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SEX BIAS IN CAREER INFORMATION: EFFECTS
OF LANGUAGE ON ATTITUDES

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Barbara J. Yanico, B.A., M.A.

* * * * *

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Counseling Psychology

Professors: Robert D. Archibald, Philip L. Bandt, Frank Fletcher, Theodore J. Kaul, Samuel H. Osipow, Francis P. Robinson, Lyle D. Schmidt, Maude A. Stewart, and W. Bruce Walsh.

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Chapter I

INTRODUCTION

In the past few years, there has been a burgeoning interest in sex roles and sex-role socialization in our society, stimulated by issues raised by persons active in the Women's Liberation Movement and attendant legal changes and considerations. One major focus of this interest has been the portrayal of sex-role stereotypes in various media.

In books for children, analyses of sex-role stereotypes have been reported for elementary school textbooks (Jacklin, 1973; Oliver, 1974; Women on Words and Images, 1972), award winning preschool picture books (Weitzman, Eifler, Hokada, & Ross, 1972), and general children's literature (Hillman, 1974; Ritchie, 1975). At the high school and college level, stereotyping has been investigated in sociology texts (Ehrlich, 1971; Schneider & Hacker, 1973), in civics/government texts (MacLeod & Silverwoman, 1973), and in graduate psychology texts (A.P.A. Task Force on Issues of Sexual Bias in Graduate Education, 1975). Other studies have provided analysis of adult women's magazine fiction (Franzwa, 1975), advertising (Sexton & Haberman, 1974; Stemple and Tyler, 1974), and television programming (Kaniuga, Scott, & Gade, 1974; Manes, 1974; Sternglanz, 1974).

The methodology of these various studies is similar in that they are descriptive studies consisting of content analyses of the

media of interest with the exception of one empirical study, Schneider and Hacker's (1973) research on the use of the generic term "man" in introductory sociology textbooks. Analysis has typically been focused on three areas: proportion of males to females presented or dealt with, the themes of the roles in which each sex is presented, and the language used, particularly in printed media. The findings of these studies have also been quite consistent with the overall conclusion being that women are portrayed in limited and limiting roles and as displaying certain consistent stereotypic, and frequently negative, traits and behaviors. The latter is consistent with the findings of Rosenkrantz, Vogel, Bee, Broverman, and Broverman (1968) that both male and female college students consistently evaluated stereotypically masculine characteristics as more desirable than stereotypically feminine characteristics and the subsequent findings of Broverman, Broverman, Clarkson, Rosenkrantz, and Vogel (1970) that clinicians view a mentally healthy male and a mentally healthy adult as synonymous, but had different and more socially undesirable standards for the mentally healthy female.

Although an analysis was also made of male sex-role stereotypes in many of these studies, and occasional brief mention was made of the idea that men are also presented in restricted roles, the masculine role analysis usually served only as a backdrop or point of comparison for the analysis of feminine roles. Perhaps the fact that women have been the more "invisible" sex in this culture and the assumption that they have suffered more than men from sex-role stereotyping are the

reasons for this somewhat exclusive emphasis; however, the implication is that our media reflect and reinforce narrow and harmful cultural definitions of the appropriate roles for both women and men.

A more specific variable in terms of sex-roles is the occupational roles in which men and women are portrayed. Stefflre (1969) pointed out many of the myths about women workers that are perpetuated in children's readers. Three of the previously mentioned studies (Hillman, 1974; Weitzman, et al., 1972; Women on Words and Images, 1972) have reported a wide range of occupational role models presented for boys compared to a relatively narrow range for girls. These findings that women tend to be portrayed in very limited occupational roles both reflect and reinforce the fact that although women have been entering the labor force in ever increasing numbers, they have remained entrenched in a relatively narrow range of "feminine" occupations (Bem & Bem, 1971).

As efforts are focused on attempts to broaden the overall sex-role definitions in our culture and, more specifically, to make the full range of occupational opportunity open and equal to both men and women, a legitimate question becomes whether or not sex-role stereotypes are reinforced by the tools of the counseling profession and the effect that this has on clientele. Among the "tools" that are fair targets for consideration and investigation are counselors themselves, as well as theories, tests, information, and other adjuncts to the counseling process.

One of the tools that counselors use and encourage clients to use, almost without question, is occupational information. There is a proliferation of available informational materials from both commercial and non-commercial sources, and nearly every counseling operation has some sort of system for disseminating such information varying from a simple and relatively inexpensive file drawer or display rack to the complex, expensive, multi-media holdings of recently developed career resource centers. Samler (1961) presented a critique of available occupational information in which he pointed out that most information dealt only with economics to the exclusion of the psycho-social aspects of work. Osipow (1973) called into question the unchallenged assumption that occupational information leads to better vocational choice on the part of those who use it. He pointed out the dearth of research on the role of occupational information in vocational counseling and presented a number of questions that could only be addressed by empirical research. Investigators have shown that counselors can effectively promote information-seeking behavior in their clients (Aiken & Johnston, 1973; Krumboltz & Thoreson, 1964; Schroeder, 1964), but there are very few studies dealing with the questions of if and how information-seeking and use affects the career development process in the seekers and users. Considering the expenditure of money and human time and effort in the production, acquisition, and presentation of occupational information materials in counseling, it is not only surprising but shocking that there has been no consistent, systematic research investigation in this area, and hence there is no body of knowledge to help guide and evaluate

the use of such materials in working with clients presenting vocational concerns.

Relating the area of career information to the previously discussed concern with sex-role stereotyping results in the emergence of a topic for research which would seem to be both fruitful and timely, namely, that of sex-role stereotyping in career information materials and the effects of such stereotyping on information users. The following would appear to be some relevant questions: what is the degree and nature of sex-role stereotyping in occupational information materials? Does stereotyping affect the attitudes of information users toward the appropriateness of specific occupations for men and women? If so, does this influence the career choice made by the information user? Can changes in the content of career information lead to changes in attitudes of information users?

A search of the literature for studies that might shed light on these questions reveals that sex-role stereotyping in career materials has been documented and is consistent with the findings reported previously from other areas of investigation (a full review and discussion of these studies is presented in Chapter II). The search for studies that would indicate whether or not sex-role stereotyping (via language and pictures) in occupational information has been examined for its impact on the consumers of such information, however, revealed no studies dealing specifically with the questions of if and how information users are affected by exposure to sex-biased information. In other words, there appears to be no empirical data to evaluate the hypothesis that the language and/or illustrative representation of

workers in career information, does or does not influence information users, particularly in their attitudes about the relative appropriateness of specific occupations for men and women.

This study was proposed as a beginning attempt to investigate this topic empirically. The primary question addressed was whether or not sex-biased vs. non-sex-biased printed career information had an effect on information users' evaluations of specific occupations as differentially appropriate for individuals on the basis of gender. A secondary area of investigation involved the attempt to identify whether or not a characteristic of information users, themselves, influenced the way they view occupations and the likelihood their viewpoints are modified by exposure to additional information. Specifically, the concept of psychological androgyny (Bem, 1974; Block, 1973; Osofsky & Osofsky, 1972) was investigated as a possible correlate of the degree of sex-typing that individuals attribute to occupations.

Chapter II

REVIEW OF THE LITERATURE

This chapter contains a brief review of the professional literature relevant to the variables under investigation in this study. First, the findings of several authors who have investigated sex-role stereotyping in career materials are discussed, as well as recommendations that have been made to combat such stereotyping. A brief presentation of some theoretical and empirical underpinnings for the hypotheses that will be tested in the study follows. These come from both cognitive consistency and functional theories of attitude acquisition and change as well as several studies which, although not dealing directly with the questions involved in this study, seem relevant by extrapolation for hypothesis building. A review of the literature related to the concept of psychological androgyny is presented in the final portion of the chapter.

Sex-role Stereotyping in Occupational Information

A number of investigators have documented the degree and extent of sex-role stereotyping found in career information. Birk, Cooper, and Tanney (1973) studied the sex-role and racial stereotyping in career illustrations. Two trained raters evaluated over 2,000

illustrations from the Encyclopedia of Careers and Vocational Guidance (Hopke, 1972), SRA Occupational Briefs (1973), and the 1972-73 Occupational Outlook Handbook, as well as a variety of typical career pamphlets and brochures. Illustrations were rated on a variety of criteria including: sex, race, and age of the career representative; theme of the picture; indoor vs. outdoor setting; activity level and affect of the worker. The findings were that women were underrepresented in career illustrations compared to their actual labor force participation (25% vs. 39%), and that they were most often depicted in traditional "feminine" occupations, usually indoors, often in a helping, service, or assisting role, and as displaying less activity and more emotion than male workers. The authors also point out that while women were at least occasionally shown in non-traditional occupational roles, men rarely were. The investigators' conclusions were that, in general, career illustrations portrayed both men and women in stereotypic behaviors and career roles.

A follow-up study (Birk, Cooper, & Tanney, 1975) in which 305 illustrations from the 1974-75 OOH were compared to the 1972-73 edition revealed that overall the two volumes were similar, with only minor modifications, and that stereotypes remained basically unchanged. The authors did report that career descriptions had begun to change, due probably to affirmative action pressure, but that efforts were needed to change the illustrations accompanying descriptions and to encourage men to broaden their range of acceptable careers.

Lauver, Gastellum, and Sheehey (1975) replicated the findings of Birk, et al. (1973, 1975) in a similar study of 1974-75 OOH illustrations. Two judges classified all illustrations on the basis of age range, sex, and ethnicity of the workers portrayed. These investigators also concluded women were underrepresented in OOH photos (25% of workers shown) and isolated the types of occupations in which women were least likely to be depicted as the industrial, sales, transportation, mechanical, and construction occupations.

Three other recent studies have evaluated the content of descriptions as well as the illustrative material in career information. Vetter, Stockburger, and Brose (1974) reviewed a sample of occupational materials published since 1970 for high school students; this included both commercial and non-commercial materials. Judges rated a random sample of material, stratified on the basis of type of occupation, using an assessment instrument developed by the authors to identify and rate sex-role stereotyping. A total of 9,500 pages of text and 1,850 illustrations in over 200 separate pieces of information were rated. The researchers found almost all of the materials rated as stereotyped to some extent. Women were again underrepresented in illustrations (25% of workers shown). In occupational descriptions the same proportion (25%:75%) of female to male proper names was found. Women were more likely than men to be pictured interacting with children and less likely to be shown outdoors or in "physical" occupations.

Vetter, et al. also found that the pronoun he was used in descriptions much more frequently than either you or she and question whether the term is being used generically, since she is used in referring to traditional "feminine" occupations such as nurse. Raters also recorded and coded blatant sexist statements and overall tone found in the text (e.g., direct reference to an occupation as more appropriate for one sex than the other; discussion of good appearance or an agreeable personality as occupationally relevant to women but not to men). Findings here were quite inconsistent with a single piece of literature and even a single paragraph sometimes containing both sexist and non-sexist statements. The authors conclude that this may be indicative of tokenism or of lack of awareness on the part of writers and publishers as to what comprises sexism.

In an extensive analysis conducted for the Educational Products Information Exchange Institute (EPIE), Women on Words and Images (WOWI, 1975) evaluated 80 sets of commercially marketed career education materials randomly chosen from 600 sets of materials prescreened by EPIE. Twenty-eight were geared to the elementary level, 56 to high school and above. WOWI analyzed the number of times occupations were assigned to males, females, or both, number and type of male vs. female illustrations, written content, language used to indicate gender, and sex of the author and/or narrator of the materials. An occupation was determined to be sex-typed if the language described or implied only workers of one sex and/or accompanying illustrations were of workers of one sex only. Using this criterion, of 1,160 occupations presented for

consideration on the elementary level, the ratio of "male" to "female" occupations was 5:2. The same ratio held for 1,121 occupations presented for secondary level and above students.

The following four categories of sexist treatment were delineated: (1) materials supposedly written for both sexes, but with stereotyped occupations dominated by males and no effort made to acknowledge changing sex-roles; (2) materials clearly aimed only at one sex, depicting only male role models or only female role models and in which all occupations are stereotyped; (3) materials with tokenism which present a small proportion of men or women in non-traditional occupations but treat those few superficially; (4) materials which attempt fairness in which a greater proportion of workers are shown in non-traditional roles and the language is generally non-sexist. Even in the latter category, however, the authors point out that there are usually inconsistencies, for example, language which starts out as non-sexist and then reverts to use of the generic he or content that describes open options for both sexes accompanied by illustrations portraying workers of one sex only.

WOWI also concluded that three patterns of bias cut across all four categories of sexist treatment: (1) family responsibilities, when discussed, are always the concern or problem of the female worker; (2) grooming and appearance are important for success in work for women, but are mentioned only once as important to men; (3) language bias, specifically use of the generic he in 84% of the material to supposedly refer to people-in-general; use of she in referring to traditionally

"feminine" occupations (e.g., secretary, nurse, beautician), and use of the suffix man in occupational titles (e.g., policeman, salesman).

In a very brief section of their report, the authors also point out that there were no materials reviewed that specifically attempted to counteract sex-role stereotyping of males. There were virtually no references to the changing roles of men or to men in non-traditional fields.

In a study of two series of elementary career education texts in which the two authors independently rated the pictures, cartoons, and job descriptions, Heskusius-Gilsdorf and Gilsdorf (1975) found women underrepresented as workers compared to men (25% vs. 75%) and, for the most part, men and women were presented in traditional occupational sex-roles.

In summary, the six studies previously discussed provide documentation that sex-role stereotyping exists to some degree in most of the career information materials we most commonly use and that such stereotyping serves to reinforce traditional sex-role divisions in occupations. The two areas which have been evaluated are the content of descriptions in such materials and the illustrations. The following kinds of bias have been consistently reported in descriptive content:

1. Direct statements that an occupation is more appropriate to one sex than the other. This is particularly the case for those occupations that have been dominated by either men or women, in which case sex-appropriateness is presented in terms of traditional sex-role divisions.

2. Subtle uses of language which imply that an occupation is more appropriate to one sex than the other. Examples would be the use of only male or female proper names, use of the generic he or she, and use of the suffix man or woman.

3. Content that describes different criteria for men and women as necessary for performance or success in the occupation.

4. Content that states or implies that people have certain stereotypic traits or behaviors that are determined by gender.

5. Content that describes marriage and family responsibilities as the concern of women only and/or which describes occupational limitations based on such concerns.

In illustrations, two kinds of bias have been presented:

1. Illustrations which show only one sex performing in the occupation regardless of the accompanying description, which may or may not be stereotyped. Such illustrations usually reinforce traditional sex-role divisions in occupations.

2. Illustrations which depict both sexes performing in an occupation, but which depict one sex in an unequal, stereotyped, or inconsequential role.

A final point that seems consistent throughout these investigations is that sex-role stereotyping of men in occupations has received much less attention than sex-role stereotyping of women.

The suggestions made and practices already implemented to combat sex-role stereotyping are also fairly consistent. In relation to

occupational titles, the U.S. Bureau of Census reported changes in 52 job titles within their Occupational Classification System to help eliminate "men's" and "women's" jobs (U.S. Department of Labor, 1973). Most of these changes involved dropping the suffix man or men in favor of worker or operator.

A recent supplement to the Dictionary of Occupational Titles (DOT) revised more than 3,500 job titles that previously contained sex or age referents in the title (U.S. Employment Service, 1975). The assumption underlying these changes was that people of one sex will not apply for jobs with a sex-referent in the title to the opposite sex.

Suggestions made by Vetter et al. (1974) for combatting bias include: (1) provision of an "honest discussion of the necessary skills, attributes, and life styles associated with each potential occupation without regard to sex" (p. 65); (2) avoidance of third person singular pronouns, either he or she, and use of the plural form wherever possible; (3) an awareness of sex-role stereotyping reflected in the total material rather than a single sentence or paragraph to serve as a disclaimer to a preceeding or following discussion.

Several of the previously cited authors also call for changing illustrations that accompany descriptions so that the sexes are equally represented, particularly in those occupations where one sex is usually consistently omitted (Birk, et al., 1975; Lauver, et al., 1975).

These reports of sex stereotyping in career material are interesting and valuable descriptive studies. The suggestions for

change provided seem necessary if we are ever to represent occupations as being equally open to men and women with individual choice determined by individual interests, values, and skills rather than gender. But these studies do not present any empirical evidence, and, as previously stated, no empirical evidence could be found, that permits the judgment of effects of presently existing stereotyping on information consumers. There is also no direct empirical evidence to judge the effects of making recommended changes. The implication is that because materials reinforce existing occupational stereotypes, they may serve to close off certain occupations as possible alternatives to an individual if the information leads that person to interpret an occupation as less than appropriate for his/her sex.

Bem and Bem (1971) point out that although anti-discrimination laws may open previously closed doors to occupational opportunity, legal changes will not automatically lead to many people taking advantage of those opportunities. Legal changes alone will not affect the long-term conditioning from a variety of sources that leads to individuals never even considering certain types of occupations as possible alternatives. Legal changes alone also do not necessarily counteract the subtle discrimination and bias that can result in the abandoning of a non-traditional choice at some point along the way to implementation.

There is evidence that people do hold consistent sex-stereotypes of occupations (Shinar, 1975), that such stereotypes are formed when young (Schlossberg & Goodman, 1972), and that occupational

choices made by children conform to sex-role stereotypes by early elementary school (O'Hara, 1962; Schlossberg & Goodman, 1972; Siegel, 1973).

Shinar (1975) asked 60 male and 60 female undergraduate students to rate each of 129 occupations on a seven-point, bipolar masculine-feminine scale. Subjects were given one of three sets of instructions as to the criteria for the ratings: (1) ambiguous instructions in which only standard instructions for the semantic differential were given; (2) instructions to rate occupations on the basis of the proportion of men and women in the occupation; (3) instructions to rate occupations on the basis of personality characteristics linked to each occupation. Results showed that sexual stereotypes of occupations are clearly defined, held in agreement by both men and women ($\bar{r} = .97$), and similar regardless of whether the criteria for rating were the subject's own or were provided by the experimenter ($\bar{r}$'s for the three instruction groups ranged from .95 to .97). Results were also stable over three weeks ($\bar{r} = .97$).

Schlossberg and Goodman (1972) had elementary students in grades K-6 respond to pictures of work settings showing six "masculine" and six "feminine" occupations in terms of whether they thought a man, a woman, or both could do the work. Students were also asked their own occupational fantasies. Results showed that, for the most part, the children's responses conformed to existing stereotypes although they were more willing to exclude women from "men's" jobs than vice versa. There were no significant differences in degree of stereotyping from

kindergarten through sixth grade. Also, most of the children chose jobs for themselves that fit existing stereotypes.

Siegel (1973) studied the most preferred and least preferred occupational choices reported by 61 second grade boys and girls. Among her findings were that girls chose a significantly smaller range of occupations than boys as well as different types of occupations. There was no overlap in choices between the sexes with the exception of a single male subject. Twenty of the 29 girls chose the traditional occupations of nurse or teacher. These results are consistent with the findings of O'Hara's (1962) earlier study of the career choices of fourth, fifth, and sixth graders in which four occupations (nurse, teacher, secretary, and mother) accounted for two-thirds of all preferences given by girls compared to a wide range of choices given by boys.

Siegel (1973) hypothesized that children receive different messages (expectations) from parents related to work roles depending on the child's sex, and that these messages usually reflect traditional cultural expectations. Parental expectations are then reinforced by everything the child has contact with: other children, adults, T.V., books, schools, and other institutions (and, as previously discussed studies show, career education materials/information). Siegel further suggested that once these stereotypes are assimilated by the child, information that is later communicated to the child about occupations may be "selectively heard."

This would imply that attempts to counteract learning about sex-role stereotypes in occupations should occur early in the socialization process of the child to be effective. What might be the effects, then, of attempts to eradicate the bias in information aimed at individuals at the age when they are in the process of exploring and making real occupational choices for the first time--students at the high school or college level. Can modifications that counteract sex-bias in occupational information effect any change in the attitudes of individuals who have already received 16-22 years of conditioning about the sex-appropriateness of occupations and occupational activities? Are there characteristics that make some individuals more amenable than others to changing the sex-stereotypes they hold of occupations? As previously discussed, there are no empirical studies that touch directly on these questions; however, several studies and some brief theoretical considerations which seem to provide the bases for some hypotheses will now be presented.

Attitude Change Theory

Shinar's (1975) data support the idea that college students hold clearly delineated stereotypes of occupations on a masculine-feminine continuum. What might be the effect of confronting individuals with information which is discrepant with these attitudes?

There are several cognitive consistency theories of attitude change; however, they can be considered under the general categories of balance theories (originally proposed by Heider, 1958), congruity theory (Osgood & Tannenbaum, 1955), and dissonance theory (Festinger,

1957)). Although the theories vary in their focus, the type of phenomena they seek to explain, and the precision of the model, all rest on the same theoretical foundations (Anderson, 1971, pp. 57-62). The underlying basis is the assumption that cognitions, new thoughts and ideas as well as old ones from the past, tend to be organized in meaningful ways. Individuals tend to hold a pattern of beliefs, attitudes, and opinions that are perceived as consistent with one another. It is possible for an individual to maintain two cognitions that are at variance only as long as this incongruence is not evident to the person. The individual is continually presented with new cognitions from various sources: ideas and information from friends, relatives, authorities, the media, the individual's own experiences, and so on. If a new cognition is not incompatible with already held attitudes, then a prediction of no change would be made, except, perhaps, for the strengthening of the existing attitudes. However if a new idea or piece of information is discrepant with the attitudes one already holds, consistency theory hypothesizes there is pressure to make some adjustment so that the tension of consciously entertaining two incompatible ideas (described variously as imbalance, incongruity, or dissonance) is reduced.

The conflict may be resolved in several ways, however. The person may: (1) change his/her attitude to bring it more into line with the new cognition; (2) dismiss the incompatible new cognition entirely as invalid, particularly by dismissing the source as being

not credible; (3) distort the message so that the new cognition is not perceived or remembered as discrepant. Thus, attitude change does not always occur.

The specific means the individual uses to resolve the discrepancy may depend on the reason underlying the person's attitude, in other words, the purpose it serves for the individual. A second general approach to attitude change, functional theory, may be useful at this point.

Katz (1960) proposes a functional or motivational approach to attitudes and argues that it is difficult to predict attitude change without some knowledge of the reasons people hold the attitudes they do. He posits four functions that an attitude may serve: (1) Instrumental or Adjustive which involves need satisfaction through maximizing of external rewards and minimizing of punishments; (2) Ego-defensive in which the person uses an attitude to protect himself/herself from internal conflicts (basic, unacceptable knowledge about oneself) or from external threat (harsh realities in the environment); (3) Value-expressive in which the attitude is an expression of one's personal value system or self-concept; (4) Knowledge in which the motive is simply for meaningful cognitive organization and consistency and for understanding one's world.

Katz also delineates different conditions for attitude change depending on the function served by the attitude. More meaningful information or the ambiguity that may be created by new information or environmental change will be more likely to lead to change in an old

attitude that served a knowledge function. Changing needs or the contingencies of reward and punishment are more likely to affect an attitude that is instrumental. For the ego-defensive function, Katz hypothesizes that removal of the external threat or self-insight leads to attitude change. If the attitude serves a value-expressive function, then dissatisfaction with self, the discovery of a new attitude more compatible or appropriate to oneself, or environmental control that undermines old attitudes would be more conducive to change.

Extrapolating from the preceeding discussion to variables under consideration in this study then, it might be hypothesized that most people have learned to view occupations in common sex-stereotypic ways. Giving a person information which states or implies that an occupation commonly thought to be more appropriate to one sex is actually equally appropriate for both sexes presents the person with a discrepant cognition. Whether the new information leads to a change in the person's attitude about the sex-appropriateness of the occupation may depend on the function the person's existing attitude serves.

It seems plausible that the sex-stereotyping people attribute to occupations may have some relationship to the sex-stereotyping in the person's own self-concept. People who view themselves in very sex-stereotypic terms may also tend to view the occupational world in very stereotypic ways. Conversely, people who have less stereotyping in their conceptions of themselves might also demonstrate a lesser degree of stereotyping of occupations. The stereotyping of occupations might then be viewed as an extension of the person's self-concept related to

sex-role in the former instance. Such people might be expected to show no change or less change in attitude after exposure to discrepant information than the person in the latter instance, for whom any stereotyping that does exist in attitudes toward occupations might serve more of a knowledge function. Information, therefore, should have the most effect on persons whose attitude serves a knowledge function and less effect on persons whose attitude serves a purpose of self-expression or self-protection.

Empirical Considerations

In reviewing research findings in the area of persuasion, Karlins and Abelson (1970, pp. 33-34) conclude that information rarely changes attitudes. McGinnies (1974, pp. 194-195) in a similar review, also supports this conclusion that information does not persuade.

Also, two reviewers (Fotheringham, 1966, p. 150; Karlins & Abelson, 1970, pp. 135-136) have pointed out the consistently demonstrated ineffectiveness of subtle or hidden forms of persuasion such as subliminal message exposure. The kinds of previously discussed suggestions for changes in career literature could hardly be considered subliminal; such changes would be subtle, however. Extrapolation from these two areas of persuasion research would suggest that simply the presentation of information about occupations, particularly information that contains subtle modifications in language and pictures, is unlikely to have much noticeable effect on peoples' attitudes towards those occupations.

Looking at studies that would seem to be more closely related to presenting subjects with occupational information, however, one finds

mixed evidence with one study in particular showing results strongly at odds with the extrapolation just mentioned.

Gottfredson (1976) administered a special experimental form of the Vocational Preference Inventory and the Self-Directed Search to 94 high school girls. These forms contained four "sexist" occupational titles (draftsman, life insurance salesman, policeman, and real estate salesman) and four "non-sexist" titles (draftsman/draftswoman, life insurance salesperson, police officer, and real estate salesperson). Results showed no significant differences in liking responses for the two sets of items. Gottfredson concludes that ". . . these results suggest that occupational stereotypes held by respondents are amazingly robust with respect to this kind of wording" (p. 222).

Harmon and Conroe (1976) gave the Strong-Campbell Interest Inventory to 46 female and 41 male undergraduates under three sets of instructions: (1) standard instructions; (2) instructions to respond as a "typically masculine man;" (3) instructions to respond as a "typically feminine woman." Differences in response under the three sets of instructions were then examined for occupational title items vs. occupational activity items. Results showed that less stereotyping occurred with activity items than with occupational titles. Since the list of occupations on the SCII contains, for the most part, titles that are not sex-referent (e.g., traveling salesperson, dress-maker/tailor, etc.) with only one noticeable exception (draftsman), the results of this study would suggest that individuals will still respond in stereotypic ways to non-gender specific occupational titles.

The researchers point out, however, that it is unclear in this study whether the form or the content of the items is the more influential factor.

Although not dealing with sex-stereotypes of occupations, Osipow (1962) reports a study that suggests that people do show different attitudes toward the same occupation when responding to different titles and that these attitudes can be modified by exposure to minimal information. Ninety-six undergraduate students responded to the occupational title of janitor or building superintendent on fifteen semantic differential items loaded on the evaluative, potency, and activity dimensions. Half the subjects responded to either one or the other title by itself. The other half responded to the title plus a short DOT description of the occupation. There were significant differences on the evaluative and potency dimensions between the two titles in the no-information condition; these differences disappeared, however, in the information condition.

In perhaps the most relevant pair of studies to the research in the present study, Bem and Bem (1973) conducted two experiments on the effects of sex-biased job advertising on the self-reported interest of men and women in applying for "opposite-sex" jobs. The studies were conducted for the Equal Employment Opportunities Commission; both were used as part of legal testimony in anti-discrimination cases, the first against IT&T, the second against the Pittsburgh Press.

The first study attempted to answer three questions. First, "do sex-biased job advertisements discourage men and women from applying

for 'opposite-sex' jobs?" Second, "would more men and women be interested in applying for 'opposite-sex' jobs if the advertisements were unbiased, that is if the advertisements did not seem to prefer one sex or the other either in their titles, pronouns, or overall tone?" Third, "would even more men and women be willing to apply for such 'opposite-sex' jobs if sex-reversed 'affirmative action' advertisements were specifically written to appeal to them?" (p. 7).

One hundred and twenty high school seniors, 60 men and 60 women, served as subjects in the study; few of these students planned to attend college so most would soon actually be in the position of seeking a job. Subjects were given booklets containing twelve job ads and were asked to indicate on a six point scale their degree of interest in each job. The booklet contained ads for four telephone jobs (operator, service representative, lineman, and frameman) as well as eight non-telephone jobs. A cover sheet introduced all jobs as having equivalent salaries, necessitating no previous experience, and as providing on-the-job training.

One-third of the subjects were given sex-biased ads--the titles, pronouns, and tone of the ads were aimed at one sex (for females: operator and service representative; for males: lineman and frameman). These ads were taken from actual job advertising being used at the time by IT&T. One-third of the subjects received unbiased ads--sex-related titles and pronouns were eliminated and the tone of the ad was neutral; otherwise the content was the same as the biased ads. The final third received "affirmative action" ads written to

appeal specifically to the sex not usually recruited for the job. The eight non-phone jobs were all presented in neutral terms. Also, the phrase "An equal opportunity employer m/f" appeared on all the ads for all experimental groups.

Bem and Bem found more women indicated an interest in the jobs of lineman and frameman in the unbiased condition than in the biased condition (25% vs. 5%). Even more women (45%) indicated an interest in these jobs in the affirmative action condition. All differences were significant. Males also responded with significantly more interest in the jobs of operator and service representative in the unbiased vs. the biased condition (75% vs. 30%). Although still more male subjects (81%) responded with interest in the affirmative action condition, this difference compared to the unbiased condition was not significant. The researchers suggest that this finding may be due to the fact that 75%-80% interest is about the maximum interest one could expect a group of people to show in any particular job.

The second study focused on the effects of placing help wanted ads in sex-segregated newspaper columns. Fifty-two women undergraduates were asked to indicate on a six point scale how willing they would be to apply for each of 32 jobs advertised in the Pittsburgh Press. Sixteen ads were drawn from a "male" column of the paper and 16 from a "female" column. One-half of the subjects received the ads in a sex-segregated format of columns labeled "Jobs-Male Interest" and "Jobs-Female Interest." The other half received the same 32 ads in alphabetical order. Results showed that when ads were segregated and labeled

only 46% of the women were as likely to indicate a willingness to apply for "male" jobs as for "female" jobs. In the integrated listing condition, 81% of the subjects indicated a preference for "male" jobs over "female" jobs. Bem and Bem suggest this difference is even more pronounced in actuality, since in the study subjects were asked to read and respond to all the ads. They hypothesize that when advertisements are presented in a format that suggest a job is more appropriate for one sex, in reality, most persons of the opposite sex do not even read the material.

These two studies strongly support the idea that stereotyping in occupational descriptions, even if subtle, strongly affects whether or not subjects view the occupation as appropriate to their own sex, and consequently, to themselves. The first study also suggests that the degree of influence on attitudes about the sex-appropriateness of occupations is related to how explicit the message being presented is.

A brief discussion will now be presented of the final variable of interest in this study, psychological androgyny.

Androgyny

The idea that the sex-stereotyping a person assigns to occupations may be related to the degree of sex-stereotyping in the person's own self concept has already been discussed in the section of this chapter on attitude change. A concept related to the degree of sex-role stereotyping manifested in the individual is that of psychological androgyny. Osofsky and Osofsky (1972) and Block (1973) discuss androgyny as the integration of masculine and feminine traits,

characteristics, and behaviors within the same individual. Bem (1974) developed an instrument for measuring this concept. The Bem Sex-Role Inventory (BSRI) asks the individual to rate himself/herself on 20 masculine, 20 feminine, and 20 neutral adjectives in terms of how characteristic each adjective is of oneself. The difference between the average masculine and feminine adjective ratings allows an assessment of the degree of sex-role stereotyping the person ascribes to. (A lengthier description of the development and scoring of this instrument is presented in Chapter III, Methodology.) Individuals who view themselves as strongly "masculine" or "feminine" are categorized as sex-typed. Individuals who ascribe both masculine and feminine characteristics to themselves in relatively equal proportion are termed androgynous.

Bem (1975a) has hypothesized that androgynous persons display more sex-role flexibility and adaptability in their behavior across situations than do sex-typed persons. Bem reasons that because androgynous people see themselves in both masculine and feminine terms, they are able to behave comfortably in situations that call for either stereotypic masculine or feminine behavior. Sex-typed people, on the other hand, are hypothesized to display a more limited behavioral repertory, limited by their narrower self-concept in terms of sex-role.

Bem (1975a, 1975b, 1976) has conducted a series of studies that lend support to her hypothesis. Bem (1975b) found that in a conformity experiment, androgynous subjects of both sexes displayed the same degree of independence as masculine-typed subjects. Feminine-typed

subjects displayed significantly less independence. When the behavior called for was nurturant (in this case, playing with a small kitten), masculine subjects were significantly less nurturant than androgynous subjects who also proved to be more nurturant than feminine subjects.

In two follow-up studies on nurturant behavior (Bem, 1975a) involving playing with a 6 month old baby and responding to a student reporting emotional problems, results showed that androgynous and feminine subjects did not differ from each other; both displayed significantly more nurturant behavior than masculine subjects.

Finally, Bem and Lenney (1976) found that when given the choice of performing a number of tasks from a list of tasks (some of which were stereotypically feminine, some masculine, and some neutral), sex-typed subjects were significantly more likely than androgynous subjects to avoid cross-sex tasks even if they were given incentives for performing them. When sex-typed subjects actually performed cross-sex tasks, they reported significantly more subjective discomfort than did the androgynous subjects.

These studies consistently support Bem's contention that androgynous subjects, having a more flexible self-concept in terms of sex-role, are able to behave more flexibly in situations calling for both stereotypic masculine and feminine behaviors, than are sex-typed individuals who have a narrower and more rigid conception of their own sex-role and, consequently, of sex-appropriate behavior.

Extrapolating from Bem's theory and findings, it may also be that the more sex-stereotyping individuals attribute to themselves, the

more sex-typing they will also attribute to occupations, and the less likely they will be to change these attitudes when confronted with discrepant information about occupations. On the other hand, androgynous individuals may be more likely to also have "androgynous" views of occupations and may be more likely to change any stereotypes they do hold when confronted with information discrepant to their attitudes.

Summary

Documentation has been provided that sex-role stereotyping exists in both the content and illustrations in career information. The effects of such stereotyping on information users is assumed but has not been explored empirically. Likewise, although changes in language and pictures have been recommended, and, in some cases are being implemented, to combat such stereotyping, the effects of making such changes also have not been directly explored.

The idea that people have learned rather consistent sex-stereotypes of occupations early in their lives has received empirical support. Cognitive consistency theories of attitude change would suggest that presenting a person with information discrepant to already held attitudes will lead to subjective discomfort in the individual. Whether the discomfort produced by being confronted with conflicting cognitions is resolved through attitude change or some other means may at least partly depend on the function the attitude serves for the individual. Androgyny has been presented as a concept related to this idea. The hypothesis has been developed that people who see themselves in sex-stereotypic terms may, as an outward expression and

extension of their own self-concept, also view occupations in sex-stereotypic terms. Their attitudes toward occupations would serve a "value expression" function, and they would be less likely to change these attitudes when exposed to discrepant occupational information. More androgynous individuals, conversely, might be expected to hold less stereotypic attitudes about occupations in relation to sex-appropriateness. If they do hold stereotypic attitudes, these may be more likely to serve a knowledge function rather than to be an extension of the self. Thus, they would be more amenable to changing their attitudes with exposure to information.

Although the persuasion literature suggests that information is relatively ineffective in changing attitudes, several studies have been reviewed to demonstrate that, at least in the area of attitudes toward occupations, information does affect attitudes. Also, although there is evidence that subtle forms of persuasion do not work, the two studies by Bem and Bem (1973) that were extensively reviewed strongly support the idea that changes in language have significant effects on students' attitudes about the sex-appropriateness of occupations. Partial support is also provided for the idea that degree of the effect is related to how explicit the message is that a sex-stereotyped occupation is appropriate to the opposite sex as well. On this basis, the general hypotheses were advanced that: (1) the content in occupational information materials affects subjects' attitudes about the sex-appropriateness of occupations; (2) unbiased descriptions result in less sex-stereotypic attitudes than biased descriptions; and

(3) the degree of this difference is influenced by how explicit the message is that an occupation usually perceived in a stereotyped way is appropriate for both sexes.

Chapter III

METHODOLOGY

Introduction

This study investigated the impact of three kinds of occupational information (sex-biased, non-sex-biased/implicit, and non-sex-biased/explicit) on subjects' attitudes toward the appropriateness of specific occupations for men versus women. A secondary area of investigation was whether or not subjects' self-descriptions in terms of sex-role stereotypes were related to subjects' rating of the sex-appropriateness of occupations and/or to change in ratings of the sex-appropriateness of occupations after exposure to information.

Subjects

Population. The sample drawn from was that of all undergraduate students enrolled in Introductory Psychology courses at Virginia Polytechnic Institute and State University during the autumn quarter, 1976.

Experimental sample. Subjects in this study received extra credit for their participation as an optional part of their Introductory Psychology course. Subjects drawn from the population were assigned randomly without replacement to one of the three information treatment groups; subjects were assigned to each treatment cell until each cell had 15 male and 15 female subjects. Of the total of 45 males and 45

females who participated in the study, 56 were freshmen, 27--sophomores, 4--juniors, and 3--seniors. Subjects ranged in age from 17 to 29.

Design

The experimental design used was a 3 x 2 x 2 factorial design. Independent variables were occupational information treatment group and sex of subject. The dependent variable was subjects' ratings of the sex-appropriateness of occupations before and after information exposure. The variables considered in the correlational aspect of the study were androgyny scores on the Bem Sex-Role Inventory (Bem, 1974), pre-treatment ratings of the sex-appropriateness of occupations, and post-treatment change in sex-appropriateness ratings. Figure 1 presents the design in graphic form.

Instruments

Occupational rating scales. (See Appendix A.) This paper and pencil instrument consists of a list of 20 occupations. The title of each occupation is followed by a series of ten different 7-point Likert-type bipolar rating scales on which subjects are asked to respond on the basis of their own ideas, knowledge, and attitudes.

The occupations were chosen from the list of 129 occupations Shinar (1975) used in her study of occupational sex-stereotypes. Twenty occupations were randomly chosen from the list; an effort was made, however, to include 7 occupations rated in a masculine direction, 7 rated in a feminine direction, and 6 rated in a relatively neutral direction. Since comparatively few occupations were rated as feminine,

Occupational Information		Pre-Treatment Ratings of Sex-Appropriateness	Post-Treatment Ratings of Sex-Appropriateness
Sex Biased	(M) Sex of Subject	15 male subjects	
	(F)	15 female subjects	
Non Sex Biased/ Implicit	(M) Sex of Subject	15 male subjects	
	(F)	15 female subjects	
Non Sex Biased/ Explicit	(M) Sex of Subject	15 male subjects	
	(F)	15 female subjects	

Figure 1
Experimental Design

it was necessary to include several occupations as feminine which were, in reality, nearer the neutral point (4.0) than the feminine end of the scale (7.0) (see Appendix B for a list of the occupations included).

Although only one rating scale was of interest, the rating of sex-appropriateness, this experimenter felt that the study was too transparent to subjects unless this scale was "buried" in a larger task. The other scales were added for this purpose. An effort was made to add items that would have face validity, that is, items for which there would seem to be a reasonable relationship to knowledge about occupations and that would, therefore, "make sense" to subjects in relation to a later task involving exposure to information.

For the purpose of data analysis, scale intervals were assigned values from 1 to 7. Subjects were instructed to assume that the scale was divided into equal intervals.

To determine the test-retest reliability of the instrument, twelve students were administered the occupational rating task twice with a two week period between administrations. The mean rating was computed for each occupation, and average test-retest reliability for the sex-appropriateness scale was .90.

The Bem Sex-Role Inventory. (see Appendix C.) The Bem Sex-Role Inventory (BSRI) is a paper and pencil instrument designed to measure the degree to which a person views him/herself as masculine, feminine, or androgynous (Bem, 1974). The inventory consists of 60 adjectives to which a person responds in terms of how descriptive the characteristic is of him/herself; the individual responds on a scale

from 1 (never or almost never true) to 7 (always or almost always true). The adjectives consist of 20 "masculine" personality characteristics (e.g., ambitious, independent) and 20 "feminine" characteristics (e.g., gentle, affectionate). These characteristics were chosen because they were significantly and consistently rated by both men and women as more desirable for one sex than the other. The instrument also contains 20 neutral adjectives which can be scored on a social desirability scale, but which mainly serve the function of filler items.

The person's scores on the masculine and feminine scales are simply the average of the self-ratings for the 20 adjectives that comprise each scale. The masculine and feminine scores can thus each range from 1 to 7. Two types of scores can then be computed to determine the degree of sex-role stereotyping in the person's self concept--a simple difference score or a t-ratio.

The simple difference score is computed by subtracting the score on the masculine scale from the score on the feminine scale. The smaller this difference is (the closer to 0), the more androgynous the person is, i.e., the person has equally endorsed masculine and feminine items as self-descriptive. The larger the difference in either a positive or negative direction, the more the person views him/herself in sex-stereotypic terms.

Rather than using a simple difference score, Bem (1974) suggests using a Student's t-ratio for the difference between the person's masculine and feminine scores, normalized with respect to standard deviation, to determine the degree of sex-stereotyping. This type of

scoring is used to answer the question of whether or not the person's masculine and feminine scores are significantly different from one another and is particularly recommended when the scale is used for classification purposes, e.g., to divide a sample into homogeneous groups such as sex-typed, sex-reversed, androgynous, etc. Since that was not the purpose of using the instrument in the present study, a simple difference score was utilized.

Bem has collected normative data using the scale with over 2,000 undergraduate students. Psychometric analysis (Bem, 1974) supports the independence of the masculine and feminine scales (average $r = .03$). Scores are reported to be reliable over four weeks (average $r = .93$) and internally consistent (average $\alpha = .86$). Bem also reports that scores are uncorrelated with the tendency to describe oneself in a socially desirable direction (average $r = -.06$). Bem (1974) does admit, however, that although an attempt was made to balance male and female adjectives on social desirability, a few feminine items (e.g., gullible) with somewhat lower social desirability were included; therefore, there is somewhat more variance in the social desirability ratings of the adjectives comprising the feminine scale than of those comprising the masculine scale.

Treatments: Occupational Information

It was deemed too time consuming to present subjects detailed information on all 20 occupations. Six occupations on which subjects were exposed to information were chosen from the Occupations Rating

Scale instrument: 2 "masculine" occupations, 2 "feminine" occupations, and 2 neutral occupations. Occupations chosen to fit these categories had to meet the following criteria:

1. They must have been rated consistently in those categories in Shinar's (1975) study.

2. They had to be masculine, feminine, or neutral occupations based on statistics of actual labor force participation. An occupation in which 75% or more of the workers as determined by the latest census (U.S. Bureau of Census, 1970) were men was categorized as a masculine occupation. An occupation in which 75% or more of the workers were women was categorized as feminine. All other occupations were categorized as neutral.

3. Of the two occupations chosen for each category, one had to be a higher level occupation or profession, i.e., 1 or 2 on Roe's (1956) classification system. The other had to be a lower level occupation, i.e., 4 on Roe's classification system.

The following occupations were chosen as meeting these criteria:

Masculine/High Level--Mining Engineer (98% male in 1970 census; rated 1.4 in Shinar's study with 1.0 being masculine; 1 in Roe's classification system).

Masculine/Lower Level--Electrician (98% male in 1970 census; rated 1.6 in Shinar's study with 1.0 being masculine; 4 in Roe's classification system).

Feminine/High Level--Registered Nurse (97% female in 1970 census; rated 6.6 in Shinar's study with 7.0 being feminine; 2 in Roe's classification system).

Feminine/Lower Level--Air Flight Attendant (96% female in 1970 census; rated 5.8 in Shinar's study with 7.0 being feminine; 4 in Roe's classification system).

Neutral/High Level--School Psychologist (psychologists in the 1970 census, 36% female, 64% male; rated 4.0 in Shinar's study with 4.0 being neutral; 1 in Roe's classification system).

Neutral/Lower Level--Assistant in a Scientific Lab (for the combined categories Clinical Laboratory Technologists and Technicians, Agricultural and Biological Technicians, and Chemical Technicians on the 1970 census, 50% female, 50% male; rated 4.2 in Shinar's study with 4.0 being neutral; 4 in Roe's classification system).

All information presented on the occupations of interest consisted of an Occupational Outlook Handbook (OOH)-type brief of less than the two pages. Information consisted of verbal descriptions of the nature of the work, places of employment, training required, employment outlook, and earnings/working conditions. Subjects in all treatment groups were told that the source of the information they were reading was the U.S. Department of Labor. Information differed depending on treatment group as outlined in the following discussion.

Sex-biased information. Sex-biased information was defined for the purposes of this study as language in the description of an occupation that states or implies that the occupation is performed by or appropriate to one sex rather than the other. The information presented in this treatment thus conformed to common sex-stereotypes. For the "feminine" occupations (Nurse, Air Flight Attendant), descriptions used feminine pronouns (e.g., she, her, hers) and workers in the occupation were referred to as women. Conversely, for the "masculine" occupations (Mining Engineer, Electrician), descriptions used masculine pronouns (e.g., he, him, his) and workers in the occupation were referred to as men.

For the neutral occupations (School Psychologist, Assistant in a Scientific Lab), neutral language was used; plural (e.g., they, them) or dual (e.g., he/she, his/hers) pronouns were used throughout and reference was made to both men and women workers. Materials on neutral occupations were identical for all treatment conditions (see Appendix D for copies of briefs used in this treatment condition).

Non-sex-biased information/implicit. All information in this treatment condition was similar to the previous description of information for neutral occupations. In other words, information on the two "masculine" and two "feminine" occupations had the same content as in the sex-biased condition except that the language was neutralized in the manner described for the neutral occupations, i.e., use of plural or dual pronouns, reference made to both men and women workers in the occupation. This treatment was designated as implicit since the changes

in content were subtle; there was no direct, explicit attempt to communicate that the occupation is open to and appropriate for both sexes or to encourage the minority sex to consider the occupation as a possible career choice. To some extent, this treatment was analagous to a subtle persuasive message encouraging the receiver/interpreter to view the occupation as appropriate to both men and women. As discussed in the literature review, most materials that attempt sex-fairness are of this type, and even these attempts are frequently inconsistent in presentation (see Appendix D for copies of briefs used in this condition).

Non-sex-biased information/explicit. The information in this treatment condition was identical to that described previously in the implicit condition with one addition. In this condition, an explicit discussion was added concerning the present situation of and the opportunities for men in the "feminine" occupations and for women in the "masculine" occupations. This treatment condition was thus analagous to an explicit persuasive message encouraging the receiver/interpreter to view the occupation as appropriate to both men and women (see Appendix D for copies of the briefs used in this condition).

Procedure

Subjects were told they were participating in a study of self-report characteristics of students in different majors and of knowledge about and attitudes toward various occupations. Subjects participated in the study in groups of 15. Each subject received an instruction sheet

which was read aloud by the experimenter at the beginning of the session (specific instructions to subjects are in Appendix E).

Subjects first filled out an information sheet (see Appendix F) and then were administered the two previously described instruments, the Occupations Rating Scales and the Bem Sex-Role Inventory. To guard against order effects, the BSRI was administered first to half the subjects in each condition followed by administration of the Rating Scales; for the other half the order of administration was reversed. The order of occupations presented on the Occupations Rating Scales was randomized by reversing the order of pages for half the subjects.

After completion of the instruments, subjects were instructed to open the packets of information consisting of the OOH-type briefs previously described. Subjects were told to read the material thoroughly. Following reading of the informational packets, subjects were asked to again complete the Occupations Rating Scales for all 20 occupations. The order of occupations on the second administration of the Rating Scales was the reverse order of the first administration.

After completion of the ratings, all subjects were debriefed as to the full nature of the study. Subjects were asked at the beginning of the debriefing session for their impressions of the study to determine if any of the subjects had guessed or suspected the actual purpose. Only 2 of the 90 subjects reported that they had had any idea as to the purpose of the study.

Subjects were given the opportunity to receive their scores on the BSRI at a later time. They were also given the opportunity to

receive a brief written abstract of the results of the study if they desired. At the conclusion of the debriefing, all subjects signed a statement indicating they had been fully informed about the nature of the study (see Appendix G).

Hypotheses

The specific hypotheses tested were the following:

Hypothesis 1

Before treatment, subjects as a group will tend to rate occupations in a stereotypic direction, i.e., when given a list of occupations, certain occupations will be rated consistently across subjects as significantly more appropriate for men than for women or vice versa.

Hypothesis 2

The more one views oneself in sex-stereotypic terms, the more likely one will be to rate occupations in a stereotypic way, i.e., high androgyny difference scores on the BSRI will be associated with stereotyped ratings on sex-appropriateness of occupations scales.

Hypothesis 3

Subjects exposed to sex biased occupational information (Treatment Group 1) will not significantly change their ratings of the sex-appropriateness of the occupations on which they've been given such information, i.e., there will be no difference

between subjects' ratings of the sex-appropriateness of occupations before and after receiving information on those occupations.

Hypothesis 4

Subjects exposed to non-sex-biased/implicit occupational information (Treatment Group 2) will significantly change their ratings of the sex-appropriateness of the occupations on which they've received such information in a more neutral direction.

4a--There will be a significant difference between subjects' ratings of the sex-appropriateness of occupations before and after receiving information on those occupations. i.e., ratings of the masculine occupations will be significantly higher and ratings of the feminine occupations significantly lower after treatment than before.

4b--There will be a significant difference in the post-treatment ratings of the sex-appropriateness of occupations between the Biased Information Group and the Non Biased/Implicit Group, i.e., ratings of masculine occupations will be significantly higher and ratings of feminine occupations will be significantly lower for the Non Biased/Implicit Group.

Hypothesis 5

Subjects exposed to unbiased explicit occupational information (Treatment Group 3) will significantly change their ratings of

the sex-appropriateness of the occupations on which they've received such information in a more neutral direction.

5a--There will be a significant difference between subjects' ratings of the sex-appropriateness of occupations before and after receiving information on those occupations, i.e., masculine occupations will be rated significantly higher and ratings of feminine occupations will be significantly lower after treatment than before.

5b--There will be a significant difference in the post-treatment ratings of the sex-appropriateness of occupations between the Biased Information Group and the Non Biased/Explicit Group, i.e., ratings for masculine occupations will be significantly higher and ratings of feminine occupations will be significantly lower for the Non-Sex-Biased/Explicit Group.

Hypothesis 6

The extent of the effect on subjects' ratings in the non-biased information conditions will be determined by the explicitness of the informational material.

6a--There will be a significant difference in the post-treatment ratings of the sex-appropriateness of occupations between the Non-Sex-Biased/Implicit and Explicit Groups, i.e., ratings of masculine occupations will be significantly higher and ratings

of feminine occupations will be significantly lower for the Explicit Group.

Hypothesis 7

The more one views oneself in sex-stereotypic terms, the less one will change one's ratings of the sex-appropriateness of occupations after being exposed to occupational information, i.e., high androgyny difference scores on the BSRI will be negatively correlated with total change scores on occupational sex-appropriateness ratings.

Treatment of the Data

Hypothesis 1 was tested by using a t-test to determine whether the mean pre-treatment rating across subjects for each occupation differed from a neutral rating of 4.0. Twenty separate t-tests were computed, one for each occupation on the Rating Scale.

A two-way analysis of variance (3 information treatments x 2 sexes x 2 sex-appropriateness ratings) was used to test experimental hypotheses 3 through 6. A separate ANOVA was computed for each of the 20 occupations in the study. Where significant differences were found among treatment groups ($F < .05$), the location, direction, and degree of significant differences were determined by computation of a posteriori Tukey (a) test.

The relationship between stereotyping in self-descriptions and occupational ratings (hypotheses 2 and 7) was determined by computing a Pearson product moment correlation.

Chapter IV

RESULTS

Introduction

The first portion of this chapter presents the results of the data analysis of the degree of stereotyping in pre-treatment sex-appropriateness ratings of all 20 occupations across subjects. Also presented are the results of the data analysis for the pre- and post-treatment ratings of sex-appropriateness for the 6 stimulus occupations on which information was presented for the 3 information treatment groups. For simplicity, the treatment groups are referred to as biased, implicit and explicit. Also for simplicity, throughout the remainder of the text of this chapter, pre- and/or post-treatment sex-appropriateness ratings are referred to as pre- and/or post-ratings.

The results of the correlation between amount of stereotyping in both pre- and post-treatment ratings and androgyny scores on the Bem Sex-Role Inventory are then presented.

Finally, some additional findings are presented based on the data analysis of the pre- and post-treatment ratings of the 3 information treatment groups on the 14 occupations for which no information was presented.

Sex Stereotyping in Initial Ratings

The means and standard error of means for all 90 subjects' initial sex-appropriateness ratings on all 20 occupations are presented in Table 1. The results of computing t-ratios for the difference between the mean ratings for each occupation and a neutral rating of 4.0 are also presented. Only 4 occupations (Air Flight Attendant, Hospital Attendant, School Psychologist, and X-Ray Technician) received ratings that did not differ significantly from the neutral point of 4.0 ($p < .05$). Eleven occupations were rated significantly lower than 4.0, or, in a masculine direction. Five occupations received mean ratings significantly higher than 4.0, or, feminine ratings.

Hypothesis 1 stated that before treatment, subjects as a group will tend to rate occupations in a stereotypic direction, i.e., when given a list of occupations, certain occupations will be rated consistently across subjects as significantly more appropriate for men than for women or vice versa.

Hypothesis 1 is supported.

Effects of Information on Sex-Appropriateness Ratings

This section presents a summary of the results of the analyses of variance for the ratings on each of the 6 occupations on which information was presented.

Feminine occupations. Table 2 shows the results of the analysis of variance for Air Flight Attendant. A significant F value ($p < .05$)

TABLE 1
MEANS, STANDARD ERROR AND t-VALUES FOR INITIAL
SEX-APPROPRIATENESS OF OCCUPATIONS RATINGS

Occupation	Mean	Standard Error	t	Direction of Stereotype ¹
Air Flight Attendant	4.30	.164	1.83	N
Assistant in a Scientific Lab	3.69	.088	3.52**	M
Bank Teller	4.54	.089	6.07**	F
Computer Programmer	3.74	.075	3.47**	M
Electrician	2.38	.129	12.56**	M
Elementary Teacher	5.01	.118	8.56**	F
Game Warden	2.46	.125	12.32**	M
Hospital Attendant	4.00	.085	0.00	N
Insurance Agent	3.32	.103	6.60**	M
Journalist	3.80	.076	2.63*	M
Librarian	5.18	.128	9.22**	F
Mining Engineer	2.17	.118	15.50**	M
Physician	3.33	.109	6.15**	M
Registered Nurse	5.59	.120	13.25**	F
School Psychologist	3.90	.083	1.20	N
Short Order Cook	3.70	.071	4.22**	M
Social Worker	4.30	.113	2.65*	F
Stockbroker	3.11	.122	7.30**	M
Used Car Dealer	2.59	.126	11.19**	M
X-Ray Technician	3.88	.091	1.32	N

¹M = masculine F = feminine N = neutral * p < .05 ** p < .01

TABLE 2
SUMMARY OF ANALYSIS OF VARIANCE
AIR FLIGHT ATTENDANT

Source	SS	df	MS	F
Total	414	179	-	-
Information Group	8	2	4	2.14
Measure	66	1	66	35.29**
Sex	1	1	1	.53
Info. Grp. X Measure	19	2	9.5	5.08**
Info. Grp. X Sex	4	2	2	1.07
Measure X Sex	1	1	1	.53
Info. Grp. X Measure X Sex	1	2	.5	.27
Error	314	168	1.87	-

**p < .01

was found for the simple effect of Measure (pre vs. post) and for the interaction effect of Information Group (Biased vs. Implicit vs. Explicit) X Measure. Table 3 presents a summary of the results of the analysis of the interaction effect. Results show that both the biased and the implicit groups had significantly higher ratings (more feminine) after treatment than before. The ratings of the explicit group showed no significant difference after treatment.

The three treatment groups differed significantly from each other in their mean post-treatment ratings. Table 4 presents the results of the Tukey analysis for directional differences among means for the three groups. Results show that the biased group had significantly higher (more feminine) post-ratings than the explicit group. The implicit group mean fell between the other two groups and did not differ significantly from either. Figure 2 presents these results graphically.

Table 5 shows the results of the analysis of variance for the occupation Registered Nurse. No significant F ratios were found; therefore, there were no effects for either independent variable on the sex-appropriateness ratings of this occupation.

Masculine Occupations. The analysis of variance results for ratings of Electrician are presented in Table 6. A significant F ratio was found for the interaction effect of Information Group X Measure. Table 7 presents a summary of the results of the analysis of the interaction effect. Results show that the biased group had a significantly lower (more masculine) mean rating after receiving information than

TABLE 3
SUMMARY OF ANALYSIS OF VARIANCE OF EFFECT OF
INFORMATION GROUP X MEASURE

AIR FLIGHT ATTENDANT

Source	SS	df	MS	F
Information Group	8	2	4	2.14
Info. Grp. X Pre-measure	1.8	2	.9	.96
Info. Grp. X Post-measure	25.5	2	12.75	6.82**
Measure	66	1	66	35.29**
Measure X Biased Grp.	62	1	62	33.16**
Measure X Implicit Grp.	20.4	1	20.4	10.91**
Measure X Explicit Grp.	2.8	1	2.8	1.50
Info. Grp. X Measure	19	2	9.5	5.08**
Error	314	168	1.87	-

** $p < .01$

Cell Means

Biased/Pre = 4.10

Biased/Post = 6.13

Implicit/Pre = 4.40

Implicit/Post = 5.56

Explicit/Pre = 4.40

Explicit/Post = 4.83

TABLE 4
 TUKEY(a) ANALYSIS FOR DIRECTIONAL DIFFERENCES ON
 POST-TREATMENT SEX-APPROPRIATENESS RATINGS OF
 BIASED, IMPLICIT AND EXPLICIT
 INFORMATION GROUPS

AIR FLIGHT ATTENDANT

	Information Group	Mean	3	2	1
Differences	3 (Explicit)	4.83	---	.73	1.30**
Among	2 (Implicit)	5.56		---	.57
Means	1 (Biased)	6.13			---

**q .01; 3,168 = 1.03

n = 30

Figure 2

Pre- vs. Post-Treatment Mean Sex-Appropriateness Ratings of Biased vs. Implicit vs. Explicit Information Groups

Air Flight Attendant

TABLE 5
SUMMARY OF ANALYSIS OF VARIANCE
REGISTERED NURSE

Source	SS	df	MS	F
Total	237	179	-	-
Information Group	4	2	2	1.52
Measure	1	1	1	.76
Sex	0	1	0	0.00
Info. Grp. X Measure	5	2	2.5	1.89
Info. Grp. X Sex	2	2	1	.76
Measure X Sex	0	1	0	0.00
Info. Grp. X Measure X Sex	3	2	1.5	1.14
Error	222	168	1.32	-

TABLE 6
SUMMARY OF ANALYSIS OF VARIANCE
ELECTRICIAN

Source	SS	df	MS	F
Total	256	179	-	-
Information Group	4	2	2	1.44
Measure	1	1	1	.72
Sex	4	1	4	2.88
Info. Grp. X Measure	10	2	5	3.60*
Info. Grp. X Sex	0	2	0	0.00
Measure X Sex	0	1	0	0.00
Info. Grp. X Measure X Sex	2	2	1	.72
Error	235	168	1.39	-

* $p < .05$

TABLE 7
SUMMARY OF ANALYSIS OF VARIANCE OF EFFECT OF
INFORMATION GROUP X MEASURE

ELECTRICIAN

Source	SS	df	MS	F
Information Group	4	2	2	1.44
Info. Grp. X Pre-measure	1.2	2	.6	.44
Info. Grp. X Post-measure	13.3	2	6.65	4.78**
Measure	1	1	1	.72
Measure X Biased Grp.	6	1	6	4.32*
Measure X Implicit Grp.	2.8	1	2.8	2.01
Measure X Explicit Grp.	2.4	1	2.4	1.73
Info. Grp. X Measure	10	2	5	3.60*
Error	235	168	1.39	-

* $p < .05$

** $p < .01$

Cell Means

Biased/Pre = 2.53	Biased/Post = 1.90
Implicit/Pre = 2.26	Implicit/Post = 2.70
Explicit/Pre = 2.33	Explicit/Post = 2.73

before. Although the mean ratings of both the implicit and explicit groups tended to move slightly in a more neutral direction after treatment, there were no significant differences between pre- and post-treatment mean ratings for either group.

The three treatment groups differed significantly from each other on mean post-treatment ratings. Table 8 presents the results of the Tukey analysis for directional differences among means for the three groups. Results show that the biased group had a significantly lower (more masculine) mean post-treatment rating than either the implicit or explicit groups; the latter two groups did not significantly differ in their mean post-treatment ratings. These results are shown graphically in Figure 3.

The analysis of variance results for Mining Engineer are shown in Table 9. A significant F ratio was found for the interaction effect of Information Group X Measure. Table 10 presents a summary of the results of the analysis of the interaction effect. There were no significant differences between pre- and post-treatment mean ratings for any of the three groups. However, there was a trend for the mean of the biased group to move in a more masculine direction after treatment and for the means of both the implicit and explicit groups to move in a slightly more neutral direction after treatment.

Results did show that the three information groups differed significantly from each other on post-ratings. Table 11 presents the results of the Tukey analysis for directional differences among means for the three groups. Results show that the biased group had a

TABLE 8
 TUKEY(a) ANALYSIS FOR DIRECTIONAL DIFFERENCES ON
 POST-TREATMENT SEX-APPROPRIATENESS RATINGS OF
 BIASED, IMPLICIT AND EXPLICIT
 INFORMATION GROUPS

ELECTRICIAN

	Information Group	Mean	3	2	1
Differences	3 (Biased)	1.90	---	.80*	.83*
Among	2 (Implicit)	2.70		---	.03
Means	1 (Explicit)	2.73			---

* $q .05; 3,168 = .71$

$n = 30$

Figure 3

Pre- vs. Post-Treatment Mean Sex-Appropriateness Ratings of Biased vs.
Implicit vs. Explicit Information Groups

Electrician

TABLE 9
SUMMARY OF ANALYSIS OF VARIANCE
MINING ENGINEER

Source	SS	df	MS	F
Total	243	179	-	-
Information Group	2	2	1	.74
Measure	1	1	1	.74
Sex	1	1	1	.74
Info. Grp. X Measure	9	2	4.5	3.33*
Info. Grp. X Sex	1	2	.5	.37
Measure X Sex	2	1	2	1.48
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	227	168	1.35	-

* $p < .05$

TABLE 10
SUMMARY OF ANALYSIS OF VARIANCE OF EFFECT OF
INFORMATION GROUP X MEASURE

MINING ENGINEER

Source	SS	df	MS	F
Information Group	2	2	1	.74
Info. Grp. X Pre-measure	1.3	2	.65	.48
Info. Grp. X Post-measure	9.5	2	4.75	3.52*
Measure	1	1	1	.74
Measure X Biased Grp.	3.3	1	3.3	2.44
Measure X Implicit Grp.	2.8	1	2.8	2.07
Measure X Explicit Grp.	3.7	1	3.7	2.74
Info. Grp. X Measure	9	2	4.5	3.33*
Error	227	168	1.35	-

* $p < .05$

Cell Means

Biased/Pre = 2.33	Biased/Post = 1.86
Implicit/Pre = 2.06	Implicit/Post = 2.50
Explicit/Pre = 2.10	Explicit/Post = 2.60

TABLE 11
 TUKEY(a) ANALYSIS FOR DIRECTIONAL DIFFERENCES ON
 POST-TREATMENT SEX-APPROPRIATENESS RATINGS OF
 BIASED, IMPLICIT AND EXPLICIT
 INFORMATION GROUPS

MINING ENGINEER

	Information Group	Mean	3	2	1
Differences	3 (Biased)	1.86	---	.64	.74*
Among	2 (Implicit)	2.50		---	.10
Means	1 (Explicit)	2.60			---

* q .05; 3,168 = .71

n = 30

significantly lower (more masculine) mean rating than did the explicit group. The implicit group mean fell between the other two groups and did not differ significantly from either. Figure 4 presents these results graphically.

Neutral Occupations. The results for the analysis of variance for the occupation School Psychologist are shown in Table 12. A significant F ratio was found for the simple effect of Measure (pre vs. post) on ratings of sex-appropriateness. The mean rating for all treatment groups was significantly lower (more masculine) after receiving information than before.

Table 13 presents the results for the analysis of variance for the occupation Assistant in a Scientific Lab. A significant F value was found for the simple effect of Information Group indicating that the three treatment groups differed from each other in their overall sex-appropriateness ratings of the occupation. Table 14 presents the results of the Tukey analysis for directional differences among means for the three groups. Results show that the overall mean ratings of the biased group were significantly lower (more masculine) than the means of either the implicit or explicit groups. The latter two groups did not differ significantly from each other.

Summary of Results: Effects of Information
on Sex-Appropriateness Ratings

For the feminine occupations, there were significant results only on Air Flight Attendant. Both the biased and implicit information groups rated this occupation in a more feminine-stereotyped direction

Figure 4

Pre- vs. Post-Treatment Mean Sex-Appropriateness Ratings of Biased vs.
 Implicit vs. Explicit Information Groups

Mining Engineer

TABLE 12
SUMMARY OF ANALYSIS OF VARIANCE
SCHOOL PSYCHOLOGIST

Source	SS	df	MS	F
Total	120	179	-	-
Information Group	0	2	0	0.00
Measure	3	1	3	4.55*
Sex	0	1	0	0.00
Info. Grp. X Measure	1	2	.5	.76
Info. Grp. X Sex	2	2	1	1.52
Measure X Sex	1	1	1	1.52
Info. Grp. X Measure X Sex	1	2	.5	.76
Error	112	168	.66	-

* $p < .05$

Cell Means

Pre-measure = 3.90

Post-measure = 3.60

TABLE 13
SUMMARY OF ANALYSIS OF VARIANCE
ASSISTANT IN A SCIENTIFIC LAB

Source	SS	df	MS	F
Total	115	179	-	-
Information Group	13	2	6.5	10.83**
Measure	0	1	0	0.00
Sex	1	1	1	1.67
Info. Grp. X Measure	0	2	0	0.00
Info. Grp. X Sex	0	2	0	0.00
Measure X Sex	0	1	0	0.00
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	101	168	.60	

** p < .01

Cell Means

Biased = 3.28

Explicit = 3.82

Implicit = 3.86

TABLE 14

TUKEY(a) ANALYSIS FOR DIRECTIONAL DIFFERENCES ON
SEX-APPROPRIATENESS RATINGS OF BIASED, IMPLICIT
AND EXPLICIT INFORMATION GROUPS

ASSISTANT IN A SCIENTIFIC LAB

	Information Group	Mean	3	2	1
Differences	3 (Biased)	3.28	---	.54**	.58**
Among	2 (Explicit)	3.82		---	.04
Means	1 (Implicit)	3.86			---

** q .05; 3,168 = .41

n = 60

after information exposure. There was no difference between pre- and post-treatment ratings for the explicit information group. The biased group had more feminine mean ratings after treatment than did the explicit group. The implicit group post-treatment mean fell between the other two groups and did not differ from either.

For the masculine occupations, the biased group had more masculine-stereotyped mean ratings after treatment on Electrician. A similar trend occurred on Mining Engineer; however, the difference between pre- and post-treatment ratings was not significant. Although there was a trend for both the implicit and explicit information groups to give slightly more neutral mean ratings for both occupations after treatment, there were no statistically significant pre-vs. post-treatment differences for either of these treatment groups. The biased group had significantly more masculine mean ratings after treatment than the explicit group on both occupations. The biased group also had a more masculine post-treatment mean than the implicit group on Electrician; these two groups did not differ on post-treatment ratings of Mining Engineer.

On the neutral occupations, all information groups rated School Psychologist in a more masculine-stereotyped direction after information exposure. On Assistant in a Scientific Lab, the biased group had more masculine ratings overall than did either of the other information groups.

Summary of Results Related to
Experimental Hypotheses

Hypothesis 3 stated that subjects exposed to sex-biased occupational information (Treatment Group 1) will not significantly change their ratings of the sex-appropriateness of the occupations on which they've been given such information, i.e., there will be no difference between subjects' ratings of the sex-appropriateness of occupations before and after receiving information on those occupations.

Results show that the biased group had significantly different pre- and post-treatment mean ratings on two of the four occupations on which biased information was presented. Post-treatment ratings on Air Flight Attendant were significantly higher (more feminine) while post-treatment ratings on Electrician were significantly lower (more masculine). There was a similar trend on the other masculine occupation, Mining Engineer. Hypothesis 3 is not supported.

Hypothesis 4 stated that subjects exposed to non-sex-biased/implicit occupational information (Treatment Group 2) will significantly change their ratings of the sex-appropriateness of the occupations on which they've received such information in a more neutral direction.

Hypothesis 4a stated that there will be a significant difference between subjects' ratings of the sex-appropriateness of occupations before and after receiving information on those occupations, i.e., ratings of the masculine occupations will be significantly higher and

ratings of the feminine occupations significantly lower after treatment than before.

Results show that there was a significant difference between pre- and post-treatment ratings of the implicit group for only one occupation, Air Flight Attendant. The mean post-rating was significantly higher (more feminine) than the mean pre-rating. For the two masculine occupations, post-treatment ratings moved toward neutrality compared with pre-treatment ratings; however, since these differences did not reach significance, Hypothesis 4a is not supported.

Hypothesis 4b stated that there will be a significant difference in the post-treatment ratings of the sex-appropriateness of occupations between the Biased Information Group and the Non-Biased/Implicit Group, i.e., ratings of masculine occupations will be significantly higher and ratings of feminine occupations will be significantly lower for the Non-Biased/Implicit Group.

For the masculine occupations, results show that the implicit group had higher (more neutral) mean post-treatment ratings than the biased group for both masculine occupations; however, only the difference on Electrician reached significance. For the feminine occupations, results show that the implicit group had a lower post-treatment mean rating than the biased group; however, this difference did not reach significance. Hypothesis 4b is partially supported.

Hypothesis 5 stated that subjects exposed to unbiased explicit occupational information (Treatment Group 3) will significantly change

their ratings of the sex-appropriateness of the occupations on which they've received such information in a more neutral direction.

Hypothesis 5a stated that there will be a significant difference between subjects' ratings of the sex-appropriateness of occupations before and after receiving information on those occupations, i.e., masculine occupations will be rated significantly higher and feminine occupations significantly lower after treatment than before.

Results show that there were no significant differences between pre- and post-treatment mean ratings of the explicit group on any of the 4 occupations, although post-treatment ratings tended to be higher (more neutral) for the masculine occupations. Hypothesis 5a is not supported.

Hypothesis 5b stated that there will be a significant difference in the post-treatment ratings of the sex-appropriateness of occupations between the Biased Information Group and the Non-Biased/Explicit Group, i.e., ratings for masculine occupations will be significantly higher and ratings for feminine occupations will be significantly lower for the Non-Sex-Biased/Explicit Group.

The explicit group had significantly higher post-treatment mean ratings than the biased group on both masculine occupations. Results on the feminine occupations show that the explicit group had a significantly lower post-treatment mean rating than the biased group on Air Flight Attendant. Hypothesis 5b is partially supported.

Hypothesis 6 stated that the extent of the effect on subjects' ratings in the non-biased information conditions will be determined by the explicitness of the informational material.

Hypothesis 6a stated that there will be a significant difference in the post-treatment ratings of the sex-appropriateness of occupations between the Non-Sex-Biased/Implicit and Explicit Groups, i.e., ratings of masculine occupations will be significantly higher and ratings of feminine occupations will be significantly lower for the Explicit Group.

Results show no significant differences in post-treatment mean ratings between the implicit and explicit treatment groups on any of the four occupations. Hypothesis 6 is not supported.

Occupational Stereotyping and Androgyny

Sex stereotyping in initial ratings and androgyny scores. To examine Hypothesis 2 concerning the relationship between subjects' tendency to sex-stereotype occupations and androgyny scores on the BSRI, some changes in scoring method on the sex-appropriateness ratings of occupations were necessary. Since this scale was originally intended to be scored from 1 (the masculine extreme) to 7 (the feminine extreme), no total stereotype score was possible. In other words, the lowest rating possible on each scale was just as stereotyped as the highest rating possible, and there was no way to compute a total score reflecting the overall degree of stereotyping a subject evidenced.

For this reason, subjects' pre-treatment ratings on the original 7-point scale were reassigned values of 0 for a neutral rating through 3 for either the masculine or the feminine extreme. Each subject's ratings for all 20 occupations were then totaled. The higher the total,

the greater the degree of overall sex-stereotyping the subject had attributed to the occupations. Scores could thus range from 0 (absolute neutrality) to a total of 60 (absolute stereotypy). Androgyny scores on the BSRI could range from 0 (perfectly androgynous) to 7 (highly sex-stereotyped). Thus, high scores on both instruments reflected a high degree of sex-stereotyping while low scores reflected the converse.

The correlation between these two sets of scores ($r = .0665$) showed no significant relationship.

Hypothesis 2 stated that the more one views oneself in sex-stereotypic terms, the more likely one will be to rate occupations in a stereotypic way, i.e., high androgyny difference scores on the BSRI will be associated with stereotyped ratings on sex-appropriateness of occupations scales. Hypothesis 2 is not supported.

Post-treatment change in ratings and androgyny scores. To determine the relationship between post-treatment change in sex-appropriateness ratings and androgyny scores on the BSRI, the same alteration in scoring method on the occupational ratings which was previously described was again necessary. Subjects' post-treatment ratings were again assigned values of 0 for neutral through 3 for either extreme, and ratings for all 20 occupations were totaled for each subject. To obtain a score that reflected a change in the overall degree of stereotyping that each subject attributed to the occupations after treatment, the post-treatment total was subtracted from

the pre-treatment total. The more a subject had changed his/her ratings in a neutral direction, the lower the post-treatment total was and the larger the positive difference between the two totals was. The less a subject had changed his/her ratings, the smaller the difference. If a subject's ratings became more biased overall, the difference was negative. Thus, a high score reflected a change toward neutrality, and the lower the score the less the change. The reader should note that this procedure utilizing change scores was used only in the correlational portion of the study to test one hypothesis.

The correlation of change scores with BSRI androgyny difference scores revealed no significant relationship ($r = -.0462$).

Hypothesis 7 stated that the more one views oneself in sex-stereotypic terms, the less one will change one's ratings of the sex-appropriateness of occupations after being exposed to occupational information, i.e., high androgyny difference scores on the BSRI will be negatively correlated with total change scores on occupational sex-appropriateness ratings. Hypothesis 7 is not supported.

Additional Findings

The results of the analyses of variance for the 14 occupations which subjects rated but on which no information was presented are found in Tables 15-30 (see Appendix H). No significant results were found on 5 of the occupations: Cook (Table 15), Bank Teller (Table 16), Elementary Teacher (Table 17), Hospital Attendant (Table 18), and Librarian (Table 19).

A significant F value was found for the effect of Measure (pre vs. post) for Insurance Agent. Table 20 shows the results of the analysis of variance. All treatment groups rated this occupation significantly lower (more masculine) after treatment than before.

For all the remaining 8 occupations: Computer Programmer (Table 21), Game Warden (Table 22), Journalist (Table 23), Physician (Table 24), Social Worker (Table 25), Stockbroker (Table 26), Used Car Dealer (Table 27), and X-Ray Technician (Table 28), a significant F ratio was found for the effect of Sex of subject. In all instances except for the occupation Social Worker, male subjects had significantly lower (more masculine) mean ratings than did female subjects. On Social Worker, female subjects as a group had significantly higher (more feminine) mean ratings than did male subjects.

On the occupations Stockbroker and Physician, significant F ratios were also found for the effect of Information Group indicating that the three treatment groups differed from each other in their overall ratings of these occupations. Table 29 presents the results of the Tukey analysis for directional differences among means for Physician. Results show that the biased group had lower (more masculine) ratings than the implicit group. The explicit group did not differ significantly from either of the other two groups. Table 30 shows the results of the Tukey analysis for Stockbroker. Results show that the biased group had significantly lower (more masculine) mean ratings than did the explicit group. The implicit group did not differ significantly from either of the other two groups.

Chapter V

DISCUSSION

Introduction

In the first portion of this chapter, a discussion of the interpretation of the results reported in Chapter IV is presented. Some limitations of the study are then considered followed by a discussion of some implications that can be drawn from the results. Finally, areas for further investigation are suggested.

Sex Stereotyping in Initial Ratings

As predicted based on the findings of Shinar (1975), subjects in the present study consistently rated occupations in a stereotyped direction. All except four of the occupations on the Occupations Rating Scales were rated in either a significantly masculine or a feminine direction. A comparison of the means found in Shinar's study and those found in the present study for each occupation is shown in Appendix I. This comparison shows that for 16 of the 20 occupations, the stereotypes were less extreme but in the same direction as those found in the earlier study. Since the data for the Shinar study was collected in 1972, this difference in degree of stereotyping may be indicative of a slight moderation in students' attitudes about the sex-stereotypes of occupations over the last few years.

Two occupations that were rated in the Shinar study near the neutral point, Short Order Cook and Assistant in a Scientific Lab, were rated in a slightly masculine direction in this study. The other occupational ratings that diverged from the Shinar findings were on X-Ray Technician and Air Flight Attendant; both of these occupations were rated as feminine by Shinar's sample and as neutral by the subjects in this study. The results on Air Flight Attendant are particularly surprising as this occupation was rated as strongly feminine in the previous study. This finding could indicate a definite change in attitude due to increased participation by men in this field since 1972. Since this was one of the "feminine" occupations on which information was presented, this finding will be discussed in more detail at a later point.

There is no obvious explanation for the few differences in the findings of the two studies except for unknown, idiosyncratic differences between the two samples. In general, however, the data of this study strongly supports Shinar's conclusion that there are commonly held and clearly defined sexual stereotypes of occupations among college students, although it appears that the degree of stereotyping can be expected to vary somewhat from sample to sample.

Effects of Information on Sex- Stereotyping of Occupations

The results of the analysis of the pre- and post-treatment sex-appropriateness ratings by information group were not in the predicted direction for the feminine occupations. Presenting subjects information

on the occupation Registered Nurse had no effect on their sex-appropriateness ratings regardless of the type of information presented. Subjects initially rated this occupation in the expected feminine direction and maintained this stereotype after exposure to all three types of information.

The results on Air Flight Attendant were in the opposite direction from predicted results. As previously mentioned, contrary to expectation, subjects in all information groups initially rated this occupation as neutral rather than feminine. After receiving information, subjects in both the biased and non-biased/implicit information groups significantly changed their ratings in a feminine stereotyped direction with the effect being more pronounced for the biased group. The implicit group changed mean ratings by 1.16 points, the biased group by 2.03 points on a 1-7 point scale. The explicit group mean also changed slightly but not significantly in a more feminine direction (.43 change on a 1-7 point scale). Table 1 indicates that ratings on this occupation also showed the most variance among subjects of all the 20 occupations in the study.

The most plausible explanation for these results seems to be that a significant number of subjects had little or no idea what "Air Flight Attendant" was. Unlike the sex-labeled but more common term "stewardess," the term "air flight attendant" did not evoke a common stereotype of the occupation. A number of the subjects thus responded to the title in a neutral way while the amount of variance in the ratings suggests that the ratings of those who responded with a feminine

stereotype were cancelled out by those responding with a masculine stereotype. Once subjects were given information on the occupation, however, they clearly recognized what the occupation was and responded on the post-information rating scale in a biased manner. The bias and explicitness of the information affected the degree to which subjects adopted a biased attitude.

If this is indeed the case, it would suggest that when a person is confronted with an occupation he/she doesn't recognize, exposing the person to biased information results in a change of attitude to a biased direction. Exposing the person to subtle or implicit non-sex-biased information still results in change in a biased direction, however, the bias is less extreme. Information which contains an explicit discussion of the appropriateness of the occupation for both sexes appears to be at least partially successful in reinforcing individuals in maintaining a more neutral attitude.

This conclusion, of course, is only suggested by these results and certainly can't be assumed based on the findings for a single occupation. It would be interesting to investigate other occupations that have common sex-labeled titles to see if the same result holds when the title is "desexed" using a less common and perhaps generally unrecognizable term.

The results for the two masculine occupations are similar and can be considered together. Subjects initially rated both Electrician and Mining Engineer in the expected masculine direction. After exposure to information that contained an explicit discussion of opportunities

for women in these occupations, subjects did tend to rate the occupations as more neutral, though not to the extent predicted. An unexpected finding was that subjects exposed to sex biased information showed evidence of more biased attitudes after reading the information. This result was significant for Electrician but did not reach significance on Mining Engineer. Thus the sex-biased and non-sex-biased/explicit groups did differ significantly after treatment as predicted with the explicit group having more neutral sex-appropriateness ratings. This result did not occur for the expected reason, however, i.e., that the explicit group would adopt a significantly more neutral attitude; rather it occurred because of a combination of the explicit group showing a tendency to become more neutral and the biased group showing a tendency to become more biased.

Contrary to expectation, the implicit group did not differ from the explicit group on post-information ratings and also exhibited the tendency to become somewhat more neutral. These findings do suggest that for "masculine" occupations, exposing people to non-sex-biased information tends to make people slightly less biased, while exposing them to sex-biased information tends to make individuals somewhat more biased. It appears to make minimal difference whether the non-sex-biased information is subtle or explicit in nature. It must be noted, however, that the effects described here are not particularly powerful in that all groups were still rating these two occupations as masculine after reading the three types of information; only the degree of stereotyping was affected.

The difference between the findings on the masculine and feminine occupations suggests that individuals may be more willing to modify their attitudes about the appropriateness of masculine occupations for women than they are to modify their attitudes about the appropriateness of feminine occupations for men. This tendency may be due to actual gains that women have made in the work world in the last few years. This explanation also fits with the idea discussed in the literature review that although there has been a focus on the changing roles of women in career development literature with a subsequent attempt to reflect these changes in occupational information, the changing role of men has been relatively ignored. The explanation is at odds with the findings of Schlossberg and Goodman (1972) that elementary school children were more willing to exclude women from "men's" jobs than vice versa. Perhaps attitudes have changed somewhat due to events of the last 4-5 years, or perhaps young adults tend to hold attitudes more open to change than young children do.

No differences were predicted on the two neutral occupations, School Psychologist and Assistant in a Scientific Lab. Contrary to expectation there were statistically significant findings for both occupations.

All three treatment groups rated School Psychologist as neutral initially. After receiving neutral/implicit information all groups rated the occupation as slightly more masculine. Perhaps the statement in the occupational brief that more men than women (60% vs. 40%) were employed in the occupation affected subjects' attitudes to

some degree. Since the difference in pre- vs. post-treatment ratings was only .30 on a 1-7 point scale, however, the practical significance of this finding is questionable.

Assistant in a Scientific Lab was the other occupation chosen to represent a neutral field. Results showed that the initial mean rating across subjects was in a slight masculine direction ($\bar{X} = 3.69$). This result appears to be due to the finding that the biased group had significantly more masculine overall ratings ($\bar{X} = 3.28$) than either the explicit ($\bar{X} = 3.82$) or implicit ($\bar{X} = 3.86$) groups. There is no readily apparent explanation for this finding; the implications will be discussed at a later point.

Occupational Stereotyping and Androgyny

The results of this study show no relationship between the tendency to sex-stereotype occupations and the degree of sex-role stereotyping in one's own self-concept as measured by androgyny scores on the BSRI. There is also no relationship between androgyny scores and the tendency to change one's sex-stereotype of occupations after receiving information on those occupations.

There are several possible explanations for these findings. Spence, Helmreich and Stapp (1975), using the Personal Attributes Questionnaire, found low correlations between self-ratings of sex-role attributes and ratings of "typical" men and women. Using the BSRI, Zeldow (1976) found no differences among androgynous and masculine men or women as measured by the Attitudes Toward Women Scale (AWS; Spence & Helmreich, 1972). Thus, it appears that the attribution of stereotyped

sex-role characteristics to the self may be relatively independent of ascription of stereotyped sex-role characteristics to others or to occupations.

Harren (1976) has hypothesized that cognitive style variables, particularly cognitive complexity vs. simplicity, may mediate the effects of sex-role attitudes on the career decision making process and on attitudes toward occupations. Harren is in the process of carrying out an extensive research project to test this and a series of related hypotheses.

Another possible explanation is that the BSRI does not actually measure what it is intended to measure. Bem's consistent findings that subjects exhibit behavior predicted based on BSRI scores as well as an analysis which supports the concurrent validity of the instrument (Wakefield, Sasek, Friedman & Bowden, 1976) make this explanation seem unlikely, however.

At present, the relationship of one's sex-role self-concept to one's attitudes about the sex roles of others and the sex-labeling of occupations is not well understood. Findings generally do not appear to be in the directions that would be predicted based on theoretical formulations and the past research of Bem. More research is needed in this area before such inconsistencies can be explained.

Additional Findings

Although no information was presented on any of the other 14 occupations, there were statistically significant pre- vs.

post-treatment results on one other occupation, Insurance Agent. Subjects initially rated this occupation in a masculine direction ($\bar{X} = 3.30$) and, as on School Psychologist, all groups rated the occupation as slightly more masculine ($\bar{X} = 3.00$) after treatment. Again, any practical significance of this result is questionable.

There were overall differences among the three treatment groups on two of the other occupations. On Physician, the sex biased group had more masculine ratings than the implicit group. On Stockbroker, the sex biased group had more masculine ratings than the explicit group. These results plus the finding on Lab Assistant are somewhat disturbing in that they suggest that there may have been some unknown, uncontrolled difference among the three treatment groups affecting the results of the study. The biased group revealed a tendency to be more biased than either or both of the other groups on 3 of the 20 occupations. This implies that the results of the study, while not necessarily invalid, must be interpreted with some caution. It should be kept in mind, however, that there were no initial differences among groups on any of the 4 stereotyped occupations on which information was presented. A replication of the study might prove useful nevertheless in validating the results.

A final finding was the tendency for male subjects to rate masculine occupations as more appropriate for men than did female subjects. This result occurred for 7 of the 11 occupations rated in a masculine direction by the sample. This suggests that women see "male" occupations as more appropriate for women than men do. The differences

between the men's and women's ratings on these occupations ranged from .19 to .59 with the mean difference being .40 on a 1-7 point scale. Shinar (1975) also found a slight tendency for male subjects to show more biased attitudes on masculine occupations than female subjects. Although the differences are not extreme and do not occur on all occupations, the fact that both studies found similar results suggests that in any future related research, it may prove useful to analyze results for male and female subjects separately.

Limitations

An obvious limitation of this study is that all subjects were college students at one large, Southern university. Strictly speaking, results can be generalized only to other undergraduate students at VPI & SU. Replication studies would be needed to determine if results generalize to other populations.

Second, the study contains all the limitations of research utilizing paper-and-pencil instruments as dependent measures. Results may have been influenced by factors such as honesty, subjective interpretation of the instruments, and various response biases. Also, since the sex-appropriateness rating scale was part of a larger task, it is possible that subjects' ratings on other scales (e.g., prestige) influenced the ratings on this scale.

Also, since reading of information was a critical part of the study, results may have been influenced by subjects' differential reading comprehension levels and vocabulary as well as by variation in

memory factors. Since the experimental session tended to take slightly more than an hour and required responding to three rather lengthy questionnaires, fatigue may have been a factor for some subjects.

The fact that there is some evidence suggesting the sex-biased group may have been predisposed to respond in a slightly more biased manner than the other two groups has already been discussed as a cause for caution in interpreting results.

In choosing stimulus occupations for this study, the mean masculine-feminine ratings that Shinar (1975) found were used as one criterion for selection; however, the variance of the Shinar ratings was not taken into account. For several of the occupations, it might have been possible to have selected occupations that had a stereotype of equal strength but on which there tended to be greater agreement among subjects.

Finally, subjects gave their post-treatment ratings immediately after reading occupational information. Where significant effects were found it cannot be assumed that the effect persisted after a time-lapse.

Conclusions and Implications

The results of this study show that exposing individuals to different types of brief occupational information does have at least some minimal impact on individuals' attitudes about the sex-appropriateness of occupations.

On masculine occupations, subjects exposed to sex biased information are reinforced in their attitudes and tend to become slightly

more biased while subjects exposed to unbiased information discrepant with their initial attitudes tend to become slightly less biased. It appears to make little difference whether the unbiased information is subtle in nature, changing only the language of an occupational description, or if it is explicit containing a description of the opportunities for the minority sex in the occupation.

On feminine occupations, the results are more equivocal and suggest that attitudes about the appropriateness of "feminine" occupations for men may be more rigid than attitudes about the appropriateness of "masculine" occupations for women. There is also some support for the idea that if an occupational title does not have a recognizable, common sex-stereotype and individuals then read information about that occupation, biased information will bring out a stereotype while unbiased information that presents a discussion of the appropriateness of the occupation for the minority sex will tend to reinforce individuals in maintaining a more neutral stance.

As previously mentioned, the extent of these effects was not overwhelming. Keeping in mind, however, the premise that individuals have received life-long conditioning through various media and institutions about the differential sex-appropriateness of occupations and occupational activities, it is encouraging that exposing individuals to such minimal information (a brief of less than two pages which can be read in several minutes) has any impact at all on attitudes. It may be hypothesized that if any effects occur with such minimal exposure, then the effects of more extensive information presented over

a longer time span might be much greater. Also, the two masculine and two feminine occupations chosen for this study tend to represent extreme stereotypes. If individuals show some tendency to modify their attitudes about these kinds of occupations with information exposure, then they may be more amenable to attitude change on occupations that carry a sex-stereotype of less strength.

The results of the study do provide some beginning empirical support for the types of changes in the content of occupational information that feminists critics have suggested to counteract bias. The results would also suggest that counselors cannot assume that because their clients have read an OOH description that uses neutral language and shows a picture of a female locomotive engineer or a male kindergarten teacher, that major changes will result in long-entrenched attitudes. More active ways of confronting stereotyped attitudes and expanding options must be sought. Since it appears that biased information does reinforce and even extend bias, counselors should push for eliminating bias in career materials and should also seek ways to counteract the sex-bias that their clients are still likely to find in the majority of career education materials and information on the shelves and in the files of their career library.

Finally, the results of the study provide additional support for Shinar's (1975) findings that occupations do have commonly held sex-stereotypes and that women tend to have slightly more liberal attitudes about "masculine" occupations than men do.

Suggestions for Further Research

Several areas for further investigation have already been alluded to in the discussion. As mentioned previously, a systematic body of research on if and how career information affects the career development process is woefully lacking in the counseling literature. The mode of presentation for most career information remains in the printed form of books, pamphlets, monographs, and so forth, or in the audio-visual form of such items as tape recordings, filmstrips, slides, videotapes, or movies. Some questions that need to be addressed are: Do individuals who have access to career information make better informed, more congruent career decisions than those who do not? Do they actually know more about occupations and/or career planning after being exposed to information; and, how long and how accurately is this information retained? What characteristics of the individual information user (e.g., cognitive style variables) influence the impact of information on the person? Do individuals respond differentially to different media or modes of presentation of information? Are there points in the career development process and/or the counseling process where introducing information is more or less useful?

In relation to the variable of sex bias in information and attitude change, it would be useful to investigate whether more extensive presentations of information (e.g., over several sessions or the time span of a course) would lead to greater modification in attitudes. Also, might allowing individuals to discuss the information they have received have different effects? Another research question

would be whether information presented using different media have different effects--would the addition of pictures to text have a greater effect, or would actually talking to a female mining engineer or a male nurse influence individuals' attitudes more than reading a pamphlet? If changes in attitude do occur, do they persist over time? A related area of research would be whether or not changes in a person's attitudes about the sex-appropriateness of an occupation also result in the person actually considering the occupation as appropriate for him/herself. In other words, does it actually expand a person's career options if he/she begins to view sex-stereotyped occupations in a less stereotyped way? Also, more exploration is needed of the factors that influence the degree of sex-stereotyping that people attribute to occupations. For example, which is more important, the actual make-up of the occupational world or the person's perception of the constellation of personality traits and characteristics required for the occupation?

Finally, the relationship between the person's own sex-role self-concept and the career development process including the sex-stereotyping of occupations could be explored further. Harren's (1976) hypotheses about the mediation effects of cognitive style variables may provide a fruitful direction for investigation.

Chapter VI

SUMMARY

There has been little research focus on the effects of career information use on the information consumer. Recent descriptive studies have revealed that a great deal of sex-bias is present in existing occupational literature. Researchers have made suggestions for changes in the wording and pictures of such literature to eliminate bias; however, there has been no previous experimental exploration about how effective such changes might be in altering individuals' sex-stereotypes of occupations.

This study was conducted to investigate the effects of three types of information--sex-biased, non-sex-biased/implicit and non-sex-biased/explicit--on subjects' attitudes about the sex-appropriateness of occupations. A secondary area of investigation was whether or not the degree of sex-stereotyping of occupations that subjects evidenced was related to the degree of sex-role stereotyping in the subjects' own sex-role self-concept as measured by androgyny scores on the Bem Sex-Role Inventory.

From an original list of 20 occupations taken from the list of occupations Shinar (1975) used in her study, 6 occupations were chosen on which to present information. Two of the occupations had feminine

stereotypes--Air Flight Attendant and Registered Nurse. Two had masculine stereotypes--Electrician and Mining Engineer. Two were defined as neutral--Assistant in a Scientific Lab and School Psychologist. Information consisted of OOH-type briefs of less than two pages. Sex-biased information was written to reflect the common stereotype of the occupation. Similar descriptions were written to represent the non-sex-biased/implicit condition with the difference being that subtle changes such as neutralizing pronouns and referring to both men and women in the occupation were used. Information in the explicit condition was identical to that in the implicit condition with the addition of a section describing opportunities in the occupation for the minority sex. All subjects received non-sex-biased/implicit information for the two neutral occupations.

Ninety college student subjects, 45 males and 45 females, participated in the study. Subjects were randomly assigned to one of the three information treatment conditions with 15 male subjects and 15 female subjects per treatment. All subjects initially completed the BSRI and a set of Occupational Rating Scales on which all 20 occupations were rated using a 7 point scale on 10 factors including sex-appropriateness. Subjects then read one of the three types of information about the six occupations of interest. After reading the information subjects then completed the Occupational Rating Scales again for all 20 occupations.

It was predicted that (1) subjects would initially tend to rate occupations in a sex-stereotyped way; (2) subjects in the non-biased

conditions would change their ratings in a neutral direction after information exposure with the extent of the change determined by the explicitness of the information; and (3) both the degree of the initial sex-stereotyping of occupations and the extent of post-treatment change in ratings would be related to psychological androgyny.

A 3 x 2 x 2 ANOVA (3 information groups x 2 sexes x 2 sex-appropriateness ratings) was utilized to test experimental hypotheses. An a posteriori Tukey (a) test was used for multiple comparisons among means. Hypotheses concerning occupational sex-stereotyping and androgyny were tested by computing a Pearson product-moment correlation.

Results showed that subjects did tend to rate occupations in an initially biased direction with only 4 of 20 occupations rated as neutral. On the feminine stereotyped occupations, significant results were found only for Air Flight Attendant. Subjects initially rated the occupation as neutral; both the biased and implicit groups had more stereotyped ratings after treatment while the explicit group maintained a more neutral rating. The explanation was offered that subjects did not recognize the occupation from the title. It appears that non-sex-biased/explicit information reinforced subjects in maintaining a more neutral attitude while the other two types of information evoked the common sex-role stereotype of the occupation.

For the masculine occupations, subjects in the biased group tended to become more biased after receiving information while

subjects in the non-biased groups tended to become less biased. The explicitness of the non-biased material made no difference in results. Male subjects exhibited a tendency to rate masculine stereotyped occupations as more masculine than did female subjects.

There was no relationship between androgyny and the degree of sex-stereotyping of occupations subjects displayed or between androgyny and the tendency to change sex-appropriateness ratings of occupations after receiving information.

It was concluded that bias in occupational information does affect individuals' attitudes with biased information tending to reinforce and deepen sex-stereotypes. Non-sex-biased information, on the other hand, appears to have the effect of changing subjects' attitudes in a slightly more neutral direction, at least for masculine occupations.

Limitations of the study and suggestions for further research were also discussed.

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APPENDIX A

Occupational Rating Scales

Following this instruction sheet is a list of 20 occupations, 2 occupations per page. After the title of each occupation, you will find a series of rating scales on which you are to rank each occupation. For each scale, make a checkmark (✓) indicating the direction and degree of your attitude toward or idea about that occupation.

For example, one scale on which you will rate the occupations is:

exciting / _ / _ / _ / _ / _ / _ / _ / dull

You would make a checkmark in the following ways if your attitude is:

Very closely related to one end

exciting/ ✓ / _ / _ / _ / _ / _ / _ /dull or exciting/ _ / _ / _ / _ / _ / _ / ✓ /dull

Closely related to one end

exciting/ _ / ✓ / _ / _ / _ / _ / _ /dull or exciting/ _ / _ / _ / _ / _ / ✓ / _ /dull

Slightly related to one end

exciting/ _ / _ / ✓ / _ / _ / _ / _ /dull or exciting/ _ / _ / _ / _ / ✓ / _ / _ /dull

Neutral or equal

exciting/ _ / _ / _ / ✓ / _ / _ / _ /dull

Try to make an independent judgement on each scale. Also, assume that the degree of difference for each block on the scale is equal.

Air Flight Attendant

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Journalist

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Assistant in a Scientific Lab

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Insurance Agent

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Bank Teller

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Hospital Attendant

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Computer Programmer

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Game Warden

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Electrician

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Elementary School Teacher

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Librarian

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

X-Ray Technician

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Mining Engineer

physically demanding / / / / / / / / / not physically demanding
 high status / / / / / / / / / low status
 people-oriented / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / professional
 emotionally demanding / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / secure
 high pay / / / / / / / / / low pay
 poor job outlook / / / / / / / / / good job outlook
 exciting / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / very little

Used Car Dealer

physically demanding / / / / / / / / / not physically demanding
 high status / / / / / / / / / low status
 people-oriented / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / professional
 emotionally demanding / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / secure
 high pay / / / / / / / / / low pay
 poor job outlook / / / / / / / / / good job outlook
 exciting / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / very little

Physician

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Stockbroker

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Registered Nurse

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

Social Worker

physically demanding / / / / / / / / / / not physically demanding
 high status / / / / / / / / / / low status
 people-oriented / / / / / / / / / / thing-oriented
 appropriate for men / / / / / / / / / / appropriate for women
 non-professional / / / / / / / / / / professional
 emotionally demanding / / / / / / / / / / not emotionally demanding
 insecure / / / / / / / / / / secure
 high pay / / / / / / / / / / low pay
 poor job outlook / / / / / / / / / / good job outlook
 exciting / / / / / / / / / / dull
 Amount of information you know about occupation:
 very much / / / / / / / / / / very little

School Psychologist

physically demanding / / / / / / / / not physically demanding
high status / / / / / / / / low status
people-oriented / / / / / / / / thing-oriented
appropriate for men / / / / / / / / appropriate for women
non-professional / / / / / / / / professional
emotionally demanding / / / / / / / / not emotionally demanding
insecure / / / / / / / / secure
high pay / / / / / / / / low pay
poor job outlook / / / / / / / / good job outlook
exciting / / / / / / / / dull
Amount of information you know about occupation:
very much / / / / / / / / very little

Short Order Cook

physically demanding / / / / / / / / not physically demanding
high status / / / / / / / / low status
people-oriented / / / / / / / / thing-oriented
appropriate for men / / / / / / / / appropriate for women
non-professional / / / / / / / / professional
emotionally demanding / / / / / / / / not emotionally demanding
insecure / / / / / / / / secure
high pay / / / / / / / / low pay
poor job outlook / / / / / / / / good job outlook
exciting / / / / / / / / dull
Amount of information you know about occupation:
very much / / / / / / / / very little

APPENDIX B

Occupations List

	Mean Rating ¹	Classification ²
Air Flight Attendant	5.75	F
Assistant in a Scientific Lab	4.167	N
Bank Teller	5.167	F
Computer Programmer	3.417	N
Electrician	1.583	M
Elementary School Teacher	5.583	F
Game Warden	1.917	M
Hospital Attendant	3.833	N
Insurance Agent	2.833	M
Journalist	3.833	N
Librarian	5.583	F
Mining Engineer	1.417	M
Physician	2.667	M
Registered Nurse	6.583	F
School Psychologist	4.000	N
Short Order Cook	4.167	N
Social Worker	4.750	F
Stockbroker	1.917	M
Used Car Dealer	2.083	M
X-Ray Technician	4.750	F

¹Mean ratings from data collected by Shinar (1975) where 1 = masculine extreme and 7 = feminine extreme.

²(M) Masculine; (F) Feminine; (N) Neutral.

APPENDIX C

Bem Sex-Role Inventory

On the next page you will be shown a number of personality characteristics. I would like you to use these characteristics in order to describe yourself. That is, I would like you to indicate, on a scale from 1 to 7, how true of you these various characteristics are. Please do not leave any characteristic unmarked.

Example: sly

Mark a 1 if it is NEVER OR ALMOST NEVER TRUE that you are sly.

Mark a 2 if it is USUALLY NOT TRUE that you are sly.

Mark a 3 if it is SOMETIMES BUT INFREQUENTLY TRUE that your are sly.

Mark a 4 if it is OCCASIONALLY TRUE that you are sly.

Mark a 5 if it is OFTEN TRUE that you are sly.

Mark a 6 if it is USUALLY TRUE that you are sly.

Mark a 7 if it is ALWAYS OR ALMOST ALWAYS TRUE that you are sly.

Thus, if you feel it is sometimes but infrequently true that you are "sly," never or almost never true that you are "malicious," always or almost always true that you are "irresponsible," and often true that you are "carefree," then you would rate these characteristics as follows:

Sly	3
Malicious	1

Irresponsible	7
Carefree	5

I.D. # _____

DESCRIBE YOURSELF

1 2 3 4 5 6 7
 NEVER OR USUALLY SOMETIMES OCCASIONALLY OFTEN USUALLY ALWAYS OR
 ALMOST NEVER NOT TRUE BUT INFRE- TRUE TRUE TRUE ALMOST
 TRUE QUENTLY TRUE ALWAYS TRUE

Self reliant	
Yielding	
Helpful	
Defends own beliefs	
Cheerful	
Moody	
Independent	
Shy	
Conscientious	
Athletic	
Affectionate	
Theatrical	
Assertive	
Flatterable	
Happy	
Strong personality	
Loyal	
Unpredictable	
Forceful	
Feminine	

Reliable	
Analytical	
Sympathetic	
Jealous	
Has leadership abilities	
Sensitive to the needs of others	
Truthful	
Willing to take risks	
Understanding	
Secretive	
Makes decisions easily	
Compassionate	
Sincere	
Self-sufficient	
Eager to soothe hurt feelings	
Conceited	
Dominant	
Soft-spoken	
Likable	
Masculine	

Warm	
Solemn	
Willing to take a stand	
Tender	
Friendly	
Aggressive	
Gullible	
Inefficient	
Acts as a leader	
Childlike	
Adaptable	
Individualistic	
Does not use harsh language	
Unsystematic	
Competitive	
Loves children	
Tactful	
Ambitious	
Gentle	
Conventional	

APPENDIX D

Sex-Biased Condition

AIR FLIGHT ATTENDANT

Nature of the Work

Air flight attendants, also called stewardesses, are aboard almost all commercial passenger planes to help make the flight safe, comfortable, and pleasant for passengers.

Before each flight, the attendant sees that the passenger cabin is in order; she checks supplies and emergency equipment and makes sure that food and beverages are in the galley. As passengers come aboard, the stewardess greets them, checks tickets, and helps hand up coats and stow luggage. Before take-off she instructs passengers in emergency procedures and makes sure that seat belts are fastened. In the air she answers questions about the flight, distributes pillows and magazines, and helps care for small children, and handicapped or elderly passengers. On many flights, attendants also serve cocktails and pre-cooked meals. The stewardess is also responsible for handling any medical emergencies that may occur in flight and must be very knowledgeable about emergency procedures and equipment should any flight problem develop.

Places of Employment

About 41,000 attendants worked for the airlines in 1974; nearly all of these workers are women. Most are stationed in major cities where the airlines are based. Depending on the size of the plane, airliners may carry anywhere from 1 to 16 attendants on a flight.

Training and Qualifications

The airlines place great emphasis on hiring women who are poised, tactful, and resourceful. The applicant typically must be 19 years old, from 5'2" to 6' in height, with weight proportional to height. She must be in excellent health, have good vision, and be able to speak clearly. She must also be a high school graduate. Those having two years of college, nurses training, or experience dealing with the public are preferred.

Stewardesses have the opportunity to meet interesting people and see new places. However, the work can be strenuous and trying. The attendant stands for most of the flight. She must remain pleasant and efficient regardless of how tired she may be.

Most airlines have their own training schools for stewardesses, with training lasting an average of 5-6 weeks. There are also private schools that train airline personnel including flight attendants.

Earnings

In 1974, the beginning monthly earnings of new attendants ranged from \$655 to \$749; the average for all attendants was \$869. Stewardesses and their immediate families also get to travel at reduced rates on most airlines. When she is away from her home base (usually about 1/3 of the time) the attendant is also provided hotel accommodations and an allowance for living expenses by the airlines.

Employment Outlook

This field is expected to grow through the mid-1980's. Also, although airlines no longer require the stewardess who marries to quit her job, many choose to quit anyway since the long periods of time away from home make family life difficult; thus, there is a large amount of turnover in this field each year. Despite these facts applicants can expect keen competition for available jobs because the number of applicants is expected to exceed the number of job openings. As previously mentioned, those with a combination of some college and experience dealing with the public will have the best opportunity. Job opportunities will also vary because airline travel is very sensitive to the ups and downs in the economy.

Non-Sex Biased/Implicit

AIR FLIGHT ATTENDANT

Nature of the Work

Air flight attendants, also called stewards/stewardesses, are aboard almost all commercial passenger planes to help make the flight safe, comfortable and pleasant for passengers. Before each flight, attendants see that the passenger cabin is in order; they check supplies and emergency equipment and make sure food and beverages are in the galley. As passengers come aboard, the attendant greets them, checks tickets, and helps hang up coats and stow luggage. Before take-off, he or she instructs the passengers in emergency procedures and makes sure that seat belts are fastened. In the air, attendants answer questions about the flight, distribute magazines and pillows, and help care for small children and elderly or handicapped passengers. On many flights, they also serve cocktails and pre-cooked meals. Attendants are also responsible for handling any medical emergencies that may occur in flight and must be very knowledgeable about emergency procedures and equipment should any flight problems develop.

Places of Employment

About 41,000 flight attendants worked for the airlines in 1974. Although most of these workers are women, the number of men who serve as stewards have been steadily increasing. Most attendants are stationed in major cities where the airlines are based. Depending on the size of the plane, an airliner may carry anywhere from 1 to 16 attendants on a flight.

Training and Qualifications

The airlines places great stress on hiring men and women who are poised, tactful, and resourceful. The applicant typically must be 19 years old, from 5'2" to 6' in height, with weight proportional to height. Attendants must be in excellent health, have good vision, and be able to speak clearly. High school graduation is the minimum educational requirement; however, those having two years of college, some medical training, or experience dealing with the public are preferred. For international flights, ability to speak an appropriate foreign language is also sometimes required.

Attendants have the opportunity to meet interesting people and see new places. However, the work can be strenuous and trying. Attendants stand for most of the flight; they must remain pleasant and efficient regardless of how tired they may be.

Most airlines have their own training schools for attendants with training lasting an average of 5-6 week. There are also private schools that train airline personnel including flight attendants.

Earnings

In 1974, the beginning monthly earnings of new attendants ranged from \$655 to \$749; the average for all attendants was \$869. Attendants and their immediate families also get to travel at reduced rates on most airlines. When away from their home base (usually about 1/3 of the time), attendants are also provided hotel accommodations and an allowance for living expenses by the airline.

Employment Outlook

This field is expected to grow through the mid-1980's; there is also a fairly large amount of turnover in this occupation which creates additional openings. Despite these facts, applicants can expect keen competition for available jobs because the number of applicants is expected to exceed the number of job openings. Job opportunities will also vary because airline travel is very sensitive to the ups and downs of the economy. As previously mentioned, those with some combination of college and experience dealing with the public will have the best opportunity.

Non-Sex-Biased/Explicit

AIR FLIGHT ATTENDANT

Nature of the Work

Air flight attendants, also called stewards/stewardesses, are aboard almost all commercial passenger planes to help make the flight safe, comfortable and pleasant for passengers. Before each flight, attendants see that the passenger cabin is in order; they check supplies and emergency equipment and make sure food and beverages are in the galley. As passengers come aboard, the attendant greets them, checks tickets, and helps hang up coats and stow luggage. Before take-off, he or she instructs the passengers in emergency procedures and makes sure that seat belts are fastened. In the air, attendants answer questions about the flight, distribute magazines and pillows, and help care for small children and elderly or handicapped passengers. On many flights, they also serve cocktails and pre-cooked meals. Attendants are also responsible for handling any medical emergencies that may occur in flight and must be very knowledgeable about emergency procedures and equipment should any flight problems develop.

Places of Employment

About 41,000 flight attendants worked for the airlines in 1974. Although most of these workers are women, the number of men who serve as stewards have been steadily increasing. Most attendants are stationed in major cities where the airlines are based. Depending on the size of the plane, an airliner may carry anywhere from 1 to 16 attendants on a flight.

Training and Qualifications

The airlines places great stress on hiring men and women who are poised, tactful, and resourceful. The applicant typically must be 19 years old, from 5'2" to 6' in height, with weight proportional to height. Attendants must be in excellent health, have good vision, and be able to speak clearly. High school graduation is the minimum educational requirement; however, those having two years of college, some medical training, or experience dealing with the public are preferred. For international flights, ability to speak an appropriate foreign language is also sometimes required.

Attendants have the opportunity to meet interesting people and see new places. However, the work can be strenuous and trying. Attendants stand for most of the flight; they must remain pleasant and efficient regardless of how tired they may be.

Most airlines have their own training schools for attendants with training lasting an average of 5-6 weeks. There are also private schools that train airline personnel including flight attendants.

Earnings

In 1974, the beginning monthly earnings of new attendants ranged from \$655 to \$749; the average for all attendants was \$869. Attendants and their immediate families also get to travel at reduced rates on most airlines. When away from their home base (usually about 1/3 of the time), attendants are also provided hotel accommodations and an allowance for living expenses by the airline.

Employment Outlook

This field is expected to grow through the mid-1980's; there is also a fairly large amount of turnover in this occupation which creates additional openings. Despite these facts, applicants can expect keen competition for available jobs because the number of applicants is expected to exceed the number of job openings. Job opportunities will also vary because airline travel is very sensitive to the ups and downs of the economy. As previously mentioned, those with some combination of college and experience dealing with the public will have the best opportunity.

Opportunities for Men

Although women have tended to dominate this field in the past, the proportion of men entering the occupation each year is steadily increasing. This has been due in large part to training schools opening up their enrollments to men and actively recruiting male applicants in many cases. Men have particularly good opportunities at present to serve on transcontinental and international flights. Also, although there is much competition for jobs due to the large number of applicants each year, because there are still relatively few men in this field and because the airlines are interested in increasing the number of stewards, a well qualified man probably stands a slightly better chance of being hired at present than does an equally qualified woman.

Sex-Biased

REGISTERED NURSE

Nature of the Work

As an important member of the health care team, the nurse performs a variety of functions. She observes, evaluates, and records symptoms, reactions and progress in patients; she also administers medications, assists in the rehabilitation of patients, and helps maintain a physical and emotional environment that promotes recovery.

The nurse may be involved mainly in hospital care, or she may perform research activities, instruct students, or carry out administrative tasks. The setting a nurse works in usually determines the scope of her responsibilities.

Places of Employment

In 1974, there were 860,000 working nurses, nearly all of whom were women. Three-fourths of all nurses work in hospitals, nursing homes, or similar settings. Other work settings include: doctors' and dentists' offices, public health agencies, schools, government agencies, industrial settings, and nursing schools in which nurses function as teachers and administrators.

Training and Qualifications

A license is required to practice nursing in all 50 states and the District of Columbia. There are three types of programs that provide the basic education necessary for licensure. Diploma programs are conducted by hospitals and independent schools and usually require 3 years of training. Bachelor's degree programs usually requires 4-5 years of study in a college or university. Associate degree programs in junior and community colleges require approximately 2 years. All schools of nursing require high school graduation for admittance. There are also master's and doctoral degree programs available for advanced training, particularly for the woman who wants to enter a specialized field of nursing such as surgical nursing, psychiatric nursing, anesthesiology, obstetrics, and so forth. Nursing programs usually combine classroom work, with a heavy emphasis in science, and supervised clinical experience.

A woman who wants to pursue a career in nursing should have a sincere desire to serve people and be sympathetic to the needs of others. She must be able to follow orders precisely and use good judgment and

remain calm in emergencies; she also should be able to accept responsibility and supervise the activities of others. Good mental health is needed to cope with human suffering and frequent emergency situations. If she is a staff nurse, she also needs physical stamina because of the amount of time spent walking and standing.

Earnings

Based on figures from 1974, salaries ranged from an average of \$9,000 a year for nurses working in hospitals to an average of \$14,700 a year for nurses working in government agencies. Salaries are dependent on training and experience as well as place of employment. The nurse usually receives extra pay for work on evening or night shifts. Nearly all receive paid vacations and holidays as well as health and retirement benefits.

Employment Outlook

Employment outlook for registered nurses is expected to be favorable through the mid-1980's. If enrollment trends continue, some competition may develop for higher paying jobs. However, shortages of trained nurses are expected to continue, especially in the Southern states, many rural areas, and the inner cities. For the nurse with graduate education, the outlook and chances for advancement are excellent.

Employment opportunities will be favorable because of expected growth in the field due to an increased emphasis on health care that will create more jobs, and also because of the fact that many women leave the field of nursing each year due to marriage and family responsibilities and must be replaced.

Non-Sex-Biased/Implicit

REGISTERED NURSE

Nature of the Work

As important members of the health care team, nurses perform a variety of functions. They observe, evaluate and record symptoms, reactions and progress of patients; they also administer medications, assist in the rehabilitation of patients, and help maintain a physical and emotional environment that promotes recovery.

Nurses may be involved mainly in hospital care, or they may perform research activities, instruct students, or carry out administrative tasks. The setting a nurse works in usually determines the scope of his or her responsibilities.

Places of Employment

In 1974, there were 860,000 working nurses; of this number about 2 1/2% were men. Three-fourths of all nurses work in hospitals, nursing homes, or similar settings. Other work settings include: doctors' and dentists' offices, public health agencies, schools, government agencies, industrial settings and nursing schools in which nurses function as teachers and administrators.

Training and Qualifications

A license is required to practice nursing in all 50 states and the District of Columbia. There are three types of programs that provide the basic education necessary for licensure. Diploma programs are conducted by hospitals and independent schools and usually require 3 years of training. Bachelor's degree programs usually require 4-5 years of study in a college or university. Associate degree programs in junior and community colleges require approximately 2 years. All schools of nursing require high school graduation for admittance. There are also master's and doctoral degree programs available for advanced training, particularly for the person who wants to enter a specialized field of nursing such as surgical nursing, psychiatric nursing, anesthesiology, obstetrics, and so forth. Nursing programs usually combine classroom work, with a heavy emphasis in science, and supervised clinical experience.

A woman or man who wants to pursue a career in nursing should have a sincere desire to serve people and be sympathetic to the needs of others. Nurses must be able to follow orders precisely and use good judgment and remain calm in emergencies; they should also be able to

accept responsibility and supervise the activities of others. Good mental health is necessary to cope with human suffering and frequent emergency situations. Staff nurses also need physical stamina because of the amount of time spent standing and walking.

Earnings

Based on figures from 1974, salaries ranged from an average of \$9,000 a year for nurses working in hospitals to an average of \$14,700 a year for nurses working in government agencies. Salaries are dependent on training and experience as well as place of employment. The nurse usually receives extra pay for work on evening or night shifts. Nearly all receive paid vacations and holidays as well as health and medical benefits.

Employment Outlook

Employment outlook for registered nurses is expected to be favorable through the mid-1980's. If enrollment trends continue, some competition may develop for higher paying jobs. However, shortages of trained nurses are expected to continue, especially in the southern states, many rural areas, and the inner cities. For the nurse with graduate education, the outlook and chances for advancement are excellent.

Employment opportunities will be favorable because of expected growth in the field due to an increased emphasis on health care that will create more jobs, and also because of the need to replace nurses who retire or leave the field each year.

Non-Sex-Biased/Explicit

REGISTERED NURSE

Nature of the Work

As important members of the health care team, nurses perform a variety of functions. They observe, evaluate and record symptoms, reactions and progress of patients; they also administer medications, assist in the rehabilitation of patients, and help maintain a physical and emotional environment that promotes recovery.

Nurses may be involved mainly in hospital care, or they may perform research activities, instruct students, or carry out administrative tasks. The setting a nurse works in usually determines the scope of his or her responsibilities.

Places of Employment

In 1974, there were 860,000 working nurses; of this number about 2 1/2% were men. Three-fourths of all nurses work in hospitals, nursing homes, or similar settings. Other work settings include: doctors' and dentists' offices, public health agencies, schools, government agencies, industrial settings and nursing schools in which nurses function as teachers and administrators.

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A license is required to practice nursing in all 50 states and the District of Columbia. There are three types of programs that provide the basic education necessary for licensure. Diploma programs are conducted by hospitals and independent schools and usually require 3 years of training. Bachelor's degree programs usually require 4-5 years of study in a college or university. Associate degree programs in junior and community colleges require approximately 2 years. All schools of nursing require high school graduation for admittance. There are also master's and doctoral degree programs available for advanced training, particularly for the person who wants to enter a specialized field of nursing such as surgical nursing, psychiatric nursing, anesthesiology, obstetrics, and so forth. Nursing programs usually combine classroom work, with a heavy emphasis in science, and supervised clinical experience.

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Employment opportunities will be favorable because of expected growth in the field due to an increased emphasis on health care that will create more jobs, and also because of the need to replace nurses who retire or leave the field each year.

Opportunities for Men

Although the majority of workers in the field of nursing are women, nursing is no longer considered a "women's" career. There were approximately 22,000 men working as registered nurses in 1974. Current enrollments in nursing schools reflect an increasing interest among men in this profession. This is matched by the profession's corresponding interest in recruiting men. Opportunities in the field are excellent for men at the present time and should continue to be so through the 1980's. The proportion of men in this field is expected to continue to increase in the future.

Sex-Biased

ELECTRICIAN

Nature of the Work

There are two types of electricians; maintenance and construction. The construction electrician assembles, installs, and wires electrical systems of heat, light, power and air conditioning in buildings. He also installs electronic equipment, controls, and signal and communication systems. He must be able to follow blueprints and specifications to install wiring. Once the wiring is completed, he tests circuits for proper connections and grounding.

The maintenance electrician keeps lighting systems, transformers, generators and other electrical equipment in good working order. Duties vary greatly depending on where the electrician is employed: however, much of the maintenance electrician's work is usually preventative. He inspects equipment to locate and correct defects before breakdowns occur. When trouble does occur, he must be able to use meters and other testing devices to quickly locate and repair the problem. He may also occasionally be required to install new wiring or electrical equipment.

Places of Employment

245,000 construction electricians were employed in 1974. Most of these workmen were employed by electrical contractors, although many were also self-employed. A small number worked for government or for businesses that did their own electrical work. 280,000 maintenance electricians were working in 1974. Half worked for manufacturing industries. Many were also employed by public utilities, mines, railroads, and by city, state or federal government. Practically all of the workers in both of these fields are men. The majority of jobs for electricians tend to be concentrated in urban and highly industrialized areas.

Training and Qualifications

The recommended way to learn the electrical trade is through formal apprenticeship programs that last 4 years. Apprenticeship programs are sponsored through and supervised by local union-management committee and include a combination of classroom instruction and intensive on-the-job training. Some electricians also learn the trade informally on-the-job. High school courses in electricity, electronics, algebra, mechanical drawing-shop, and science are good background for this field. A young man wanting to apply for apprenticeship training must be at least 18 years old and a high school graduate.

Although physical strength is not essential for the electrician he must possess manual dexterity, agility, and be in good health. Good color vision is essential because electrical wires are frequently identified by color. The electrician must be able to stand for long periods of time, climb ladders, and work on scaffolds. He must sometimes work in awkward and cramped positions; also, because he works with high voltage equipment, the electrician must be very alert, accurate and precise in his work.

Earnings

In metropolitan areas, the union wage rates for construction electricians averaged \$8.96 per hour in 1974. Because the seasonal nature of construction work affects electricians less, since they usually work inside, their annual earnings tend to be more than other construction workers. Earnings of maintenance electricians vary with the area of the country and type of employer; however, these electricians averaged \$5.64 per hour in 1974. Apprentices usually start out at about 50-60% of the skilled electrician's hourly wage and receive regular, periodic increases in pay.

Employment Outlook

Employment for both types of electricians is expected to increase faster than the average for all occupations through the mid-1980's. In addition to jobs created by employment growth, since this is a large field, many openings also arise each year as men retire, die, or transfer to other occupations. Employment in the construction industry may fluctuate from year to year depending on economic conditions. When construction jobs are unavailable, however, workers may be able to transfer to other electrical work as maintenance electricians, or in the ship-building or aircraft industries. The number of job openings for maintenance electricians should grow steadily in the next few years, since demand in this field is not very sensitive to the ups and downs of the economy.

Non-Sex-Biased/Implicit

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Opportunities for Women

Like all the construction trades where the usual method of entry is through apprenticeship, the electrical field has traditionally been relatively closed to women. However, in 1970 the Labor Department financed a series of pilot projects to increase the number of women in apprenticeships in the skilled trades; these projects proved conclusively that given equal opportunity, many women were interested in and able to perform well in a variety of apprenticeable occupations previously dominated by men. Although resistance is still encountered, women are entering the electrical trades in slowly but steadily increasing numbers. Since precision and physical stamina rather than physical strength are the main requirements for the electrician, this is a very good field among the construction trades for women.

Sex-Biased

MINING ENGINEER

Nature of the Work

The mining engineer finds, extracts, and prepares minerals for manufacturing industries to use. He designs the layouts of mines, supervises construction of shafts and tunnels in underground mines, and devises methods for transporting minerals to processing plants. He is responsible for the efficient operation of mines and for mine safety. Some mining engineers work with geologists and metallurgical engineers to locate and appraise new ore deposits. Others develop new equipment or processing methods. Recently, mining engineers have also become involved in environmental problems working in such areas as reclamation and pollution control. A small number of mining engineers work in teaching and/or research.

Places of Employment

About 5,000 men were employed as mining engineers in 1974. Most worked for the mining industry. Other places of employment include: firms that produce mining equipment, colleges and universities, and the government. Some mining engineers also work as private consultants.

Training and Qualifications

A bachelor's degree in mining engineering is the generally accepted educational requirement for beginning jobs in this field. Graduates in related branches of engineering as well as some natural science graduates may also qualify for some beginning jobs. A graduate degree may be required for some jobs, particularly in college teaching and research. Frequently, in a beginning job, a new engineer works under the supervision of an older, experienced engineer.

A young man interested in pursuing a career as a mining engineer should have an aptitude as well as an interest for math and science. He must also be able to work as part of a team and to supervise the work of others. He needs creativity, an analytical mind, a capacity to work with detail, and a liking for active work. Most mining jobs involve working a significant amount of time out-of-doors, and/or depending on the type of mining operation, also underground. Since most jobs are located near ore and mineral deposits, the mining engineer also must frequently be willing to live in relatively isolated areas or in small communities.

Earnings

The average starting salary for a bachelor's degree holder in mining engineering in 1974 was \$12,000 per year. Earnings increase significantly with experience; the average salary for an engineer with 21-23 years experience in 1974 was \$22,900.

Employment Outlook

Employment for mining engineers is expected to increase through the 1980's. This will be spurred by efforts to become self-sufficient in energy production necessitating the exploration and development of new energy sources as well as devising better and more efficient use of traditional sources of energy. This should result in increasing opportunities especially in the coal industry, although increasing exploration for all sources of minerals will also create new opportunities. Also, this is a relatively small branch of engineering with a small number of graduates each year. Employment opportunities should thus be very good.

Non-Sex-Biased/Implicit

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Places of Employment

About 5,000 persons were employed as mining engineers in 1974, including about 50 women. Most worked for the mining industry. Other places of employment include: firms that produce mining equipment, colleges and universities, and the government. Some mining engineers also work as private consultants.

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Opportunities for Women

Unlike most non-Western countries, in 1974 only about 1% of all engineers in the U.S. were women. Since there is evidence from tests that nearly as many women as men have an aptitude for engineering, the underrepresentation would seem to be the result of tradition and/or discrimination. There is evidence that this is changing, however. Engineering schools reported that women comprised about 10% of entering classes last year; thus the proportion of female engineers should gradually increase over the next few years. Most engineering schools are actively recruiting women students at the present time. In the mining specialty women may still experience discrimination from some employers, especially those who are reluctant to send women into remote areas or underground to work. However, for the woman with engineering aptitude who would like challenging, outdoor work that is very relevant to today's energy and ecology problems, mining should provide an area of excellent employment potential.

ASSISTANT IN A SCIENTIFIC LAB

Nature of the Work

Scientific laboratory assistants, also frequently called technicians, work in a wide variety of settings and specialties. The exact nature of their work depends on their technical specialty. Basically, however, these workers assist scientists in all phases of their work. Although their jobs are more limited and more practically oriented than scientists, they often do work that scientists would otherwise have to do. They frequently have to work with complex instruments and laboratory equipment. They set up and operate such equipment, analyze data and conduct tests.

Places of Employment

Scientific laboratory assistants work in two basic areas: the physical sciences and the life sciences. In the physical sciences, chemical technicians work with chemists and chemical engineers and do research, testing, and other laboratory work. In the geological sciences, assistants work in areas such as meteorology, earthquake research, and petroleum and mineral exploration. In the life sciences, assistants may work as agricultural technicians, assisting agricultural scientists in food production and processing. Biological technicians work primarily in laboratories where they perform tests and experiments. A large number of assistants in the biological area work as medical laboratory assistants. Technicians may be employed by industry, government, research institutions, pharmaceutical firms, hospitals, and independent laboratories. Over 350,000 persons worked as laboratory assistants in 1974. This number was about equally divided between men and women, with more men tending to work in the physical science area and more women concentrated in the biological science area, particularly in the medical area.

Training and Qualifications

Though standards have been somewhat flexible in hiring and a person can qualify for this type job through many combinations of work experience and education, most employers today prefer applicants with some specialized training. This is available at technical institutes, junior and community colleges, vocational-technical schools, and extension divisions of colleges and universities. Science students who have not yet completed a bachelor's degree or those who hold undergraduate degrees are also able to qualify for laboratory assistant positions.

Those interested in a career as a laboratory assistant should have an aptitude for science and mathematics, and enjoy technical work. An ability to do detailed and sometimes repetitive work with a high degree of accuracy is necessary. Since the assistant is part of a scientific team, he or she must be able to work under the close supervision of scientists as well as with other assistants and skilled workers.

Earnings

In general, lab assistants' earnings depend on their education and technical specialty, as well as their ability, work experience, and the type of employer.

In industry in 1974, average starting salaries for technical school graduates ranged from \$8,200-\$9,800 per year. Those without technical training earned between \$6,000 and \$8,500. Starting salaries for bachelor's degree holders averaged over \$10,000 per year. Starting salaries in government were slightly lower but generally comparable.

Employment Outlook

Employment opportunities for laboratory workers are expected to be favorable through the mid-1980's. Growth is expected to be faster than the average for all other occupations in these fields due to increasing complexity in modern technology. In addition to opportunities created by new job openings, there will also be openings due to replacement workers who retire, die, or leave their occupations for various reasons. Opportunities will be best for graduates of post-high school technical training programs.

SCHOOL PSYCHOLOGIST

Nature of the Work

School psychologists are concerned with increasing the effectiveness of schools in improving the intellectual, social, and emotional development of children. School psychologists may also serve as consultants in education for the handicapped, mentally disturbed, or mentally retarded, or in developing special programs for adult education. They typically function in various roles within the school system. As research specialists, they may assist in implementing and evaluating special education projects. They may serve as leaders of in-service training programs for teachers or as consultants to teachers regarding specific teaching or classroom-behavior problems. They may also help treat children's psychological and educational problems that influence behavior in school and consult with parents about these problems. Some school psychologists also have responsibility for administering standardized tests and interpreting the results.

Places of Employment

In 1972, approximately 11,000 persons were employed by regional school districts or elementary or secondary schools as school psychologists. Of this number, 40% were women and 60% were men. In a very large school, the school psychologist may be employed by a single school. Frequently, however, the psychologist is employed by a school district or county school system. In these cases, he or she usually travels between the schools in the system spending a certain proportion of time at each one. The school psychologist may work at the secondary, the junior high, or the elementary levels, or at a combination of several or all levels.

Training and Qualifications

Generally, a master's degree in school psychology and state certification are minimum requirements for professional employment in this field. A doctoral degree may be required of persons in supervisory positions. At least one full year of graduate study is needed to earn a master's degree. An additional 3-5 years of graduate work are usually needed to earn a Ph.D.

People pursuing a career in school psychology must be emotionally stable, mature, and able to deal effectively with both children and adults. Patience, sensitivity to the needs of others, and the ability to communicate well, both orally and in writing, are also important.

Earnings

In 1974, beginning salaries for school psychologists with a master's degree averaged \$10,000-\$11,000 per year. The average starting salary for a psychologist with a doctoral degree was \$13,000 per year.

Employment Outlook

Employment opportunities for school psychologists are expected to be fair through the mid-1980's. However, as more and more people enter the field of psychology, competition will grow, both to get into graduate training programs and for jobs. A doctoral degree will become increasingly important for those wishing to enter the field. Growth in this field will depend on the degree of public recognition for the necessity of the services offered by the psychologist in the public schools and also on the amount of federal aid to education given to the states.

APPENDIX E

INSTRUCTIONS TO SUBJECTS

In this study we are interested in two things: (a) the way students in different majors describe themselves, and (b) the attitudes and information students have about various occupations.

You have been given an information sheet, two questionnaires, and a packet of information. One questionnaire is a Self-Rating Scale; the other is an Occupational Rating Scale. Please do the following:

1. First fill out the information sheet. If you have any objections to putting your name on this sheet, simply give us your I.D.# only.
2. Fill out the two questionnaires in the order in which you received them. This means that some of you will fill out the Self-Rating Scale first; others will fill out the Occupational Rating Scale first.
3. As soon as you've completed the information sheet and the two questionnaires, turn these in to the experimenter.
4. After you've turned in the questionnaires, open the packet of materials you've been given and begin reading the information sheets in the packet. Each person will be reading about six different occupations. Please read the sheets in the order in which you've received them. Spend as much time as you need reading this information.
5. When you've finished reading the information sheets, remove the second Occupational Rating Questionnaire from the packet and again rate all the occupations. Don't try to remember how you rated each occupation the first time. Fill out the questionnaire in terms of your attitudes toward the occupations at the present moment and the information you now have about the occupation.
6. When you have finished, turn in the second Occupational Rating Questionnaire and the information packets to the experimenter.

If at any time you have questions, do not hesitate to ask the experimenter.

Thank you for your participation and cooperation in this study.

APPENDIX F

INFORMATION SHEET

Name _____
 (last) (First) (Middle)

I.D.# _____ CLASS: FR SO JR SR OTHER

SEX: M F

AGE _____

CAMPUS ADDRESS _____

MAJOR _____

CAREER YOU EXPECT TO ENTER _____

APPENDIX G

DEBRIEFING FORM

STUDENT: _____ DATE: _____

STUDENT #: _____

I, the undersigned, acknowledge that I have been informed of the specific nature of study RWC-1200 on career attitudes and information. I have been given the opportunity to receive the results of the Self-Rating Questionnaire I filled out, and have also been given the opportunity to receive a brief summary of the results of this study if I so desire.

SIGNATURE: _____

APPENDIX H

TABLE 15
SUMMARY OF ANALYSIS OF VARIANCE
COOK

Source	SS	df	MS	F
Total	129	179	-	-
Information Group	2	2	1	1.43
Measure	2	1	2	2.86
Sex	0	1	0	0.00
Info. Grp. X Measure	2	2	1	1.43
Info. Grp. X Sex	4	2	2	2.86
Measure X Sex	1	1	1	1.43
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	118	168	.70	-

TABLE 16

SUMMARY OF ANALYSIS OF VARIANCE

BANK TELLER

Source	SS	df	MS	F
Total	145	179	-	-
Information Group	1	2	.5	.58
Measure	0	1	0	0.00
Sex	2	1	2	2.32
Info. Grp. X Measure	0	2	0	0.00
Info. Grp. X Sex	0	2	0	0.00
Measure X Sex	1	1	1	1.16
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	141	168	.86	-

TABLE 17
SUMMARY OF ANALYSIS OF VARIANCE
ELEMENTARY TEACHER

Source	SS	df	MS	F
Total	205	179	-	-
Information Group	6	2	3	2.59
Measure	1	1	1	.86
Sex	2	1	2	1.72
Info. Grp. X Measure	0	2	0	0.00
Info. Grp. X Sex	1	2	.5	.43
Measure X Sex	0	1	0	0.00
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	195	168	1.16	-

TABLE 18

SUMMARY OF ANALYSIS OF VARIANCE
HOSPITAL ATTENDANT

Source	SS	df	MS	F
Total	187	179	-	-
Information Group	6	2	3	2.94
Measure	3	1	3	2.94
Sex	1	1	1	.98
Info. Grp. X Measure	1	2	.5	.49
Info. Grp. X Sex	1	2	.5	.49
Measure X Sex	2	1	2	1.96
Info. Grp. X Measure X Sex	2	2	1	.98
Error	171	168	1.02	-

TABLE 19
SUMMARY OF ANALYSIS OF VARIANCE
LIBRARIAN

Source	SS	df	MS	F
Total	237	179	-	-
Information Group	1	2	.5	.38
Measure	0	1	0	0.00
Sex	2	1	2	1.47
Info. Grp. X Measure	1	2	.5	.38
Info. Grp. X Sex	1	2	.5	.38
Measure X Sex	3	1	3	2.20
Info. Grp. X Measure X Sex	1	2	.5	.38
Error	228	168	1.36	

TABLE 20
SUMMARY OF ANALYSIS OF VARIANCE
INSURANCE AGENT

Source	SS	df	MS	F
Total	174	179	-	-
Information Group	2	2	1	1.06
Measure	4	1	4	4.28*
Sex	2	1	2	2.13
Info. Grp. X Measure	2	2	1	1.06
Info. Grp. X Sex	4	2	2	2.13
Measure X Sex	1	1	1	1.06
Info. Grp. X Measure X Sex	1	2	.5	.53
Error	158	168	.94	-

* $p < .05$

Cell Means

Pre-measure = 3.30

Post-measure = 3.00

TABLE 21
SUMMARY OF ANALYSIS OF VARIANCE
COMPUTER PROGRAMMER

Source	SS	df	MS	F
Total	98	179	-	-
Information Group	0	2	0	0.00
Measure	1	1	1	1.72
Sex	4	1	4	6.90**
Info. Grp. X Measure	0	2	0	0.00
Info. Grp. X Sex	1	2	.5	.86
Measure X Sex	1	1	1	1.72
Info. Grp. X Measure X Sex	91	168	.58	-

** p < .01

Cell Means

Males = 3.50

Females = 3.82

TABLE 22
SUMMARY OF ANALYSIS OF VARIANCE
GAME WARDEN

Source	SS	df	MS	F
Total	233	179	-	-
Information Group	2	2	1	.78
Measure	0	1	0	0.00
Sex	10	1	10	7.81**
Info. Grp. X Measure	1	2	.5	.39
Info. Grp. X Sex	0	2	0	0.00
Measure X Sex	1	1	1	.78
Info. Grp. X Measure X Sex	3	2	1.5	1.17
Error	216	168	1.28	-

** $p < .01$

Cell Means

Males = 2.22

Females = 2.68

TABLE 23
SUMMARY OF ANALYSIS OF VARIANCE
JOURNALIST

Source	SS	df	MS	F
Total	88	179	-	-
Information Group	0	2	0	0.00
Measure	0	1	0	0.00
Sex	2	1	2.	4.08*
Info. Grp. X Measure	1	2	.5	1.02
Info. Grp. X Sex	1	2	.5	1.02
Measure X Sex	1	1	1	2.04
Info. Grp. X Measure X Sex	1	2	.5	1.02
Error	82	168	.49	-

* $p < .05$

Cell Means

Males = 3.73

Females = 3.92

TABLE 24
SUMMARY OF ANALYSIS OF VARIANCE
PHYSICIAN

Source	SS	df	MS	F
Total	170	179	-	-
Information Group	7	2	3.5	4.17*
Measure	2	1	2	2.38
Sex	15	1	15	17.86**
Info. Grp. X Measure	1	2	.5	.60
Info. Grp. X Sex	1	2	.5	.60
Measure X Sex	1	1	1	1.19
Info. Grp. X Measure X Sex	1	2	.5	.60
Error	142	168	.84	-

* $p < .05$

** $p < .01$

Cell Means

Males = 2.91

Females = 3.50

TABLE 25
SUMMARY OF ANALYSIS OF VARIANCE
SOCIAL WORKER

Source	SS	df	MS	F
Total	163	179	-	-
Information Group	1	2	.5	.54
Measure	0	1	0	0.00
Sex	4	1	4	4.35*
Info. Grp. X Measure	1	2	.5	.54
Info. Grp. X Sex	2	2	1	1.06
Measure X Sex	0	1	0	0.00
Info. Grp. X Measure X Sex	1	2	.5	.54
Error	154	168	.94	-

* $p < .05$

Cell Means

Males = 4.11

Females = 4.42

TABLE 26
SUMMARY OF ANALYSIS OF VARIANCE
STOCKBROKER

Source	SS	df	MS	F
Total	204	179	-	-
Information Group	8	2	4	3.85*
Measure	1	1	1	.96
Sex	12	1	12	11.54**
Info. Grp. X Measure	2	2	1	.96
Info. Grp. X Sex	3	2	1.5	1.44
Measure X Sex	4	1	4	3.85
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	174	168	1.04	-

* $p < .05$

** $p < .01$

Cell Means

Males = 2.78

Females = 3.30

TABLE 27
SUMMARY OF ANALYSIS OF VARIANCE
USED CAR DEALER

Source	SS	df	MS	F
Total	235	179	-	-
Information Group	0	2	0	0.00
Measure	0	1	0	0.00
Sex	7	1	7	5.22*
Info. Grp. X Measure	1	2	.5	.37
Info. Grp. X Sex	1	2	.5	.37
Measure X Sex	1	1	1	.77
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	225	168	1.34	-

* $p < .05$

Cell Means

Males = 2.42

Females = 2.81

TABLE 28
SUMMARY OF ANALYSIS OF VARIANCE
X-RAY TECHNICIAN

Source	SS	df	MS	F
Total	156	179	-	-
Information Group	2	2	1	1.15
Measure	0	1	0	0.00
Sex	5	1	5	5.75*
Info. Grp. X Measure	1	2	.5	.57
Info. Grp. X Sex	2	2	1	1.15
Measure X Sex	0	1	0	0.00
Info. Grp. X Measure X Sex	0	2	0	0.00
Error	146	168	.87	-

* $p < .05$

Cell Means

Males = 3.66

Females = 4.01

TABLE 29
 TUKEY(a) ANALYSIS FOR DIRECTIONAL DIFFERENCES ON
 SEX-APPROPRIATENESS RATINGS OF BIASED, IMPLICIT
 AND EXPLICIT INFORMATION GROUPS
 PHYSICIAN

	Information Group	Mean	3	2	1
Differences	3 (Biased)	2.93	---	.33	.49**
Among	2 (Explicit)	3.26		---	.16
Means	1 (Implicit)	3.42			---

**q .01; 3,168 = .49

n = 60

TABLE 29
 TUKEY(a) ANALYSIS FOR DIRECTIONAL DIFFERENCES ON
 SEX-APPROPRIATENESS RATINGS OF BIASED, IMPLICIT
 AND EXPLICIT INFORMATION GROUPS
 STOCKBROKER

	Information Group	Mean	3	2	1
Differences	3 (Biased)	2.77	---	.30	.51*
Among	2 (Implicit)	3.07		---	.21
Means	1 (Explicit)	3.28			---

*q .05; 3,168 = .44

n = 60

APPENDIX I

**Comparison of Mean Masculine-Feminine and Sex-
Appropriateness Ratings in Two Studies**

	Shinar's Study	Present Study
Air Flight Attendant	5.750	4.30
Assistant in a Scientific Lab	4.167	3.69
Bank Teller	5.167	4.54
Computer Programmer	3.417	3.74
Electrician	1.583	2.38
Elementary Teacher	5.583	5.01
Game Warden	1.917	2.46
Hospital Attendant	3.833	4.00
Insurance Agent	2.833	3.32
Journalist	3.833	3.80
Librarian	5.583	5.18
Mining Engineer	1.417	2.17
Physician	2.667	3.33
Registered Nurse	6.583	5.59
School Psychologist	4.000	3.90
Short Order Cook	4.167	3.70
Social Worker	4.750	4.30
Stockbroker	1.917	3.11
Used Car Dealer	2.083	2.59
X-Ray Technician	4.750	3.88