Age and Sex as Factors in Employment Decisions Based on Assessment Center Reports

Constance L. Alden
University of Central Florida

This Masters Thesis (Open Access) is brought to you for free and open access by STARS. It has been accepted for inclusion in Retrospective Theses and Dissertations by an authorized administrator of STARS. For more information, please contact STARS@ucf.edu.

STARS Citation
Alden, Constance L., "Age and Sex as Factors in Employment Decisions Based on Assessment Center Reports" (1981). Retrospective Theses and Dissertations. 531.
https://stars.library.ucf.edu/rtd/531
AGE AND SEX AS FACTORS IN EMPLOYMENT DECISIONS
BASED ON ASSESSMENT CENTER REPORTS

BY

CONSTANCE L. ALDEN
B.A., University of Central Florida, 1979

THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Science: Industrial Psychology
in the Graduate Studies Program of the College of Arts and Sciences
at the University of Central Florida; Orlando, Florida

Spring Quarter
1981
Acknowledgment

I would like to express a sincere debt of gratitude to my committee chairman, Dr. Wayne Burroughs, not only for counsel and assistance in preparation of this paper, but also for the knowledge he has imparted to me throughout my graduate career.

I would also like to express my appreciation to my committee members, Dr. Randy Fisher and Dr. Edwin Shirkey for their time and suggestions.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Tables</td>
<td>v</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vi</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Method</td>
<td>20</td>
</tr>
<tr>
<td>Results</td>
<td>23</td>
</tr>
<tr>
<td>Discussion</td>
<td>30</td>
</tr>
<tr>
<td>Appendix</td>
<td>37</td>
</tr>
<tr>
<td>References</td>
<td>50</td>
</tr>
</tbody>
</table>
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analysis of Variance Results for Evaluations of Potential</td>
<td>24</td>
</tr>
<tr>
<td>2. Analysis of Variance Results for Recommendations for Promotion</td>
<td>26</td>
</tr>
</tbody>
</table>
### List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mean Ratings for Incumbents on Potential</td>
<td>25</td>
</tr>
<tr>
<td>2. Mean Ratings for Incumbents on Promotion</td>
<td>27</td>
</tr>
<tr>
<td>3. Cell Correlations Between Ratings of Potential and Promotion</td>
<td>29</td>
</tr>
</tbody>
</table>
Introduction

In 1967 Congress passed the Age Discrimination in Employment Act (ADEA), which became effective in June, 1968. As a result of this act all individuals ages 40 through 65 are considered to be a protected class. This means that all individuals falling in this category are protected against discrimination in employment situations. Similar legislation providing protection from discrimination based on sex has been in effect since the passage of Title VII of the 1964 Civil Rights Act. In spite of the existence of these acts, discrimination based on age and sex persists. This fact is reflected by the numerous court cases that have been filed by the Labor Department since the passage of the ADEA (Kendig, 1978) and Title VII (Lawrence, 1978).

Age discrimination, like other types of discrimination, is difficult to prove because it is seldom openly expressed. Occasionally employers will express the desire for their organization to "present a youthful image," however, the majority of discriminatory practices are well disguised because reasons other than age are given for not hiring the older applicant. Although it is often difficult to identify and prove, many middle-age and older individuals report personal experiences with age discrimination. McAuley (1977) reported perceived age discrimination in hiring situations to be widespread. This was found to be true particularly among certain subgroups including: the elderly, those in white-collar jobs, those residing in
larger cities, and those in the retail-wholesale and professional categories. Prevalence of age discrimination has also been reported by ethnic minorities (Kasschau, 1977) and both male and female members of the aerospace profession (Kassachau, 1976).

Similarly, there is evidence that sex discrimination continues to be prevalent in the area of employment. Recent statistics indicate that although 43% of the current work force is made up of women, only 6.1% of persons with weekly earnings of $500 or more are female (Mirides & Cote, 1980). These statistics would indicate that women still are not considered to be serious contenders for higher paying professional positions.

There has been a considerable amount of research dealing with age discrimination in employment and in recent years a definite emphasis on the effects of sex discrimination has emerged. However, there has been little research on the possibility of combined effects of these two factors. Does an older woman, in fact, experience combined effects of age and sex discrimination in employment situations? This would constitute the idea of double jeopardy.

Palmore and Manton (1973) used U.S. census data from 1950 to 1970 to investigate the relative equality between age, race and sex groups in terms of income, occupation, weeks worked and education. This study used an instrument of measurement called an Equality Index. When the Equality Index was used to measure combined effects of age and sex discrimination it was found that these effects were particularly noticeable in the area of income. The highest inequality was found between the income level of older females and younger males. Palmore and
Manton conclude that the joint effects of different types of discrimination appear to be additive.

Although Palmore and Manton's study provides some evidence of additive effects, there are still many unanswered questions regarding the combined effects of these two types of discrimination. First, in the above study the older group consisted of persons 65 and older. All individuals ages 25 to 64 fell into the younger category. Although persons over 65 years of age make up a significant proportion of the population, it is important to look at persons falling within the age range protected by the Age Discrimination in Employment Act when considering discrimination against older workers. These persons are more likely to be active in the work force and have a high possibility of experiencing the effects of discrimination. Is, then, an individual between the ages of 40 and 65 likely to experience employment discrimination?

Secondly, Palmore and Manton looked at combined effects for certain groups (e.g., older females compared to younger males), but not for groups with a discrimination factor in common. What, then, would be the effect of comparing older females to older males? Finally, how do these combined effects influence actual employment decisions as opposed to economic and educational variables used in Palmore and Manton's study?

The purpose of the present study was to determine what effect a candidate's age and sex would have on employment decisions concerning managerial positions. Combined and separate effects of these factors
were investigated. In reviewing relevant literature the following research areas were considered to be of importance.

Age Discrimination

Stereotypes. Contributing to the persistence of age discrimination are stereotypic beliefs that older individuals are over-cautious, resistant to change and unwilling to make decisions (Koenig & Gault, 1965). It is also believed that older individuals are less flexible, lower in performance capacity and lower in potential for development (Rosen & Jerdee, 1976b; Sheblak, 1969). These stereotypes often result in discriminatory behaviors which manifest themselves most noticeably through unfair employment practices. Rosen and Jerdee (1976a) found that stereotypes regarding older employees' physical, cognitive and emotional characteristics led a sample of undergraduate business students to discriminate against older workers in an in-basket simulation of managerial decision making.

Cognitive and physical abilities. There have been numerous studies on work capacity and job performance as a function of age. Studies of cognitive ability have generally found decrements in performance after approximately 40 years of age. Szafran (1965) found pilots over 40 years of age to be more susceptible than younger pilots to the effects of information overload. This was found to be true particularly in situations which involved short-term recall when some other activity intervened during the period of retention.
In two studies of air traffic control specialists, Cobb (1968) and Mathews and Cobb (1974) found that group performance means for controllers over 40 years of age were significantly lower than those of younger groups. Moreover, the effect of length of experience was found to be of negligible importance when considered independently of age. Both studies concluded that after age 40 air traffic control specialists are apt to be unable to cope adequately with the cumulative buildup of the presumed work-related stress effects.

It would appear that middle-age and older individuals are not well suited for jobs which require high levels of these abilities such as air traffic control specialists (Cobb, 1968; Mathews & Cobb, 1974), pilots (Szafran, 1965) and truck drivers (McFarland, Mosely, & Fisher, 1954). This is true particularly in situations where the safety of others is involved.

Studies of physical ability have also found evidence of decline with increasing age. Malhotra, Ramswamy, Dua, and Sengupta (1966) conducted a study with 879 healthy soldiers from Northern India to assess the effect of age on physical work capacity. It was found that all the physical functions tested such as speed of running, abdominal muscle strength and capacity for short bursts of activity, started to show deterioration after 30 years of age and the process was found to be progressive thereafter.

In a related study Carver and Winsmann (1970) investigated the effect of age on the physical work performance of 149 Special Forces U.S. Army soldiers. The results of 10 basic fitness tests and 5 tests of physical combat proficiency failed to show a consistent downward
trend after age 30. These results are inconsistent with those of Malhotra et al. (1966). Carver and Winsmann (1970) suggested that the conflicting results might be due to differences in motivation levels between the two subject samples, or differences in training levels between the homogeneous Indian sample and the U.S. sample in which the older Special Forces officers are more likely to be highly trained.

Studies of muscle strength have generally found a decline with increasing age. For example, in a study by Asmussen and Nielsen (1962) a decrease in isometric muscle strength was found in men and women after approximately 30 years of age. Similarly, Fisher and Birren (1947) found that male industrial workers showed maximum muscle strength in their middle twenties with a continuous decline thereafter.

Although evidence exists of physical decline in ability with increasing age, this evidence does not imply that older workers are incapable of performing as well as younger workers in jobs which require physical capacity. Meier and Kerr (1976) point out that the physical demands of most jobs today are well below the capacities of most normal aging workers. These authors contend that properly placed older workers function effectively and have greater stability on the job than younger workers. Other studies investigating older worker productivity and performance capacity have found no significant differences between the performance of older and younger employees (Odell, 1958). Some of the jobs investigated in these studies were inspectors in the telecommunications industry (Jamieson, 1966) and factory workers in a variety of semi-skilled and moderately-skilled positions (Breen, 1960; Schwab & Heneman, 1977).
Further evidence in favor of the employment of older workers contends that individuals differ greatly in the extent to which they decline physically and psychologically with increasing age (McFarland, 1973; Sheblak, 1969). This would suggest that generalizing the performance capabilities of older workers by setting arbitrary age limits for hiring and promotion is an unreliable method of predicting future work performance.

**Positive factors.** Older employees actually have many attributes in their favor and in some occupations, under some work conditions, older workers are likely to do a better job than younger workers. For example, older employees are less often discharged due to incompetence (Smith, 1952), have better attendance records (Bowers, 1952), and are more highly motivated to perform well on the job than younger workers (Sheblak, 1969). Also, older individuals are generally more satisfied with their jobs (Glen, Taylor, & Weaver, 1977; Meier & Kerr, 1976) and therefore are less likely to quit due to job dissatisfaction (Smith, 1952). These factors may often compensate for the physical decline in performance which occurs due to aging.

**Actual performance.** Studies which required employers to rate the actual performance of their older workers have found these employees to receive proportionally as many, or more, favorable evaluations than younger employees (Odell, 1958; Sheblak, 1969). Bowers (1952) reviewed personnel records of employees in a large organization. They ranged in age from 18 to 76 years. These employees performed a variety of duties within the organization. Some of the positions included: foremen,
minor executives, skilled craftsmen, operators of both heavy and light machinery, inspectors, clerks and unskilled labor. Bowers found that most of the older workers were considered competent on the job and compared favorably with younger workers.

In a similar study Smith (1952) reviewed foremen appraisals of 3,660 past employees of a manufacturing company. Older workers were evaluated on ability, attitude and attendance. They were found to have received proportionately as many above average ratings as younger workers and were considered equally as worthy of rehire.

An additional result of these studies, related to actual employment practices, is that the same employers who rated their older employees as good workers overall, considered older individuals seeking new jobs to be poor employment risks (Odell, 1958; Smith, 1952). It would appear that even though employers are satisfied with the performance of the older workers currently employed by their organization, they continue to use youth as a criterion for hiring new employees.

One further point of interest related to employment discrimination is that employers tend to consider age an important factor in hiring and promotion in lower level management positions, but place less importance on age when making decisions concerning higher level management (Koenig & Gault, 1965; Triandis, 1963).

Problems with research. Research related to aging and discrimination is both complex and confusing. Empirical studies frequently report contradictory results. Much of this is due to methodological problems and the confounding effects of variables other than age. Other
factors have been found to play a major role in such research. Variables such as amount of experience, job level, sex and characteristics of respondents have important influences on research in this area. For example, discrepant results have been found in research concerning how the age of the respondent influences attitudes toward older employees. Recent studies (Rosen & Jerdee, 1976b; Slater & Kingsley, 1976) have shown that older respondents give relatively higher evaluations to older workers. This is in opposition to results of Schwab and Heneman (1978), and Tuckman and Lorge (1952) who found that older respondents rated older employees lower than younger respondents.

The contradictory results may be due to methodological differences in these studies. These studies varied a great deal in their measurement instruments, subject sample and procedures. For example, in Rosen and Jerdee’s study realtors and undergraduate business students were asked to directly compare hypothetical older and younger employees on a questionnaire consisting of work related characteristics. In Slater and Kingsley’s study managing directors of various firms in Wales were asked to agree or disagree with statements about differences between older and younger white-collar employees.

Schwab and Heneman (1978) and Tuckman and Lorge (1952) used still different methodologies. Schwab and Heneman required personnel specialists to evaluate written descriptions of four secretaries, while Tuckman and Lorge asked institutionalized and noninstitutionalized elderly adults to describe their attitudes toward older workers.

Another possible explanation for the different findings of these studies regarding ratings of older respondents was suggested by Tuckman
and Lorge (1952). They concluded that persons who themselves experienced difficulty adjusting to older age are more likely to subscribe to erroneous beliefs and ideas about the older worker and are thus more likely to view them in a negative light than are those with little adjustment difficulties.

In one additional study which dealt with the influence of respondent characteristics, Kirchner and Dunnette (1954) found that supervisors, as a group, compared to rank-and-file employees held less favorable attitudes toward older workers. This was found to be true regardless of the supervisor's age. Kirchner and Dunnette concluded that one potential barrier to the utilization of older individuals may have been discovered since supervisors often play an important (overt or covert) role in the hiring and retention of employees.

Sex Discrimination

Stereotypes. The basis of sex discrimination, as with age discrimination, lies in stereotypic beliefs employers hold regarding differences between men and women. Broverman, Vogel, Broverman, Clarkson and Rosenkrantz (1972) sampled attitudes of male and female subjects and found stereotypes to exist regarding both sexes. Women were perceived as being less competent, less independent, less objective and less logical than men. Men were perceived as having less interpersonal sensitivity, warmth and expressiveness than women. Although it is clear that stereotypic attitudes exist toward both sexes, the same study found that stereotypical masculine traits are more often perceived to be desirable than are stereotypically feminine characteristics.
Sex role stereotyping can perhaps be most bluntly observed in management settings. Women in increasing numbers are attempting to enter the ranks of management. However, recent figures show that only approximately 2% of all women in business hold management positions (Mirides & Cote, 1980). Much of the reason for this low number may be due to the persistence of negative attitudes toward women in management. Schein (1973) found that male middle managers perceived successful middle managers to possess characteristics more commonly ascribed to men in general than women in general. In a replication of this study it was found that female middle managers held similar biases (Schein, 1975).

In a study by Bass, Krusell and Alexander (1971) male managers indicated that they would be uncomfortable with a female supervisor. These managers also believed that women were not as dependable as men because of women's biological and personal characteristics.

Moreover, attitudes toward women in management appear to be unaffected by their relative success or failure in the position (Garland & Price, 1977). In a study by Deaux and Emswiller (1974) both male and female subjects evaluated the performance of either a male or a female stimulus person. This study found evidence that success for the woman differed greatly from success for the man. Success for the woman was more often attributed to external factors such as luck or an easy job. However, success for the man, performing the same job, was more often attributed to internal factors such as ability and hard work. Similar results were found in a later study by Garland and Price (1977) in which male subjects were asked to make causal attributions for the success or failure of a female manager.
Evidence of differential attribution may be inferred from studies such as Deaux and Taynor (1973). In this study 47 male and 50 female college students were asked to rate either a male or a female applicant for a scholarship program. Judgments were made on the basis of a taped verbal interview between the applicant and a male interviewer. It was found that highly competent males were rated more positively than highly competent females and males of low competence were rated lower than similar females. This study provides evidence that sex bias can work two ways. These biases may have the potential of effecting both males and females in employment situations.

**Discriminatory practices.** The fact that sex discrimination exists in employment situations has been well documented in recent years. Discrimination has been demonstrated in numerous employment procedures and practices. For example, Terborg and Ilgen (1975) found that females were often given lower salaries than males for equal work. This was true even in situations where strong fair employment practices exist (Rosen & Mericle, 1979). Further inequities have been found in promotion and development (Rosen & Jerdee, 1974b, 1974c) and in evaluation of grievances (Rosen & Jerdee, 1975a).

In selection, discrimination has been found against females when applying for jobs traditionally occupied by males (Cohen & Bunker, 1975; Dipboye, Fromkin, & Wiback, 1975; Fidell, 1970). In a study by Cecil, Paul, and Olins (1973) it was found that standard variables which are frequently used to evaluate job applicants were perceived to be of different importance for male and female applicants. Although subjects
were provided with the same information for either a male or female applicant for an undefined white-collar position, the female applicant was perceived as more of a typical clerical employee. The male applicant was perceived as more of an administrative management employee.

In a related study by Rosen and Jerdee (1974a) female applicants were selected for managerial positions significantly less often than male applicants with identical qualifications. Also, females were rated lower on technical potential, potential for long service to the organization, potential for fitting in well and in overall ratings. The same study found job demands to have differential effects on evaluations of male and female applicants. Lowest acceptance rates and poorest evaluations were given to female applicants for "demanding" as opposed to "routine" positions.

Importance of observed performance. Although there is substantial evidence of the existence of sex discrimination in employment practices, there have been some conflicting results in studies where different methodologies were utilized. A large body of research has recently emerged which indicates that when little information is available concerning an employee's actual job performance, employers tend to fall back on traditional stereotypes concerning male and female roles (Rosen & Jerdee, 1974c). In contrast to studies which have used brief written descriptions of male and female performance and confirmed the existence of discrimination, studies which have used actual work samples have found no significant differences due to sex (Hall & Hall, 1976). Moreover, in studies by Bigoness (1976) and Hammer, Kim, and Bigoness (1974)
it was found that high performing females were actually rated higher than males performing equally well in a male-dominated nonprofessional job.

Further evidence that judgments based on observable work performance can result in more equitable treatment of women can be found in conflicting results of studies by Bartol and Butterfield (1976) and Lee and Alvares (1977). In the Bartol and Butterfield study, subjects were asked to evaluate leadership behavior of either male or female managers based on written stories of leadership styles. It was found that significantly different evaluations were given to male and female managers for certain leadership styles. Lee and Alvares however, asked subjects to evaluate male and female supervisors based on actual work sample in a simulation of an industrial task. In this study no significant differences were found due to sex of supervisor for most leadership styles. Lee and Alvares concluded that sex differences may be more evident in a situation where there is no observation of actual work performance. In this case the rater may be forced to rely on sex role stereotypes to fill in gaps in knowledge created by lack of personal experience.

The Assessment Center Method

Assessment centers have been widely used to assess managerial skills and potential (Huck & Bray, 1976). Basically, the assessment center method calls for a candidate to go through a series of exercises which resemble situations with which a manager would be confronted on the job. The candidate's performance on each exercise is rated by
multiple-trained assessors. A final report containing summary information regarding the candidate's observed behavior and his or her rating is compiled and submitted to the management of the organization. Assessment center results are often used by organizations to make decisions concerning selection, promotion, salary and potential for future growth.

Assessment centers have proven to be valid in the selection (Bray, 1971) and promotion (Kraut & Scott, 1972) of management personnel. Bray and Grant (1966) conducted a longitudinal research project at the American Telephone and Telegraph Company known as the Management Progress Study. This study assessed the abilities of young managers using assessment center techniques. The assessment data were not made available to the participants or the organization at the time. After eight years each participant still with the company was reassessed. Results demonstrated strong relationships between the predictions made at the assessment center and subsequent career progress. Thus, the results of this study did much to establish the validity of the assessment center process.

The assessment center method has also shown evidence of predicting future performance with equal accuracy for male and female managers (Huck & Bray, 1976; Moses & Boehm, 1975). Recent evidence has emerged which shows that discrimination against women will not occur when employment decisions are made on the basis of assessment center information (Steinberger, 1976). Absence of discrimination has also been found when using assessment center results to make selection decisions for both male and female candidates for sex-typed jobs (Prince, 1977).
This evidence would suggest that fair employment decisions can be made based on assessment center information with the same accuracy as observable work performance. This may be due to the fact that assessment center reports summarize the individual's observable behavior in a simulation of actual work performance.

There has been little empirical research in the area of age as a factor in assessment center results. Although there is evidence that older candidates do not perform as well in assessment centers as do younger candidates (Burroughs, Rollins, & Hopkins, 1973), no evidence exists concerning possible discrimination against the older candidate who actually performs well.

In view of evidence which demonstrates the similarity between assessment center information and observed work behavior, this study has utilized an assessment center report on an incumbent in a managerial position as the basis for decisions concerning potential and promotion. It was believed that since an assessment center report summarizes actual work samples, decisions made based on this information would be similar to those made on the basis of observable work performance.

This study was designed to determine if an incumbent's age and sex affect employment decisions based on assessment center summary information. The assessment center information was identical for all four conditions: young male, young female, older male and older female.

**Hypothesis 1**

Significant differences in ratings were expected due to the interaction between the age and sex of the incumbent.
A review of the literature shows that complex interactions between many types of variables exist which often result in differential employment opportunities for certain groups of individuals. For example, Palmore and Manton (1973) investigated age, race and sex as factors affecting income, occupation, weeks worked and education. They found differential influences on each variable depending on which factor or combination of factors were investigated. The combination of any two factors generally were found to produce additive effects.

Studies which have dealt directly with decisions people make when certain personal factors are present (e.g., age and sex) have generally been inconclusive. For example, Haefner (1977) found age, sex and competence level to affect selection decisions regarding disadvantaged candidates for semi-skilled positions. It was found that employers preferred younger workers over older workers, males over females, and highly competent candidates over barely competent candidates. Although no significant interaction was found due to the age and sex of the candidates, when competence level was considered there was a significant interaction for both age and level of competence and sex and level of competence. Thus, employers made little distinction between barely competent younger workers and barely competent older workers; however, when the candidates were of high competence, employers clearly preferred younger individuals over older individuals. Similarly, sex was considered to be of little importance when the candidates were barely competent; however, when the candidates were highly competent, employers preferred males over females. Related findings by Deaux and Taynor (1973) indicate that highly competent males were rated more
positively than highly competent females in interviews for a scholarship program.

Since it was not the intent of the present study to investigate the effect of a candidate's competence level on employment decisions, the factor of competence was not systematically varied as in previous studies. In the present study all incumbents were of slightly above average competence. No prior evidence exists to predict how the factors of age and sex would affect employment decisions when the individual is of average competence. It was expected that significant differences in ratings would occur due to the interaction of these two factors.

Hypothesis 2

No significant differences in ratings were expected due to the age of the incumbent.

It was believed that the use of an assessment center report would reduce much of the stereotyping that could occur if less complete information were provided. This was based on evidence which indicates that the race or sex of an incumbent does not affect performance ratings when those ratings are made on the basis of observable work performance (Hall & Hall, 1976). It was believed that similar objectivity in ratings would be found in the investigation of age as a factor in employment decisions.

Furthermore, prior research has shown that employers tend to place less emphasis on the factor of age when making decisions concerning higher level management as opposed to lower level management positions.
(Koenig & Gault, 1965; Triandis, 1963). It was not clear how these results relate to promotional decisions from a middle management level to a higher level management position for an incumbent with demonstrated capabilities in his or her current position. It was believed that the age of the incumbent would have little influence on such decisions.

**Hypothesis 3**

No significant differences in ratings were expected due to the sex of the incumbent.

This hypothesis was supported by similar studies which have used assessment center information in employment decisions (Prince, 1977; Steinberger, 1976).
Method

Subjects

The subjects in this study were 51 male graduate students enrolled in Master of Business Administration programs at the University of Central Florida and Rollins College. This subject pool was chosen because it was believed that they would have similar work experience and education as managers who use assessment center data in making employment decisions. Only male subjects were used since males still hold the majority of top level management positions and are largely responsible for making these types of decisions.

Participation was voluntary and there was no compensation offered for participation. Subjects were anonymous and were asked to indicate only their sex and age range. All class members were asked to participate. However, only evaluations completed by males were included in the data analyses. Of the 51 subjects who took part in the study, 11 completed evaluations regarding the young male, 14 evaluated the older male, 15 evaluated the young female, and 11 evaluated the older female.

Apparatus

Materials given to experimental subjects included: instructions for completing the exercise, two job descriptions, a copy of an assessment center report on an incumbent in a middle management position, and an evaluation form (see Appendix).
The instructions stated the purpose of the evaluation and briefly described the assessment center method. Two job descriptions were written, one for a middle management position and one for a higher level management position. The work of Wortman and Sperling (1975) was helpful in developing these job descriptions.

An assessment center report was designed which summarized the performance of an incumbent in the middle management position. The report was written so that the individual appeared to have performed well, but not outstandingly in the exercises. This was to avoid the possibility that all subjects might have recommended the individual for a promotion.

The report included a brief description of the exercises including which skills were required for each. A definition of the necessary skills was provided. In addition, the incumbent's report contained summary information concerning his or her performance in each exercise and a numerical rating was given. A copy of the rating scale used for the assessment was provided.

All assessment center reports were identical except for the cover page. Information on the cover page included: name of incumbent (either Patrick or Patricia Johnson), age of incumbent (either 28 or 58 years old), current position title, department name, and the date. A form was provided for the subject to record his evaluation and recommendation.
**Procedure**

Experimental materials were presented as a class exercise. Participants were asked to complete the exercise at home and return it on the next class period. Each subject received two job descriptions, one assessment center report and one evaluation form. Subjects were not aware that any differences existed in the materials. Experimental materials were distributed by the class's regular professor so as not to raise suspicion concerning the nature of the exercise.

The professor instructed the subjects to read all materials and make the decisions called for at the end of the exercise. The decisions concerned the incumbent's potential for growth in the organization and the possibility of promotion at this time. Potential was rated on a 5 point scale. Promotion was rated on a 4 point scale.

The final decisions were recorded on the form provided. This form required the subject to fill in the incumbent's name, age, current position title, and the department name. This was to ensure that the subject was aware of the age and sex of the incumbent. On the form this appeared as routine information so as not to call undue attention to the age and sex factors. Before handing in the forms the subjects were required to indicate their own sex and age range.

The independent variables were: age of the incumbent and sex of the incumbent. The dependent variables were: the evaluation of the incumbent's potential for future growth in the organization and the recommendation of whether or not to promote the incumbent.
Results

Hypothesis 1

The major hypothesis of this study was that significant differences in ratings would occur due to the interaction between the age and sex of the incumbent. The experimental evidence supports this hypothesis for both ratings of potential and promotion. Main effects and interactions were investigated using analysis of variance procedures. Results for ratings of potential demonstrated a significant interaction between age and sex of the incumbent, $F(1, 47) = 5.873, p < .05$ (see Table 1). Mean ratings of potential for each dimension are shown in Figure 1. Subsequent post hoc analyses indicated that the interaction between age and sex produced significantly different ratings of potential for the young female and the older female ($p < .05$) with mean ratings of 3.667 and 3.273 respectively.

Results of the analysis of variance for promotion ratings also demonstrated a significant interaction due to the age and sex of the incumbent, $F(1, 47) = 4.479, p < .05$ (see Table 2). Mean ratings for the incumbents on the promotion variable appear in Figure 2. Post hoc analyses on this variable demonstrated significantly different ratings for the older male and the older female due to interaction effects ($p < .05$) with mean ratings of 2.929 and 2.273 respectively.
Table 1

Analysis of Variance Results for Evaluations of Potential

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of Incumbent</td>
<td>1</td>
<td>.016</td>
<td>.067</td>
</tr>
<tr>
<td>Age of Incumbent</td>
<td>1</td>
<td>.041</td>
<td>.171</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>1.409</td>
<td>5.873*</td>
</tr>
<tr>
<td>Error&lt;sub&gt;<em>w</em>&lt;/sub&gt;</td>
<td>47</td>
<td>.2399</td>
<td></td>
</tr>
</tbody>
</table>

*<sub>p = < .05</sub>
Figure 1. Mean rating for incumbents on potential.
Table 2
Analysis of Variance Results for Recommendations for Promotion

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of Incumbent</td>
<td>1</td>
<td>1.05</td>
<td>2.807</td>
</tr>
<tr>
<td>Age of Incumbent</td>
<td>1</td>
<td>.15</td>
<td>.401</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>1.675</td>
<td>4.479*</td>
</tr>
<tr>
<td>Error&lt;sub&gt;W&lt;/sub&gt;</td>
<td>47</td>
<td>.374</td>
<td></td>
</tr>
</tbody>
</table>

*<sub>p</sub> < .05
Figure 2. Mean ratings for incumbents on promotion.
Hypothesis 2

It was predicted that no significant differences in ratings would occur due to the age of the incumbent. Tables 1 and 2 show that no significant main effects did occur for either ratings of potential or promotion due to the incumbent's age.

Hypothesis 3

No significant main effects were expected due to the sex of the incumbent. Results of analyses of variance for potential and promotion show that no significant differences were found in ratings due to the incumbent's sex (see Tables 1 and 2).

Correlations Between Ratings of Potential and Promotability

In addition to analysis of variance procedures which were used to determine main effects and interaction, individual cell correlations were calculated between ratings of potential and promotion. Figure 3 lists these correlations and demonstrates a significant Pearson-Product Moment correlation between ratings of potential and promotion for the older female $r (9) = .722$, $p < .05$. The three remaining cell correlations were found to be nonsignificant.

Although a great deal of variability was found between cell correlations ranging from $.069$ for ratings of younger males to $.722$ for ratings of older females, these individual cell correlations were not found to differ significantly from each other. Finally, the average of the individual cell correlations was found to be significant, $r (49) = .366$, $p < .01$. 
Figure 3. Cell correlations between ratings of potential and promotion.
Discussion

Hypothesis 1

The findings of this study support the hypothesis that employment decisions concerning potential and promotion are influenced by the interaction between certain age and sex factors. This interaction results in significantly lower ratings for older females. These findings are consistent with the conclusion of Palmore and Manton (1973). They stated that when the combination of two factors exist (e.g., age and sex), the joint effects of different types of discrimination tend to be additive. This provides a possible explanation for the lower ratings that the older female received in the present study. It may be that raters can remain objective in ratings of incumbents with one discrimination factor present such as in the case of the younger female or the older male. However, when two of these factors are present such as in the case of the older female, the combined effects of both age and sex discrimination cause them to rate her lower in terms of potential and promotability.

Another possible explanation for the low ratings of the older female is that the subject sample used in this study may hold negative views toward older female managers. The present study used only male Master of Business Administration students. It is possible that females do not hold the same negative attitudes toward older women in management. However, the low ratings given to the older female are
probably a more accurate indication of the type of discrimination that exists in actual employment situations since males still hold the majority of top level management positions and are largely responsible for making these types of decisions.

The experimental evidence indicated that the interaction between age and sex factors resulted in lower ratings for the older female on both potential and promotability. On ratings of potential the older female was rated significantly lower than the younger female. For ratings concerning promotion the older female was rated significantly lower than the older male. Haefner (1977) found hiring decisions to reflect interactions both between a candidate's age and level of competence and between a candidate's sex and level of competence.

Haefner's findings indicated that when candidates were highly competent, employers clearly preferred the younger individual over the older individual. Although in the present study the candidates were only of slightly above average competence, their incumbency in a middle management position indicated that they had proven capabilities at that level. This provides a possible explanation for the higher ratings of the younger female on potential for future growth in the organization. In this study when sex and competence level were the same for both candidates, the young female was considered to have higher potential than the older female. This may be due to the fact that the younger female is viewed as having longer to develop her skills and to grow with the organization.

The finding that the older male was more likely to be promoted than the older female is also consistent with results found by Haefner.
(1977). Haefner found highly competent males to be rated more positively than equally competent females. Thus, when an older male and an older female demonstrate an equal level of competence in their current middle management positions, the older male is more likely to receive a promotion than is the older female.

Hypothesis 2

The absence of significant differences in ratings due to the incumbent's age provides evidence that the effects of age discrimination can be reduced by providing employers with descriptive information concerning the candidate's observed performance on job-related tasks. Results of the present study demonstrate a lack of discrimination in evaluations of the older individual's potential and promotability. Similar results have been found in studies where evaluations of older employees have been made on the basis of observable work performance. Odell (1958) and Sheblak (1969) found that employers gave older employees as many or more favorable evaluations as younger employees. This is probably due to the fact that the employers had the opportunity to observe the actual performance of the older employees on job-related tasks. However, evidence exists which indicates that even though employers rated their older employees as good workers overall, they considered older individuals seeking new jobs to be poor employment risks (Odell, 1958; Smith, 1952). This may be due to the fact that the employers did not have the opportunity to observe the job-related performance of the older applicants. Thus, their negative attitudes toward older applicants reflect traditional
stereotypes concerning older individuals. Results of the present study suggest that stereotypic attitudes toward older individuals do not influence employment decisions if employers are provided with written information describing the individual's observed performance in job-related situations. Thus, information such as that provided by assessment center reports may eliminate discrimination due to age in situations where the employer has not had the opportunity to observe actual job performance.

Hypothesis 3

The absence of significant differences in ratings due to the incumbent's sex provides further support for the conclusion that employment decisions based on behavioral information (such as that provided by assessment center reports) will reduce biases in ratings due to sex (Prince, 1977). Steinberger (1976) found that attitudes toward women in management create a discriminatory impact toward women when raters were forced to base selection evaluations on biographical information. However, when behavioral information concerning job performance (i.e., assessment center data) was made available, discriminatory effects were eliminated.

Similarly, Hall and Hall (1976) found no significant differences in performance evaluations of job incumbents due to either the sex or race of the incumbents when evaluations were based on actual performance data. Thus, the presence of behavioral data reduced the extent to which raters relied on sex (or race) as a basis for evaluating job incumbents.
Evidence provided by the present study indicates that the presence of behavioral information (as provided by the assessment center report) does reduce the extent to which raters rely on single factors such as age or sex alone in rating job incumbents. However, when two factors are present as in the case of the older female, the assessment center information does not eliminate biases in ratings. Further research is needed to determine the extent to which information varying in levels of specificity (e.g., ranging from biographical data to observations of actual performance) influence ratings of job incumbents when combinations of factors such as age and sex are present.

Correlations Between Ratings of Potential and Promotability

The experimental evidence indicated that an overall significant relationship existed between ratings of potential and promotion. However, when individual correlations for each of the experimental conditions were analyzed separately, it was found that ratings of potential and promotion were only related significantly in the case of the older female. This finding may be related to the conclusion that was made in regard to interaction effects. That is, the combined effects of age and sex discrimination result in negative judgments concerning the older female in both evaluations of potential and promotability. On the other hand, in making decisions regarding the other incumbents, different types of factors might influence the two ratings.
Conclusions and Implications

In conclusion, the results of the present study indicate that the effects of age discrimination and the effects of sex discrimination can be reduced when employment decisions are based on assessment center reports. However, when the influences of these two types of discrimination are combined (such as in the case of the older female) discriminatory employment decisions result.

Further research is needed to determine more specifically the way in which behavioral information serves to reduce biases that can occur in ratings when certain factors or combinations of factors are present. One potential area of future research might be a replication of the present study using different subject samples. It is important to determine if for example, female subjects would rate the older female as low as did the all male subject sample used in the present study.

Another area of future research might investigate the way in which individuals process information when different combinations of factors are present. For example, the present study found that one factor such as age will not significantly influence the ratings an incumbent receives. However, the combined effects of two factors such as age and sex interact to produce biases in ratings. Future research might compare various combinations of factors such as age, sex and race to determine if the present conclusion regarding combined effects holds true.

A final suggestion for future research involves the investigation of training effects. It is important to determine if raters can be
trained to rate more objectively when combinations of various factors (e.g., age and sex) are present.
Each subject was given a copy of the following experimental materials. Assessment center reports pertained to either Patrick Johnson--age 28, Patrick Johnson--age 58, Patricia Johnson--age 28, or Patricia Johnson--age 58. All other information was identical across the four experimental conditions.

**Instructions**

For the purpose of this exercise you are to assume that you are a member of the evaluation committee for the J. L. Weston Company, a textile manufacturer. Recent expansion has resulted in increased openings in management level positions. In order to make determinations concerning promotion and placement the Weston Company has begun sending its managers through an assessment center. The company has chosen this method because assessment centers have proven valid in predicting future performance of management personnel.

Basically, the assessment center method calls for a candidate to go through a series of exercises which resemble situations with which a manager would be confronted on the job. These exercises are designed to measure certain predetermined management skills. Assessment exercises often include business games, group exercises, in-basket exercises, simulated interviews and role-playing exercises. The candidate's performance on each exercise is observed and rated by a team of trained evaluators. These evaluators, or assessors, usually are representatives of the organization who are knowledgeable about the kinds of management behaviors that are found to be effective. The assessors receive special training in observing and evaluating
individual performance prior to participating as members of the assessment team. A final report containing summary information regarding the candidate's observed behavior and his/her rating is compiled by the assessment team and submitted to the management of the organization.

You have in front of you two job descriptions and a copy of an assessment center report on an incumbent in a middle management position. Included in this assessment center report is a description of the exercises used in the assessment center, a list of the skills required for each exercise, their definitions and the rating scale used to evaluate the incumbent. Please read through all materials and make your recommendations on the form provided. This should not take more than 30 minutes to complete. However, you may take additional time if necessary.

Assistant Plant Manager

This job requires that the manager direct and control all production operations within the plant. Specifically, the manager must plan and organize an adequate labor force to meet operational objectives and, through subordinate managers, direct manufacturing operations to meet production schedules based on sales forecast and the desired level of quality within cost objectives. Further responsibilities involve submitting annual operating budget requests to the budget committee, and implementing budgets and establishing necessary controls to meet financial objectives. The manager must plan and recommend changes in plant facilities and processes. In addition, the manager must review subordinate manager's requests for equipment replacement. The manager
is also responsible for interpreting and implementing company and plant policies and procedures. It is a further duty that the manager provide management development opportunities for subordinate managers and evaluate the performance of these managers.

**Plant Manager**

This job requires that the manager supervise overall plant functions to ensure that quality products are manufactured at the lowest possible cost. Specifically, the manager must direct and coordinate all plant operations such as purchasing, production and distribution. Further responsibilities involve the development of plant procedures in line with company policies and objectives with respect to operating procedures, production schedules, quality control, expense control and sales forecasts. The manager must provide development opportunities for key subordinate managers to create a professional management group. In addition, the manager must review recommendations from subordinate managers regarding proposed changes in plant facilities and processes.
Employee's Name: Patrick/Patricia Johnson

Age 28/58

Current Position Title: Assistant Plant Manager

Division or Department: Production
Description of Exercises

In-Basket

In this exercise the individual is presented with 30 items similar to those which might be found in a manager's in-basket. These include: memos, reminders, letters, etc. Some items demand immediate attention, others will not be as critical and some of the items are interrelated. The individual has one hour to go through the items and respond in whatever manner he/she deems necessary. These responses may include: scheduling meetings, delegating responsibilities, sending memos and planning future action. This exercise allows the individual to demonstrate skills in organization and planning, perception, decision making, decisiveness and leadership.

Leaderless Group Discussion

In this exercise a group of six people get together to discuss a particular problem for 45 minutes. Each individual in the group is assigned a certain position which he/she must defend. The individual must advocate his/her position while trying to help the group reach a final decision on one of the positions presented. This exercise allows the individual to demonstrate leadership skills, oral communication, decision making, decisiveness and perception.

Problem Solving Exercise

In this exercise the individual is given a large amount of written data including surveys, tables, charts, etc. The individual is required to review the data and choose one of two equally attractive
alternatives. The individual must then prepare a written report which supports his/her choice and then defend this position orally to two interviewers. This exercise allows the individual 15 minutes to review the material, 20 minutes to prepare the written report and 20 minutes to make the oral recommendation. The primary skills assessed in this exercise are: oral communication, organizing and planning, perception and decisiveness.

**Leadership Exercise**

In this exercise the individual is provided with written information describing a task which he/she is to accomplish in one hour with the help of two subordinates. The individual must direct the effort of the two subordinates toward a task solution. This requires that he/she deal with the unique personalities and abilities of the subordinates (one is helpful but bungling, the other is capable but critical). The primary skills assessed in this exercise are: leadership, organization and planning, oral communication, perception, decision making and decisiveness.
Skill Definitions

Organization and Planning: Establishing a course of action for self and/or others to accomplish a specific goal; planning proper assignments of personnel and appropriate allocation of resources.

Perception: Ability to conceive and understand ideas, appraise situations and identify factors essential to a problem solution.

Decision Making: Ability to use sound and logical judgment in selecting from alternatives for the solution of problems.

Decisiveness: Ability to make decisions, render judgments, take action and make commitments.

Leadership: Ability to direct, guide and coordinate the activities of others in persuading them to cooperate toward task accomplishment.

Oral Communication: Ability to speak effectively and convincingly in individual or group situations.

Rating Scale

7--outstanding
6--well above satisfactory
5--above satisfactory
4--satisfactory
3--below satisfactory
2--well below satisfactory
1--poor
Final Summary Report

Organization and Planning: Rating 6--This individual, Patrick/Patricia Johnson was viewed as well above satisfactory on this dimension with some variability across exercises. His/Her weakest performance was in the leadership exercise where he/she had to direct the efforts of two subordinates toward task accomplishment. Instead of skimming through the written material initially and categorizing related information, he/she read through the materials in the order presented. He/She did, however, group related items into separate piles after having read the material. He/She also clearly defined the task to the subordinates and took notes when additional information arose. In the group discussion exercise where he/she was required to interact with the group, advocate a position and try to reach group consensus, he/she made suggestions to help organize the group decision making process. In the problem solving exercise where he/she was required to choose between two equally attractive options, write a report and make an oral presentation defending his/her position, he/she grouped related items into piles, took notes, and underlined important points. His/Her best performance in this skill area was in the in-basket exercise. He/She skimmed through the materials, underlined important points, and grouped items together according to common problems. He/She also planned and scheduled meetings when necessary to deal with issues of major concern. Overall he/she was viewed as well above satisfactory in this skill area.
Perception: Rating 4--Patrick/Patricia Johnson demonstrated a satisfactory level of this skill. He/She was observed to be consistent in the performance of this skill across the four exercises. In the leadership exercise he/she recognized important information in the written materials and how they related to the problem solution. However, he/she failed to recognize several relevant suggestions made by the subordinates. In the group discussion exercise he/she understood the basic requirements of the group task and recognized the important aspects of his/her assigned position. He/She also recognized when relevant information was presented by others and quickly disregarded irrelevant comments. In the in-basket exercise he/she recognized important problems and key issues and demonstrated understanding of the organizational chart in delegating responsibilities. He/She also demonstrated awareness of time frames when scheduling meetings. In the problem solving exercise he/she was generally able to recognize important facts related to both alternatives, but was not totally aware of the detailed information presented in the tables and charts. Overall his/her rating was satisfactory.

Decision-Making: Rating 4--Patrick/Patricia Johnson was rated satisfactory on this dimension. In the leadership exercise he/she demonstrated judgment in assigning duties and in deciding how to proceed in working toward task accomplishment. In the in-basket exercise he/she demonstrated judgment in dealing with crucial problems first and in setting aside less important issues. He/She did, however, recommend a change in the shipping procedures of the company without fully
considering the consequences of his/her actions. In the group discussion exercise he/she suggested a sound alternative which the group had failed to consider. Overall, he/she was viewed as satisfactory on this skill.

**Decisiveness: Rating 4**--The individual, Patrick/Patricia Johnson was seen as satisfactory on this dimension with some variability across exercises. In the in-basket exercise he/she did not hesitate to make decisions when necessary although one of his/her decisions was questionable in light of the information available. In the group discussion exercise he/she rendered judgments which helped diminish a conflict situation. In the leadership exercise he/she initially rendered a number of decisions concerning how to proceed toward task accomplishment. However, he/she followed the same plan of action even after circumstances necessitated a change. In the problem solving exercise he/she made the decision of which option to recommend and succeeded in defending his/her chosen position when challenged by interviewers. Overall, when viewed across exercises, he/she was seen as satisfactory in this skill area.

**Leadership: Rating 5**--This individual was viewed as more than satisfactory in this dimension with generally consistent performance across exercises. His/Her best performance was in the leadership exercise where he/she had to direct the activities of two subordinates. He/She succeeded in effectively coordinating the activities of the subordinates and persuading them to work toward task accomplishment. In the group discussion exercise he/she frequently tried to guide and
control the discussion however, his/her own position often appeared to take priority over cooperative group interaction. In the in-basket exercise he/she effectively delegated responsibility and informed subordinates of meetings they were to attend. In the problem solving exercise he/she effectively presented and defended his/her position and answered all questions posed by interviewers. He/She did allow the interviewers to engage in a tangential conversation for a period of time, however, he/she was successful in guiding them back to the issue at hand. Overall, this individual was rated above satisfactory on this dimension.

Oral Communication: Rating 4--This person demonstrated a satisfactory level of this skill with generally consistent performance across exercises. In both communications with groups and in one-to-one interactions, the individual was able to speak effectively and convey his/her meaning clearly. Adequate vocabulary, eye contact and voice inflection were present in all communications. Thus, he/she received a satisfactory rating on this dimension.
Employee Evaluation and Recommendation

Name of Employee to Whom the Report Pertains

Title of Current Position Held by the Employee

Division or Department

Age

Please check below the rating which you believe most adequately reflects the individual's potential for future growth in this organization.

[ ] High potential
[ ] Above average potential
[ ] Average potential
[ ] Below average potential
[ ] Low potential

Please make your recommendation regarding the possible promotion of this individual from Assistant Plant Manager to Plant Manager at this time.

[ ] Would promote
[ ] Probably would promote
[ ] Probably would not promote
[ ] Would not promote
REFERENCES
References


