY OR INDIRECTLY, TO THE JOB YOU ARE SEEKING? ☐ Yes ☐ No If yes, please explain: _____

PERSONAL REFERENCES YOU HAVE KNOWN OVER ONE YEAR (BUSINESS PEOPLE PREFERRED—NO RELATIVES)

NAME	ADDRESS	CITY	OCCUPATION

PERSONAL REMARKS YOU WOULD LIKE TO MAKE _____

In Case of Emergency Notify _____ Street _____ City & State _____ Zip _____ Ph _____

This is to advise you, pursuant to the Fair Credit Reporting Act, that an inquiry may be made which will provide information concerning your character, general reputation, personal characteristics or mode of living. Upon written request, information as to the nature and scope of the report, if one is made, will be furnished. In compliance with Federal and State equal employment opportunity laws, qualified applicants are considered for all positions without regard to race, color, religion, sex, national origin, age, marital status, or the presence of a non-job-related medical condition or handicap.

When hired, bring Social Security card; if under 18 years of age, bring a work permit.

As a Goudchaux's/Maison Blanche employee, you will be bonded.

I represent all statements on this application to be true and understand my employment may be terminated if any are not or if I have failed to list any prior employer.

In consideration of my employment, I agree to conform to the rules and regulations of the company, and agree that my employment and compensation may be terminated, with or without cause, and with or without notice, at any time, at the option of either the company or myself. I understand that no representative of the company has authority to enter into an agreement with me for employment for any specified period of time, or to make any agreement with me contrary to the foregoing.

I do hereby voluntarily, without duress, coercion, threat or promise of reward or immunity, agree to submit to examination by a polygraph (Lie Detector) test prior to, or at any time during my employment, and having had same explained to me, do hereby release, absolve and agree to forever hold the employer, its parent, subsidiaries and affiliated companies and its agents and/or employees harmless from all claims and demands arising out of or based upon damages suffered by me as a result of these examinations, and I authorize them to seek and to receive any and all information concerning me, including records of criminal convictions, which shall be deemed useful to verify and/or explore my qualifications for employment.

Upon my leaving this company's employment, I authorize it to deduct any amount due to the company from my last pay check.

I grant this company permission to receive any information it desires (including grades, rank in class, attendance and transcripts) from the organizations, schools, former employers, and references, etc., listed on this application. I understand my employment is probationary for six months.

IF HIRED, I WILL GIVE 100% OF MY LOYALTY AND EFFORT TO THIS COMPANY AND ITS MANAGEMENT.

X Applicant's Signature

APPENDIX B

INTERVIEW EVALUATION

INTERVIEW EVALUATOR

Name _____

Address _____

Date _____

PERSONAL GROOMING	Unkempt, noticeable lack of neatness	No special care in dress or appearance	Neat and clean	Pays special attention to personal details	Immaculately dressed and groomed
VOICE QUALITY	Harsh, irritating	Indistinct, difficult to understand	Pleasant tone and voice	Clear, understandable, good tone quality	Unusually expressive; excellent voice
PHYSICAL APPEARANCE	Unpleasant, unhealthy appearance	Appears to lack energy; listless	Good physical condition, pleasant appearance	Appears fit, alert, energetic	Especially energetic; good carriage; appears in excellent condition
PERSONAL MANNER	Nervous, embarrassed, compulsive mannerisms	Stiff, uncomfortable; ill at ease	No unusual tension, comfortable, at ease	Appears alert, free of tension	Unusually self-possessed and composed
CONFIDENCE	Shy, retiring, arrogant, "cocky"	Submissive; argumentative	Reasonably self-assured; forthright	Shows self-confidence	Unusually self-assured; inspires confidence
EXPRESSION OF IDEAS	Unclear, illogical, speaks without thinking	Dwells on non-essentials; thoughts not well defined or expressed	Thoughts clearly expressed; words convey meaning	Convincing, thoughts developed logically	Unusual ability to express ideas logically
MENTAL ALERTNESS	Dull, slow to grasp ideas	Comprehends ideas but contributes little to discussion	Fairly attentive; expresses own thoughts	Quick-witted, alert, asks intelligent questions	Unusually quick thinker, keen mind; grasps complex ideas
MOTIVATION AND AMBITION	No drive, ambition limited	Little interest in development, seems satisfied	Interest and ambition for; reasonable desire to work and develop	Defines future goals; wants to succeed and grow	Ambitions high, future well planned; evidence of personal development

APPENDIX C

MATH TEST

The following represent actual sales transactions which you must be able to complete accurately as a part of a sales person's job. Work as quickly as possible.

5. 1 shirt	=	6.00
1 shirt	=	4.99
Sub-total	=	
Add 6% tax	=	
Total	=	

6. 2 book marks @ 1.25(ea)	=	
1 bottle opener	=	<u>1.00</u>
Sub-total	=	
Add 6% tax	=	
Total	=	

7. Charge sale:

1 pant suit	=	<u>19.90</u>
1 pant	=	<u>15.00</u>
2 pants @ 13.00 each	=	
2 blouses @ 8.00 each	=	
2 blouses @ 7.00 each	=	
Sub-total	=	
Add 6% tax	=	
Total	=	

8. Charge/Discounted Sales:

1 pant suit	=	<u>19.90</u>
Minus 20% Discount	=	
Sub-total	=	
Add 6% sales tax	=	
Total	=	

9. Discounted Sale:

1 smock top	=	<u>12.99</u>
Minus 20% discount	=	
Sub-total	=	
Add 6% tax	=	
Total	=	

10. Charge Sale:

1 handbag	=	<u>15.00</u>
1 scarf	=	<u>4.00</u>
2 prs. shoes @ \$25.00(ea)	=	
Sub-total	=	
Add 6% tax	=	
Total	=	

APPENDIX D

COMPUTER ASSISTED PLACEMENT SYSTEM

COMPUTER ASSISTED PLACEMENT SYSTEM

PERSONNEL SYSTEM

PRESS <ARROW KEY> TO BEGIN:

PERSONNEL SYSTEM

<u>ENTER</u>	<u>FOR</u>
1.	PLACEMENT SYSTEM
2.	INQUIRY SCREEN
3.	PRINT APPLICATION
4.	RETURN TO MAIN MENU

ENTER OPTION:

COMPUTER ASSISTED PLACEMENT SYSTEM

ENTER APPLICANT'S NAME:
ENTER POSITION APPLIED FOR: SALES
ENTER SOCIAL SECURITY NUMBER:

APPLICANT STARTS HERE

PERSONNEL SYSTEM

GOOD DAY _____. WELCOME TO name of store.
THIS INTERVIEW IS DESIGNED TO HELP YOU DESCRIBE THE TYPE
OF WORK YOU LIKE AND WOULD PREFER TO DO HERE AT name of
store.

TO CONTINUE PLEASE PRESS <ARROW KEY>

THIS IS NOT A TEST. THERE ARE NO RIGHT AND WRONG
ANSWERS. PLEASE TRY TO ANSWER THE QUESTIONS AS HONESTLY
AS POSSIBLE.

TO CONTINUE PLEASE PRESS <ARROW KEY>

TO LEARN HOW TO USE THE COMPUTER, PLEASE READ THE
QUESTION BELOW IF YOUR ANSWER TO THIS QUESTION IS YES,
PRESS THE "Y" KEY, OR IF YOU ANSWER IS NO, PRESS THE "N"
KEY.QUESTION: IS YOUR FULL NAME _____?
ENTER ANSWER

CONGRATULATION!! YOU HAVE ANSWERED THE SAMPLE QUESTION.

DURING THIS INTERVIEW WE WILL LIST A NUMBER OF DUTIES RELATED TO THE JOB YOU WANT.

RECORD YOUR LEVEL OF INTEREST BY PRESSING A NUMBER FROM 1 TO 5. THE NUMBER MEANS:

- 1 = NONE
- 2 = LITTLE
- 3 = MODERATE
- 4 = QUITE A BIT
- 5 = A GREAT DEAL

INTEREST IS: HOW MUCH YOU ENJOY OR LIKE DOING THIS KIND OF ACTIVITY.

TO DEMONSTRATE, REVIEW THE FIVE ACTIVITIES LISTED BELOW. THE SMALL BOX TO THE LEFT OF THE NUMBER WILL TELL YOU WHAT NUMBER YOU ARE ANSWERING. IF YOU ARE INTERESTED IN THE ACTIVITY, RECORD YOUR INTEREST BY PRESSING A NUMBER FROM 1 TO 5. CONTINUE BY RECORDING YOUR INTEREST FOR EACH ACTIVITY.

CONGRATULATION!! YOU HAVE ANSWERED THESE PROPERLY.

IF YOU WISH TO CHANGE YOUR ANSWERS SIMPLY PRESS "Y" KEY AND START AGAIN. IF YOU DO NOT WISH TO CHANGE YOUR ANSWERS, SIMPLY PRESS THE "N" KEY AND THE NEXT SET OF ACTIVITIES WILL APPEAR. AT THIS TIME PLEASE PRESS EITHER "Y" OR "N".

ANY CHANGES (Y/N)?:

PLEASE NOTE THAT YOU WILL BE SEEING EACH ACTIVITY THREE TIMES. YOU WILL BE RECORDING YOUR OPINIONS THREE WAYS:

1. INTEREST
2. EXPERIENCE
3. SKILL

INTEREST IS FIRST AND SHOULD BE ANSWERED BY ASKING YOURSELF "HOW MUCH DO I ENJOY DOING THIS ACTIVITY". YOU CAN HAVE AN INTEREST IN SOMETHING WITHOUT BEING GOOD OR SKILLED AT DOING IT, AND AN INTEREST DOES NOT HAVE TO BE A JOB OR DONE FOR MONEY.

TO CONTINUE PLEASE PRESS <ARROW KEY>

IF YOU HAVE ANY QUESTIONS AT THIS POINT CALL THE
RECEPTIONIST.

TO CONTINUE PLEASE PRESS <ARROW KEY>

INTEREST

HOW MUCH DO YOU ENJOY OR LIKE DOING THIS KIND OF
ACTIVITY:

	NONE	A	GREAT	DEAL
1. STOCK MERCHANDISE AND SHELVES	1	2	3	4 5
2. ENCOURAGE CUSTOMERS TO APPLY FOR CREDIT	1	2	3	4 5
3. GREET CUSTOMERS WHEN THEY ENTER THE STORE	1	2	3	4 5
4. ANSWER CUSTOMER QUESTIONS AND COMPLAINTS	1	2	3	4 5
5. GIVE ADVICE TO CUSTOMERS ABOUT PURCHASES	1	2	3	4 5

INTEREST

HOW MUCH DO YOU ENJOY OR LIKE DOING THIS KIND OF
ACTIVITY:

	NONE	A	GREAT	DEAL
1. PERSUADE PEOPLE TO BUY SOMETHING	1	2	3	4 5
2. DETERMINE CUSTOMER NEEDS	1	2	3	4 5
3. SELL MERCHANDISE IN THE STORE	1	2	3	4 5
4. COUNT MERCHANDISE FOR INVENTORY RECORDS	1	2	3	4 5
5. TAG AND LABEL MERCHANDISE	1	2	3	4 5

INTEREST

HOW MUCH DO YOU ENJOY OR LIKE DOING THIS KIND OF
ACTIVITY:

	NONE	A	GREAT	DEAL
1. RECEIVE, UNPACK AND SORT MERCHANDISE	1	2	3	4 5
2. SET UP AND ARRANGE DISPLAYS	1	2	3	4 5
3. RUNNING A CASH REGISTER	1	2	3	4 5
4. CHECK NAMES AND NUMBERS AGAINST A CORRECT LIST	1	2	3	4 5
5. DO SIMPLE ARITHMETIC INCLUDING FRACTIONS AND PERCENTAGES	1	2	3	4 5

INTEREST

HOW MUCH DO YOU ENJOY OR LIKE DOING THIS KIND OF
ACTIVITY:

	NONE	A	GREAT	DEAL
1. EXPLAIN STORE MERCHANDISE AND SERVICES TO CUSTOMERS	1	2	3	4 5

2. MAINTAIN APPEARANCE OF MERCHANDISE IN THE STORE	1	2	3	4	5
3. PREPARE DAILY AND MONTHLY REPORTS OF VARIOUS KINDS	1	2	3	4	5
4. ANSWER THE TELEPHONE	1	2	3	4	5
5. CALL POTENTIAL CUSTOMERS	1	2	3	4	5

INTEREST

HOW MUCH DO YOU ENJOY OR LIKE DOING THIS KIND OF
ACTIVITY:

	NONE	A	GREAT	DEAL
1. HANDLE RETURNS AND EXCHANGES	1	2	3	4 5
2. WORKING WITH OTHER EMPLOYEES	1	2	3	4 5
3. ASSIST CUSTOMERS IN FINDING PROPER SIZE, FIT, COLOR, ETC.	1	2	3	4 5
4. WORK WITH EMPLOYEES AND CUSTOMERS OF DIFFERENT BACKGROUNDS	1	2	3	4 5
5. WORK WITHOUT CLOSE SUPERVISION	1	2	3	4 5
6. SHOW HOW MERCHANDISE IS USED	1	2	3	4 5

CONGRATULATION!! YOU HAVE FINISHED THE FIRST OF THREE
PARTS.

FOR THE SECOND PART, INDICATE YOUR LEVEL OF EXPERIENCE BY
PRESSING A NUMBER FROM 1 TO 5 ACCORDING TO THIS SCALE:

- 1 = NONE
- 2 = LITTLE
- 3 = MODERATE
- 4 = QUITE A BIT
- 5 = A GREAT DEAL

EXPERIENCE

HOW MUCH EXPERIENCE DO YOU HAVE WITH THIS ACTIVITY?
REMEMBER IT DOES NOT HAVE TO BE FOR PAY.

	NONE	A	GREAT	DEAL
1. STOCK MERCHANDISE AND SHELVES	1	2	3	4 5
2. ENCOURAGE CUSTOMERS TO APPLY FOR CREDIT	1	2	3	4 5
3. GREET CUSTOMERS WHEN THEY ENTER THE STORE	1	2	3	4 5
4. ANSWER CUSTOMER QUESTIONS AND COMPLAINTS	1	2	3	4 5
5. GIVE ADVICE TO CUSTOMERS ABOUT PURCHASES	1	2	3	4 5

EXPERIENCE

HOW MUCH EXPERIENCE DO YOU HAVE WITH THIS ACTIVITY?
REMEMBER IT DOES NOT HAVE TO BE FOR PAY.

	NONE	A	GREAT	DEAL
1. PERSUADE PEOPLE TO BUY SOMETHING	1	2	3	4 5
2. DETERMINE CUSTOMER NEEDS	1	2	3	4 5
3. SELL MERCHANDISE IN THE STORE	1	2	3	4 5
4. COUNT MERCHANDISE FOR INVENTORY	1	2	3	4 5
RECORDS				
5. TAG AND LABEL MERCHANDISE	1	2	3	4 5

EXPERIENCE

HOW MUCH EXPERIENCE DO YOU HAVE WITH THIS ACTIVITY?
REMEMBER IT DOES NOT HAVE TO BE FOR PAY.

	NONE	A	GREAT	DEAL
1. RECEIVE, UNPACK AND SORT MERCHANDISE	1	2	3	4 5
2. SET UP AND ARRANGE DISPLAYS	1	2	3	4 5
3. RUNNING A CASH REGISTER	1	2	3	4 5
4. CHECK NAMES AND NUMBERS AGAINST A	1	2	3	4 5
CORRECT LIST				
5. DO SIMPLE ARITHMETIC INCLUDING	1	2	3	4 5
FRACTIONS AND PERCENTAGES				

EXPERIENCE

HOW MUCH EXPERIENCE DO YOU HAVE WITH THIS ACTIVITY?
REMEMBER IT DOES NOT HAVE TO BE FOR PAY.

	NONE	A	GREAT	DEAL
1. EXPLAIN STORE MERCHANDISE AND	1	2	3	4 5
SERVICES TO CUSTOMERS				
2. MAINTAIN APPEARANCE OF MERCHANDISE	1	2	3	4 5
IN THE STORE				
3. PREPARE DAILY AND MONTHLY REPORTS	1	2	3	4 5
OF VARIOUS KINDS				
4. ANSWER THE TELEPHONE	1	2	3	4 5
5. CALL POTENTIAL CUSTOMERS	1	2	3	4 5

EXPERIENCE

HOW MUCH EXPERIENCE DO YOU HAVE WITH THIS ACTIVITY?
REMEMBER IT DOES NOT HAVE TO BE FOR PAY.

	NONE	A	GREAT	DEAL
1. HANDLE RETURNS AND EXCHANGES	1	2	3	4 5
2. WORKING WITH OTHER EMPLOYEES	1	2	3	4 5
3. ASSIST CUSTOMERS IN FINDING PROPER	1	2	3	4 5
SIZE, FIT, COLOR, ETC.				
4. WORK WITH EMPLOYEES AND CUSTOMERS	1	2	3	4 5
OF DIFFERENT BACKGROUNDS				
5. WORK WITHOUT CLOSE SUPERVISION	1	2	3	4 5
6. SHOW HOW MERCHANDISE IS USED	1	2	3	4 5

CONGRATULATIONS!! YOU HAVE FINISHED THE SECOND OF THREE PARTS.

FOR THE THIRD PART, INDICATE YOUR LEVEL OF SKILL BY PRESSING A NUMBER FROM 1 TO 5 ACCORDING TO THIS SCALE:

- 1 = NONE
- 2 = LITTLE
- 3 = MODERATE
- 4 = QUITE A BIT
- 5 = A GREAT DEAL

SKILL					
HOW MUCH <u>SKILL</u> DO YOU HAVE IN THE FOLLOWING ACTIVITIES?					
	NONE	A	GREAT	DEAL	
1. STOCK MERCHANDISE AND SHELVES	1	2	3	4	5
2. ENCOURAGE CUSTOMERS TO APPLY FOR CREDIT	1	2	3	4	5
3. GREET CUSTOMERS WHEN THEY ENTER THE STORE	1	2	3	4	5
4. ANSWER CUSTOMER QUESTIONS AND COMPLAINTS	1	2	3	4	5
5. GIVE ADVICE TO CUSTOMERS ABOUT PURCHASES	1	2	3	4	5

SKILL					
HOW MUCH <u>SKILL</u> DO YOU HAVE IN THE FOLLOWING ACTIVITIES?					
	NONE	A	GREAT	DEAL	
1. PERSUADE PEOPLE TO BUY SOMETHING	1	2	3	4	5
2. DETERMINE CUSTOMER NEEDS	1	2	3	4	5
3. SELL MERCHANDISE IN THE STORE	1	2	3	4	5
4. COUNT MERCHANDISE FOR INVENTORY RECORDS	1	2	3	4	5
5. TAG AND LABEL MERCHANDISE	1	2	3	4	5

SKILL					
HOW MUCH <u>SKILL</u> DO YOU HAVE IN THE FOLLOWING ACTIVITIES?					
	NONE	A	GREAT	DEAL	
1. RECEIVE, UNPACK AND SORT MERCHANDISE	1	2	3	4	5
2. SET UP AND ARRANGE DISPLAYS	1	2	3	4	5
3. RUNNING A CASH REGISTER	1	2	3	4	5
4. CHECK NAMES AND NUMBERS AGAINST A CORRECT LIST	1	2	3	4	5
5. DO SIMPLE ARITHMETIC INCLUDING FRACTIONS AND PERCENTAGES	1	2	3	4	5

ADDENDIX E

MEMORANDUM

VICE PRESIDENT PERSONNEL

November 5, 1984

MEMORANDUM

To: Personnel Managers

From: Vice President Personnel

Subject: Sales Associate Selection Project

The purpose of this study is to collect information that will allow the store to do a better job of selecting sales associates. Your cooperation will be needed for this project to work.

I would like to collect the following data for everyone hired during the next 30 days.

1. Application blank
2. Math test
3. Stanton honest test
4. Computer interview
5. Interviewer evaluation card
6. Myers Briggs Test

It is extremely important that full data be collected on all new hires in each of the above areas. You should insure that each form is checked for completeness.

Items 1 through 3 should be administered as they have been in the past. Items 4 and 5 are new and provide some additional information pertinent to this research. Item 6, The Myers Briggs Test, is self administered. All necessary instructions are given on the cover page of the test booklet.

Ms. Barbara Fuller will be directing this research and providing a summary of the results for our use. She will be visiting each store on Monday and Tuesday, November 5th and 6th to answer any questions you may have. Please give her your full cooperation in conducting this research.

If you have any additional questions or comments, please contact me.

VITA

Barbara Kay Fuller was born in Morgantown, West Virginia on October 22, 1950. She attended Morgantown High School, graduating in 1968. She entered West Virginia University the Summer of 1968, and received the Bachelor of Science degree in Home Economics Education in June of 1971. She entered the University of Delaware, Newark, in the Fall of 1971, and graduated with a Master of Science in Textiles and Clothing in August of 1973.

From the fall of 1973 until the summer of 1975 she taught in the Retailing Department at Webber College, Babson Park, Florida. In the fall of 1975 she accepted a position at Winthrop College in Fashion Merchandising in the School of Consumer Science and Allied Professions. She was named Outstanding Young Women in America in 1980. In the spring of 1982 she received the President's Research Fellowship for work on the doctorate from Phi Upsilon Omicron Honor Society.

In the fall of 1982 she became Coordinator of Undergraduate Student Affairs and Area Coordinator for the Fashion Merchandising program at Winthrop College. In the Fall of 1986 she moved to the School of Business Administration in the Marketing/Fashion Merchandising area.

She received the degree of Doctor of Philosophy, with a major in Human Ecology in December 1986, under the interdisciplinary option which includes the areas of merchandising, consumer economics and marketing. She is a member of Phi Upsilon Omicron and Omicron Nu Honor Societies in Home Economics.

She is the daughter of Mrs. Amelia M. Fuller and Mr. William F. Fuller of Morgantown, West Virginia.