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THE EXPERIMENTER AS A SEX-ROLE MODEL IN SEX-ROLE STEREOTYPY

by

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the University of Manitoba in partial fulfillment of the requirements  
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## Abstract

The potential influence of experimenter sex and style on sex-role stereotyping by men and women was examined. Given the widespread belief that stereotypes have an important impact on behavior, it was expected that subjects' experience with an experimenter-model of a traditional versus liberated sex role would differentially affect their ratings of the concepts adult male and adult female. A male and female experimenter each played two roles: a task-oriented versus an interpersonal style. Each combination of sex and style was presented once to a different classroom of high school students who completed a standard sex-role stereotypy instrument and a measure of the experimenters' behavior. The results confirmed that the experimenters were perceived as planned and that the general expectation of experimenter influence was supported. Although the male concept was rated more competent and less warm-expressive than the female, the differences were significant in only half the conditions. Numerous significant experimenter effects substantiated experimenter influence. Since the subjects' responses varied as the experimental conditions varied, methodological questions were raised concerning previous findings in sex-role stereotypy, and stereotypes were reconceptualized as sex-role expectancies, or situationally-determined social beliefs.

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## The Experimenter as a Sex-Role Model in Sex-Role Stereotypy

The measurement of sex-role stereotypy, that is, culturally-shared expectancies about the differing behaviors of men and women, has been prolific in recent years. After Rosenkrantz, Vogel, Bee, Broverman and Broverman (1968) published their findings of widespread consensus among undergraduates about sex-role attributes, replications of the Rosenkrantz et al. method (reviewed by Broverman, Vogel, Broverman, Clarkson and Rosenkrantz, 1972) seemed to indicate that stereotypy even in the time of the New Feminists was as pervasive and uniform as in purportedly less-liberated generations (e.g., Kitay, 1940; Fernberger, 1948; McKee and Sherriffs, 1957). Moreover, in the most recent published use of the Rosenkrantz et al. (1968) questionnaire unanimity of agreement was again demonstrated (Ellis and Bentler, 1973). The adult female has been persistently perceived, in factorial terms, as more warm and expressive but not as competent as the adult male (Broverman et al., 1972). Despite the fact that a few studies in other areas have reported apparent changes in sex-role expectancies by women (Kaplan and Goodman, 1973) and by men and women (Lunneborg and Rosenwood, 1973; Spence and Helmreich, 1972), the evidence within sex-role stereotypy research for a relatively fixed and unvarying stereotype of the sexes seemed fairly substantial.

Nevertheless, it seemed reasonable to hypothesize that the sex of the experimenter, shown to be a source of variance in a wide variety of contexts (cf. reviews by Garai and Scheinfeld, 1968; Harris, 1971; Rosenthal, 1966), could be an important variable particularly in sex-role stereotypy studies. An exhaustive review of the literature, however, revealed that experimenter sex had never been reported in any of these studies. While the argument could be made that the sex of the experimenter is denoted by the author's sex, in

view of the common practices of multiple authorships and of having assistants conduct the research, this assumption is difficult to defend.

The neglect of experimenter sex is ironic in that generalizations from the data to society have been glibly made, while the potential influence of experimenter gender on the data sources has been ignored. Given what has been an assumption of this literature, that sex-role expectancies do importantly influence behavior, then one would expect that a female experimenter administering a sex-role stereotypy measure would have different consequences for subjects' responding than a male experimenter. The fact that the standard procedure in this type of research is to require subjects to rate deliberately ambiguous stimulus concepts would appear to increase the probability that the subjects would perceive the experimenter as a frame of reference for their ratings of the sexes.

Inasmuch as Rosenthal (1969) has pointed out that not only the bio-social attributes of the experimenter, such as sex, age and race, but also psychosocial attributes, such as a warm versus cold style, status, and poise, have influenced subjects' performance in various paradigms, it would seem likely that how the experimenters behaved in sex-role stereotypy research would be as salient a cue for subjects' responding as the sex of the experimenters. Moreover, observational learning theory (Bandura, 1969) would predict that the experimenters would serve as sex-role models of the adult male and female. Given the basic finding in sex-role stereotypy literature, namely that men are expected to be competent, or task-oriented, in their behavior and women are expected to be warm-expressive, or interpersonal, in their behavior, one could anticipate that male and female experimenters emitting these traditional sex-role styles would have different effects on



stereotyping than experimenters behaving in liberated sex-role styles, that is, interpersonal male behavior and task-oriented female behavior.

Of course, sex-role stereotype studies are typically conducted in large groups (presumably, since this condition is also infrequently specified) where the stimulus properties of the experimenter may have little influence on subjects. The impact, if any, of the experimenter in large group administrations of questionnaires is an unexplored topic. Yet, it can be seen that an experimenter conducting a large group study in a classroom is as much a social event as any other. From this point of view the occurrence of experimenter influence in sex-role stereotyping is not unlikely.

#### Experimenter Effects

Although only two studies could be located which investigated experimenter attributes in large group, classroom situations (Birney, 1958; Klinger, 1967), both indicated that psychosocial attributes of the experimenter markedly affected subjects' responses. While the experimenters and subjects in these studies were all men, there is nonetheless some good evidence that experimenter influence operates in the large group, classroom situation as well as in more individualized laboratory settings. A second observation was that the variables typically manipulated, sex, warmth, and status, seemed to be in many ways interdependent. Specific behaviors were operationalized as warmth in some studies and as status in others.

Biosocial attributes. The variable of experimenter sex has been a neglected stimulus property in behavioral research (Harris, 1971). Rosenthal (1967) distinguished between a passive effect of experimenter sex, in which subjects respond differently merely because of the sex difference, and an active effect, in which subjects respond differently because male and female

experimenters behave differently. Only the passive effect has been studied and the results have been equivocal (Masling, 1960; Rosenthal, 1969).

Sex of subjects must be considered in conjunction with experimenter sex. For example, Benney, Riesman and Star (1956) and Markel, Prebor and Brandt (1972) found that communication was facilitated when youthful interviewers and respondents were of the same sex. But in a marble-sorting task Stevenson and Allen (1964) found that performance was higher among subjects tested by opposite-sex experimenters.

In view of the above, an investigation of experimenter influence on sex-role stereotypy should account for the varying effect of experimenter sex on subject sex. For example, a woman experimenter-model may have quite different consequences for the responding of women subjects than for men. Whereas studies of experimenter sex have been relatively frequent, no studies of experimenter physical attractiveness could be located. What Berscheid and Walster (1972) have called a person's most obvious personal characteristic is not included in the Rosenthal (1966, 1969) compendia of biosocial effects. Berscheid and Walster (1972) noted that physically attractive persons tend to be rated very positively on personality dimensions. Whatever the perceptual components of physical attractiveness may be, there is no doubt that investigations of experimenter effects, and of such effects in sex-role stereotyping, ought to confront its potential as a source of variance either by keeping the physical attractiveness of experimenters approximately equivalent or by manipulating it as an independent variable. Both procedures would require method checks by means of subjects' ratings of the experimenters' relative physical attractiveness.

Psychosocial attributes. The influence of experimenter warmth has been a popular research topic. The modal operational definition of a warm experimenter is one who emits frequent smiling, head nodding, and eye contact behaviors (Reece and Whitman, 1961), and whose voice is characterized by soft, pleasant tones. This behavioral style is usually contrasted with a neutral or cold one, typically defined by the absence of the above cues. Some investigators have operationally defined behaviors essentially identical to warmth as friendliness (Hoffman, Schackner and Goldblatt, 1970) and congeniality (Sarason and Winkel, 1966). In addition, some studies failed to control for experimenter and subject sex (e.g., Wargo and Meek, 1970), even though the association between warmth and sex has been documented by Rosenthal (1967), Sarason and Winkel (1966), and Stevenson and Allen (1967). Despite these limitations some tentative observations can be made about the influence of experimenter warmth. Warm experimenters obtained different protocols in projective testing than cold or neutral ones (Masling, 1960), but on individual intelligence tests the results were equivocal (Sattler and Theye, 1967). In laboratory paradigms warm experimenters tended to elicit higher levels of performance than cold or neutral ones (Rosenthal, 1966). And in various educational settings instructors elicited increased performance in students to whom they directed warm cues (Cogan, 1958; Kleinfeld, 1974; McKeachie, Lin, Milholland and Isaacson, 1966; Rosenthal, 1972).

Another extensively studied variable is experimenter status. One of the methodological problems in this body of research is that status has been confounded with behavioral styles in that Chapman, Chapman and Brelje (1969); Davis, Peacock, Fitzpatrick and Mulhern (1969; Klinger (1967), and Rosenthal, Kohn, Greenfield and Carota (1966) ascribed different styles to high status

than to low status experimenters. It could easily be argued that a nonverbal communications analysis of the operational definitions of status in these studies would demonstrate that the cues emitted were identical to cold (task-oriented) versus warm (interpersonal) styles. It should be noted that status effects were controlled for in the present study.

Experimenter effects and sex-role expectancies. Rosenthal (1967) observed that the variable of experimenter sex often had an active effect on subjects' responses due to behavioral differences in male and female experimenters. He noted that the research on experimenter expectancy effects had shown that, in general, female experimenters tended to emit the motor and speech behaviors associated with an interpersonal, expressive orientation, whereas male experimenters tended to behave in a task-oriented, business-like manner.

It should be recalled that warmth and expressiveness in women, and instrumentality and competency in men are the major factors in sex-role stereotypy literature (Broverman et al., 1972). Thus, the influence of the experimenter on subjects may well be inseparable from the subjects' own expectancies regarding appropriate sex-role behaviors. For example, Rosenthal, Friedman and Kurland (1966) suggested that experimenter bias may more likely occur when experimenters play out their expected sex roles, since subjects may be better able to decode subtle nonverbal cues emitted.

As was pointed out earlier, experimenter biosocial and psychosocial attributes seem to be interdependent. They also seem to be directly related to sex-role expectancies. Recently, Silverman, Shulman and Wiesenthal (1972) obtained results counter to expectancies of instrumental vs. expressive roles.

Male and female experimenters were not given any expectancies about outcome nor were they instructed to behave in a certain style. They simply conducted a person perception study with individual subjects. Silverman et al. found that raters of sound films of the experimenters' behavior, judged the male experimenters as warmer than, but less competent, capable and vigorous than the females.

One would expect in the measurement of sex-role expectancies that male experimenters behaving in an interpersonal style and females behaving in a task-oriented style might tend to influence performance in directions divergent from traditional findings in the literature. On the other hand, one would expect task-oriented male experimenters and interpersonal-oriented females to obtain performances convergent with traditional findings. From the point of view of observational learning theory (Bandura, 1969) experimenters in a sex-role stereotypy study would be serving as models of the ambiguous stimulus concepts presented, and depending on their behavioral style, as models of a traditional sex role or a "liberated" one.

#### Methodological Issues

Mediation of experimenter styles. A reliable finding in the literature of experimenter expectancy effects is that during the opening minutes of the instruction period subjects draw inferences about the experimenter's personality (Adair and Epstein, 1968; Duncan, Rosenberg and Finkelstein, 1969; Duncan and Rosenthal, 1968; Rosenthal et al., 1966) which they form from their impressions of the experimenter's vocal (paralinguistic) and visual (kinesic) cues. Rosenthal (1972) recently reviewed comparable evidence in the area of teacher expectancy effects. Rosenthal et al. (1966) observed that interpersonal male experimenters were characterized by slow speech rate and frequent

eye glances at subjects, whereas task-oriented male experimenters showed less body movement and read the instructions quickly. In other studies (Adair and Epstein, 1968; Rosenthal and Jacobson, 1968) a pleasing tone of voice was found to be a principal mediator of the bias effects.

Interestingly enough, the auditory and visual expressive cues associated with an interpersonal orientation in experimenter expectancy effects are identical to behavioral definitions of warmth in therapists (Rogers, 1951), in teachers (Rist, 1970; Rosenthal and Jacobson, 1968), and in experimenters (Reece and Whitman, 1961; Stevenson and Allen, 1967). Warmth can be construed as communicated interest (Rotter, 1964; Truax and Carkhuff, 1967) and as active communication of positive interest (Bayes, 1972).

Bayes empirically derived her definition of warmth by having one set of judges rate the initial segment of video-taped interviews on a global dimension of warm-cold and other sets rate specific paralinguistic and kinesic cues. A critical discrepancy exists between the Bayes' definition and the description of experimenters by Rosenthal et al. (1966). Bayes (1972) found that animated speech rate was highly correlated with warmth, whereas Rosenthal et al. (1966) found a slow speech rate in expressive experimenters. The present study based its conceptualization of a warm, interpersonal behavioral style on the Rosenthal et al. data rather than on the less relevant data acquired in interview contexts.

Most of the experimental work on nonverbal behavior has been on dyads (Duncan, 1969; Ekman and Friesen, 1969; Mehrabian, 1969; Patterson, 1973), and consequently may bear little relation to the social psychology of large group experiments. However, the work of Hall (1966, 1968) on the social use of space, or what *they* referred to as the interplay of proxemics and types of

distance, is eminently useful. His conceptualization of close phase, public distance situations may be analogous to the manner in which a task-oriented experimenter conducts a classroom study. Hall observed that in such situations the speaker keeps well outside the circle of interpersonal involvement and ensures that the message takes precedence over any interaction by the use of a formal oral style. Hall's notion of far phase, social distance situations may be comparable to the approach taken by interpersonal-oriented experimenters. In this situation, which can be roughly equivalent in physical distance to close phase, public distance situations, the speaker uses a consultive oral style, remaining within the circle of interpersonal involvement.

In view of the fact that typical classroom seating arrangements dictate fixed physical distances from experimenter to subjects, provided the experimenter remains relatively stationary, manipulating experimenters' communicative styles would seem to vary psychological distances for subjects. From their frame of reference the experimenter's facial expressions, body movements, and vocal qualities become salient observational cues from which to assess the experimenter's personality. While the reading of experimental instructions is essentially a one-way communication, the communicative style can be formal or spontaneous, detached or actively interested, psychologically distant or close, with marked consequences for the reinforcement value that the experimenter and the experimental task hold for the subjects.

Given the apparent usefulness of Hall's approach, what is needed is an empirical investigation of the experimenter's nonverbal behavior in classroom situations. In adopting the Hall system the author has assumed that the

subjects will interpret all of the experimenter's paralinguistic and visual behaviors as intended communicative acts. Weiner, Devoe, Rubinow and Geller (1972), in a critical review of the nonverbal literature, contended that any nonverbal behavior occurring in an interpersonal setting does not perforce indicate a communicative act. The tacitly accepted practice has been to interpret any behavior as, consciously or unconsciously, intended nonverbal communication. But the point made by Weiner et al. does not seem to be applicable to the research setting, where subjects, because they must attend to the experimental instructions, are sensitized to decoding all of the experimenter's behaviors, intended or not. Therefore, it would appear necessary that measures of subjects' perceptions of the experimenter's nonverbal behaviors be taken.

A basic criticism of research on experimenter biosocial and psychosocial effects could be that subjects' ratings of the intended attributes and nonverbal cues of the experimenter have been missing from research designs. Without validation by means of subjects' perceptions of those behaviors, little confidence in the effectiveness of the principal investigator's manipulations can be entertained. There would be no way of ascertaining whether the communicative acts of the experimenter were interpreted as such by the subjects. The present study incorporated such a method check into its design.

Experimenter sampling. A point that is often made in reviews of this type of research is that a large sample of experimenters greatly increases generalizability of the results (Hammond, 1954; Harris, 1971; McGuigan, 1963; Rosenthal, 1966; Rosenzweig, 1933). If no differences are found among experimenters, then the results can be generalized with confidence. On the other



hand, it could be argued that it would be difficult to ascertain which experimenter variables were controlling any differential results that might occur without prior randomization of specified experimenter variables. As an alternative to a large sample, another approach might be to assign experimenters to the independent variables, such as sex and instruction-reading style, while keeping potentially confounding variables, such as age, physical attractiveness, status and poise, constant. The obtained results then might afford greater heuristic value for future systematic research, pending analysis of subjects' ratings of the intended variables and constants. This was the approach taken in the present study.

The principal investigator-experimenter relation. The manner in which the principal investigator behaves with his experimenters may also be a source of variance in research on experimenter effects. There is some empirical evidence (Rosenthal, 1966) and an eloquent rationale (Roth, 1966) indicating that a supportive investigator may elicit more self-confident and interpersonal behavior in his experimenters. Similarly, it could be argued that a more detached investigator would also affect his experimenters, although probably with different consequences. Giorgi (1970), Kessel (1971) and Oppenheimer (1956) have asserted that the research relation is characterized by an organic connection between the observer and the observed. If the principal investigator-experimenter relation can be similarly construed as a system of mutual influence, then a methodological step might be taken; investigators might specify their behavior with their experimenters so that future systematic work would be facilitated. In this regard Kelman's (1972) principles of participatory research, in which steps are taken to reduce the power disparity between the experimenter and subjects, would seem to be an

apt analogue for principal investigators' behavior in enlisting the participation of their "hired hands" (Roth, 1966).

In some studies of experimenter biosocial and psychosocial effects the experimenters have been kept "blind" as to the true purpose of the study in the belief that informing them would introduce biasing factors into the study. As a consequence, it has been assumed that the experimenters remain naive for the duration of the study. However, it has been amply demonstrated that subjects adopt various strategies while participating in research (Adair, 1973). Orne (1969) has repeatedly found that subjects generate their own notions of the research hypotheses from cues provided by the experimenter and the setting, and perform according to these demand characteristics. Surely hired hands are no less adept at divining the purpose of the study they are conducting.

Taking both experimenter strategies and principal investigator influences into consideration, the present study implemented procedures designed not only to provide complete information to the experimenters, but also to encourage their suggestions for altering their assignments.

#### Theoretical Issues

In experimenter effects. One of the major criticisms made about the research in experimenter expectancy effects is the fundamental lack of a systematic theoretical context (Levy, 1969). As was implied in the above review, the same issue could be profitably raised concerning experimenter biosocial and psychosocial effects. The two theoretical constructs which have been invoked to account for or to predict the influence of the experimenter are modeling and attributive projection.

Rosenthal (1963) conceptualized modeling as a positive correlation between the experimenter's performance on a task and a randomly assigned

subject's performance on the same task. In a recent revision, Silverman et al. (1972) posited two modeling processes. In identification modeling incorporation of the experimenter's personality occurs in conditions of status or likeability and a positive relationship between experimenter and subject performance results. In reference modeling the subject uses the experimenter for a reference point for a negative self-evaluation, resulting in a negative relationship between experimenter and subject performance. Silverman et al. found that both types of modeling occurred on self ratings but neither occurred on photo-judging.

Basing their approach on Holmes' (1968) conceptualization of attributive projection as a conscious awareness, Jones and Cooper (1971) demonstrated that subjects who were made aware by the experimenter of success or failure on an intelligence task then projected similar qualities onto photos they judged. They also found that the frequency of eye contact between experimenter and subject mediated the attributive projection effect.

A third construct that may have some relevance is the principle of reciprocal affect (Truax and Carkhuff, 1967). It would predict that experimenter warmth in the form of a personalized research atmosphere would reduce psychological distance and thereby elicit reciprocal warmth in subjects. The subjects in turn would tend to become personally involved and perceive others positively, a phenomenon which Friedman, Rosenthal, and Kurland (1965) observed in interpersonal-oriented experimenters.

It can be seen that identification and reference modeling, attributive projection, and reciprocal affect posit the existence of elusive intervening processes of incorporation, awareness and involvement, respectively.

Although more contemporary versions, each is as subjective as a more orthodox Freudian approach. Indeed, the influence of experimenter variables on large groups may just as readily be conceptualized as a massive group transference reaction in which the primal horde cathects its libidinal energies onto the leader.

A less poetic but more parsimonious construct, Bandura's (1969) observational learning, would seem to have more predictive power for research on experimenter effects and particularly for an investigation of experimenter influence on sex-role expectancies measurement. Bandura has noted that models who possess greater social power than observers, as is clearly the case in an experimenter-subjects classroom interaction, are very likely to generate modeling effects, in which the observer learns new responses, and response facilitation effects, in which the model's behavior facilitates the occurrence of responses already in the observer's repertoire. Since subjects must attend to the experimenter's instructions in order to carry out their research assignments, as observers they would appear to be particularly sensitized to the verbal and nonverbal behaviors of the experimenter-model. For example, Birney (1958) and Klinger (1967) found that experimenters associated with an achievement orientation served as achievement cues in classroom administrations of TAT cards.

The prediction that subjects' experience with an experimenter-model in a large group setting would influence their performance seems to be especially tenable in the measurement of sex-role expectancies where the experimenters are obvious models of the concepts the subjects are rating. That is, the ambiguity of the concepts adult male and adult female would seem to

bring the experimenters' presence more fully into prominence as highly visible sex-role models for the subjects' ratings. One would then expect an experimenter-model of a traditional sex role, that is, a task-oriented male and an interpersonal-oriented female experimenter, to influence subjects to rate significant differences between the male and female concepts. In contrast, an experimenter-model of a liberated sex role, that is, an interpersonal-oriented male and a task-oriented female, would influence subjects to rate non-significant differences between the concepts.

Differential effects of modeling stimuli have been found to be related to the sex of the observers (Bandura, 1969). In the studies by Birney (1958) and Klinger (1967) the experimenters and subjects were all males. While there is as yet no corresponding evidence for the influence of male experimenter-models on female subject-observers and of female experimenter-models on males and females, it might be anticipated that a female experimenter administering a sex-role stereotypy questionnaire would have different consequences for female subjects than for males.

In sex-role stereotypy. Since its inception sex-role stereotypy research has been strictly descriptive. As a result, there is no explicit theoretical framework in the literature. The Broverman et al. (1972) definition of stereotypes as consensual beliefs about socially sanctioned sex-related behaviors seems to emanate from a cognitive orientation. Yet no discussion of or allusion to a theoretical system is afforded. A similar situation exists in the ethnic stereotypy literature where some authors have lamented the fact that a unified theory of stereotypy is lacking (Brigham, 1971; Cauthen, Robinson and Krauss, 1971, 1973; Taylor and Aboud, 1973).

As Taylor and Aboud (1973) observed, stereotypy has been based on simple trait attribution. Although Fernberger (1948) and Broverman et al. (1972) used the term social beliefs to denote sex-role stereotypes, operationally, they and other investigators (e.g., Sherriffs and Jarrett, 1953) defined stereotypes in terms of traits. This approach coincides with the prevailing notion of social stereotypes as a collection of trait names (Karlins, Coffman and Walter, 1969).

The term trait, of course, implies immutability and trans-situational predictability. But there are fundamental methodological and theoretical weaknesses associated with a trait-bound conceptualization of sex-role stereotypy. Recently, Friedland, Crockett and Laird (1973) found, in an amplification of the Rosenkrantz et al. (1968) method, that subjects did not construe sex as tied to traits. Rather, subjects attributed certain characteristics to an instrumental role and others to an expressive role regardless of the sex of the stimulus person. Friedland et al. contended that their subjects generalized from a knowledge of gender to expected personality attributes associated with particular social roles. Moreover, in a theoretical context, minimal empirical evidence exists, beyond paper and pencil measures and popular wisdom notions of character traits, to support a characterological view of behavior (Mischel, 1973).

A second critical element in current notions of stereotypy is consensus amongst raters (Broverman et al., 1972; Cauthen et al., 1973; Gardner, 1973). It was noted earlier that widespread rater agreement was one of the key criteria for stereotypy in the Rosenkrantz et al. (1968) method. Gardner (1973) argued that consensuality implies a social reality for stereotypes

with important societal ramifications. The same position has been implicitly taken by Broverman et al. (1972) regarding sex-role stereotypes. It is predicated on the assumption that global stereotypes derived from ambiguous stimulus concepts can serve as accurate bases for the prediction of specific responses to real people. To illustrate, Cauthen, Robinson and Krauss (1971) construed stereotypes as models of potential behavior. However, as Mischel (1973) has pointed out, there is little correspondence between broad dispositions obtained from a study of average group differences and real-life situations that individuals encounter. Only Karlins et al. (1969) cautiously distinguished social stereotypes, representing group norms, from individual stereotypes, representing personal views.

Recently, Cauthen et al. (1973) attempted to integrate stereotypy within a theoretical framework. They construed stereotypes as linguistic expressions of underlying cognitive structures which function as mechanisms simplifying social experience. Yet, if stereotypes can be conceptualized as meaningful, socially-shared concepts, having the same properties as other concepts, and if concepts are viewed as the products of social experience (Cauthen et al., 1973), then a cognitive approach to stereotypy can be embedded in the principles of social learning theory (Rotter, 1954; Rotter, Chance and Phares, 1972).

In a lucid, but neglected paper, Rotter (1967) subsumed social beliefs, which he described as a set of concepts enhanced by language, under his construct of generalized expectancies. In social learning theory generalized expectancies refer to expectancies of reinforcement in given situations which are the consequences of generalizations from related experiences. The less experience persons have had in specific situations, or the more ambiguous the

situations are, the greater the weight generalized expectancies carry. Thus, potential behavior is determined by generalized expectancies, by specific expectancies elicited by the situation, and by the value of the reinforcement. For example, when subjects respond to the ambiguous stimulus concepts in a sex-role stereotype questionnaire, their responses are partly determined by generalized expectancies of sex-related behaviors, or, in cognitive terms, by a set of beliefs about sex roles with which culturally-shared labels are associated, and partly by the reinforcing value of the experimenter's approval.

Rotter (1967) has emphasized that social approval, whether from experimenters, peers, parents, or teachers, is the most important reinforcer of subjects' responses to questionnaires. The present author would argue that, in cases where the stimulus properties of the experimenter present him or her as a model of the concept or topic being rated, as in sex-role stereotyping, the primary form of reinforcement value comes from the experimenter-model.

Clearly, then, if stereotyping can be shown to be related to situational determinants, that is, the attributes of the experimenter, a reconceptualization of stereotyping would be necessary. Sex-role stereotypes would be construed as a collection of gross labels in common parlance, in essence, a cluster of situation-free generalized expectancies held by a group. But, generalized expectancies alone could not serve as accurate bases for the prediction of specific sex-role behaviors. As social learning theory has demonstrated (Rotter et al., 1972), three other classes of variables need to be delineated as well: specific expectancies, reinforcement values, and the parameters of the situation.



### Statement of the Problem

The study was planned with two basic purposes in mind. The first was methodological in the sense that the experiment intended to investigate whether sex-role stereotypy research had erred in not accounting for the possible influence of experimenter variables. Related to the problem of experimenter effects are the empirical questions of experimenter influence in large group settings and of the nonverbal mediators of these effects. Accordingly, it was anticipated that a behavioral definition of experimenter styles in a large group environment would be provided.

The second purpose was theoretical. The study was designed to demonstrate the efficacy of observational learning theory (Bandura, 1969). According to the principles of observational learning the experimenter would serve as a model of the concepts or topics being rated with two possible consequences for subjects: either modeling effects, in which the model emits responses novel to the observer's repertoire which serve as discriminative stimuli for the observer's imitation; or response facilitation effects, in which the model's behavior facilitates the occurrence of behaviors already in the observer's repertoire. Observational learning theory would appear to be particularly relevant for a sex-role stereotypy study, since the experimenter would represent a sex-role model of the ambiguous stimulus concepts being rated.

In addition to the potential contribution of observational learning theory, it was anticipated that the construct of sex-role stereotypy would be reappraised within the context of Rotter's (1967) social learning theory. Stereotypy in general seems to be based on a trait conception of behavior, which assumes trans-situational predictability and widespread generality amongst the majority of people in a given culture. But, if widely-shared social beliefs about sex roles could be shown to vary with the conditions of

measurement, then sex-role stereotypes would be more meaningfully conceptualized as sex-role expectancies about reinforcement in particular situations.

Hypotheses. In general, it is expected that subjects' immediate experience with an experimenter-model of a traditional versus a liberated sex-role will differentially affect their ratings of the adult male and female on a standard sex-role stereotypy measure.

Specifically, it is predicted that:

In experimenter-subject pairings of the same gender the salient experimenter cue will be sex, since the more similar the model is to the observer the more likely observational learning will occur. Thus, it is hypothesized that male subjects will rate significant concept differences regardless of the male experimenter's style, due to the fact that he is emitting traditional male competency cues in his position as a university instructor. In contrast, women subjects after their experience with a confident woman professional will perceive the sexes as roughly equivalent; that is, regardless of the woman experimenter's style, women subjects will rate non-significant concept differences, since the experimenter is emitting liberated cues of female competency by occupying a high-status position.

The salient experimenter cues for subjects paired with experimenters of the opposite sex will be sex and style. Thus, when males experience a task-oriented female, they will recognize her role as a liberated one, find it socially acceptable, and will rate non-significant differences between the sexes. But when the males experience a female model emitting the traditional feminine cues of warmth-expressiveness, they will recognize the typical male

deference to male superiority. Consequently, they will perceive traditional concept differences. Similarly, when the male experimenter emits traditional male superiority cues in the task-oriented style, female subjects will defer to male superiority and rate traditional sex differences. But when the male experimenter emits the liberated cues of an interpersonal style, females will recognize that he is on a similar level as women, assume that he does not represent a model of stereotypical sex differences, and thus will not perceive the concepts as significantly different.

#### Method

Summary of design. The design was a 2 x 2 x 2 x 2 mixed analysis of variance type. Three between subjects variables were sex of experimenter, style of experimenter (task-oriented versus interpersonal), and sex of subjects. The one within subjects variable consisted of each subject rating the concepts adult male and female. Each of the four variations of experimenter sex and style was run on a separate group of subjects.

Subjects. The subjects were 50 male and 50 female students attending a suburban Winnipeg, Manitoba high school. Their ages ranged from 15 to 19. The mean age of the males was 17.22; the mean age of the females was 16.71. In return for their participation the subjects received an oral report from the investigator on the results and implications of the study.

Experimenters. The experimenter styles were role-played by the principal investigator, age 31, and by a businesswoman, age 30, who was paid for her services. The investigator fully informed the experimenter of the purposes of the research and actively encouraged criticism and suggestions for modifications to her roles.

Instruments. The subjects completed two booklets. In the first they

rated the concepts adult male and adult female separately on the same 46 items. The items represented 40 bipolar adjectives found by Rosenkrantz et al. (1968) to be stereotypic<sup>1</sup>. Twenty eight of these fell into a competency (male-valued) factor and 12 into a warmth-expressiveness (female-valued) factor (Broverman et al., 1972). An additional five items, two each from Mills (1970) and Nunnally (1961), and one created by the author, were included, based on pilot data which showed concept differences on these items for males and females. Since it was hypothesized that the experimenter-model would influence the ratings of the ambiguous stimulus concepts, a 46th item, young-old, was included to measure how the subjects construed the ages of the concepts.

Examples of responses comprised the face sheet of the first booklet. For each concept the order of the bipolar adjectives was randomized. The items were arranged on a seven-step scale. Intensive adverbial qualifiers headed each response page to clarify scale meanings (Howe, 1962; Wells and Smith, 1960). Half the subjects rated the male concept first, half rated the female concept first. Each concept was introduced with the Rosenkrantz et al. (1968) instructions: Imagine that you are going to meet a person for the first time and the only thing you know in advance is that the person is an adult male (adult female).

In the second booklet the subjects rated the experimenter on seven nonverbal parameters and on nine biosocial and psychosocial attributes in order to obtain validation of the intended experimenter styles. The items were arranged in bipolar form on a seven-step scale. On the first page the subjects were asked to circle the number which best described the experimenter's behavior when he/she read the instructions. The subjects then rated

the experimenter on four paralinguistic cues: loudness, expressiveness, tempo, pleasantness, and on three visual cues: facial expressions, gestures, glances. On the second page the subjects were asked to circle the number which best described the experimenter's personality. They responded to six adjectival pairs representing the four factors found by Silverman et al. (1972) to have characterized experimenter behavior: formal-spontaneous, vigorous-apatetic, warm-cold, incompetent, poised-nervous, inept-efficient. In addition, the subjects rated the experimenter on likeability, physical attractiveness and age variables.

Experimental conditions. The investigator intended that the experimenters would be perceived as varying along certain attributes, but as being similar along other attributes. Biosocial variables held constant were age, race, and physical attractiveness. Psychosocial variables held constant were competency, poise and efficiency. It was recognized, however, that subjects' sex-role expectancies might influence their ratings of the experimenters on psychosocial attributes as a function of experimenter sex and style.

Status was held constant by the experimental instructions in which the experimenters identified themselves as university instructors, and by their attire. The experimenters were dressed in casual but neatly conservative clothing.

On the other hand, it was intended that the styles would be perceived as varying along the personality factors of warmth, formality and vigor. When the experimenters were interpersonal, it was planned that they would behave in a warm, spontaneous, vigorous manner. When they were task-oriented, they were to behave in a cool, apathetic, formal manner.

In the presentation of the instructions, it was planned that appropriate public speaking behavior be observed. That is, although the experimenters

behaved in either a task-oriented or interpersonal-oriented style, both styles necessarily involved some animation and expressiveness so as to ensure comprehension and cooperation. It should be noted that the content of the instructions was constant in all experimental conditions. Moreover, the experimenters emitted their styles at a standard position, directly in front of the teacher's desk.

The task-oriented style was defined as scientific detachment, characterized by formal and disinterested behavior. The aim was to avoid presenting an unrealistically hostile experimenter, but rather to present in a close phase, public distance situation (Hall, 1966, 1968) a detached and competent person who treated the subjects as an anonymous mass. The task-oriented style consisted of an erect, almost stiff entrance gait and posture, and by a formal oral delivery. The following nonverbal cues served to communicate the style: loud voice, monotonous inflection, unpleasant intonation, fast tempo; diminished glances at the subjects, the absence of gestures and of facial expressions.

The interpersonal-oriented style was defined as active interest in the subjects, characterized by warm and vigorous behavior. The aim was to avoid presenting a cloying experimenter, but rather to present in a far phase, social distance situation (Hall) an involved and competent person who appeared to give the subjects individual attention. The interpersonal-oriented style consisted of a smiling entrance, casual gait, and loose posture, and by a conversational oral delivery. The following nonverbal cues served to communicate the style: soft voice, expressive inflection, pleasant intonation, slow tempo; very frequent glances at the subjects, gesturing and facial expressiveness.

Procedure. The principal investigator trained the experimenters over repeated sessions with the assistance of videotaping. The goal of the rehearsing was to produce enactments which were virtually identical within each style in terms of the nonverbal cues emitted. Accordingly, vocal and visual cues were analyzed from single-channel playbacks to provide feedback on performances.

A pilot study was conducted in another suburban high school to provide the experimenters with a realistic practice session and to obtain a performance check from a sample comparable to the experimental subjects. Two classes of tenth graders rated the styles on the personality attributes contained in the second booklet. Since each class was being taught by a woman teacher, the male experimenter presented his styles first so as to heighten subjects' attention. The order of performance was: class A, interpersonal-oriented male, task-oriented female; class B, task-oriented male, interpersonal-oriented female. The teacher prepared the subjects by reading the following:

We are going to have two visitors this morning who are conducting research on how the personality of the researcher influences peoples' answers to questionnaires. The visitors are training themselves in different ways of reading instructions. They are asking your help to see if they are doing a good job. They would like you to rate their personality on these rating sheets which I will be handing out.

When people talk, they express themselves not just with words but with the tone of voice and with body movements. So, listen and watch carefully to what the researchers will be doing. When they are finished reading, please rate them on the forms. After both are finished, they will return to the room to ask for your reactions and criticisms of their performances.

The experimenter then entered the room and delivered the following standard instructions:

Hi! I am an instructor at the University of Manitoba and I am conducting research on how people describe different kinds of persons. You are being asked to describe the persons referred to in the two questionnaire booklets.

First, look at the examples on the front page of Booklet #1 see how you can make your descriptions. Each pair of words forms a scale, for example, fair-unfair. By circling a number along the scale you could indicate how you would describe someone, for example, a sports referee. If you feel that a referee is extremely fair, you would circle #1; if you think he is extremely unfair, you would circle #7; quite fair, circle #2, quite unfair, circle #6, and so on. If you feel that the referee is neither fair nor unfair, you would circle #4. Make only one mark per scale. When you are finished with the first booklet, proceed to fill out Booklet #2.

There are no right or wrong answers on these questionnaires. The only "good" response is your first impression of the person.

Are there any questions? You may begin.

Ensuing classroom discussions with the pilot subjects and data analysis confirmed that the experimenter training was successful.

The experiment proper was conducted in four regularly scheduled classrooms with each group of subjects receiving a different treatment. The male experimenter enacted his styles in classrooms with female teachers, while the female experimenter enacted her styles in classrooms with male teachers. Teachers were briefed by the school principal to whom the principal investigator in an interview had given a written outline of the study's purpose, design, and procedure. Teachers advised their students at the beginning of the period:

We are going to have a visitor who is conducting research on descriptions of persons. He/she is asking your co-operation and would like you all to participate. He/she promises a report on the results of the research in about three weeks.



Experimenters waited outside the classrooms until the teachers distributed the questionnaire booklets. The subjects were reminded not to "...open the booklets until the researcher gives you the instructions." Teachers remained in the classrooms for the duration of the administration, but were seated in an unobtrusive area. After the booklets were distributed, the experimenters entered, delivered the instructions, and remained standing at the teacher's desk to answer any questions and to collect the completed booklets. From the moment of entrance until the final booklet was collected the experimenters behaved according to the dictates of the style enacted.

### Results

Validation of method. Several problems cropped up in the course of conducting the study. Since the study was administered near the end of the school term, subjects had already been given numerous surveys and questionnaires. Possibly for this reason, there was some vocal and covert resistance to the experiment. For example, many subjects in all conditions, but particularly the task-oriented conditions, expressed lack of comprehension of the instructions. Five subjects, three males in the task-oriented female condition, one male and one female in the interpersonal female condition, chose not to participate by spoiling the questionnaires. One female subject in the task-oriented male condition failed entirely to comprehend the instructions. As a result, the responses of 45 males and 49 females were available for data analysis.

A second problem that occurred was the fact that the seating arrangement of the subjects varied between sex of experimenters. In both male experimenter conditions subjects sat at tables arranged in an inverted-U

with the teacher's desk at the open end. In both female experimenter conditions, however, subjects sat at large square-shaped tables in groups of four. Such an arrangement seemed to the female experimenter to precipitate collaborative responding in some subjects. In addition, it may have been difficult for subjects facing away from the female experimenter to accurately assess the visual parameters of her instruction-reading behavior.

Perhaps the least important problem that arose was the fact that the age differences of subjects across experimental conditions were statistically significant. However, since the range of ages was rather small, these differences were assumed not to have any serious impact on the data.

Ratings of the experimenters' behavior in the second booklet administered provided validation of the investigator's intended manipulations. The data were analyzed for each of the 16 items in a three way analysis of variance design, containing the factors of experimenter sex, style, and subject sex. On a global basis, the results showed that the subjects rated the experimenters as intended (Tables I & II). Even though the styles were significantly different on all the nonverbal parameters as planned, some unintended differences emerged. An examination of Table I indicates that of the four paralinguistic cues tone of voice most clearly differentiated the two styles. But an experimenter sex by subject sex interaction showed that there was a trend for subjects paired with an opposite-sex experimenter to rate his/her intonation more pleasant than subjects paired with a same-sex experimenter. There were no subject differences on the other nonverbal variables. However, experimenter sex differences were found on two variables: the female experimenter was rated as speaking at a slightly faster tempo and

Table I

## Ratings of Nonverbal Cues and Significant Effects in ANOVAs

<u>Items</u>	Means of Each Subject Group <sup>1</sup>							
	TO-M		10-M		TO-F		10-F	
	<u>Ms</u>	<u>Fs</u>	<u>Ms</u>	<u>Fs</u>	<u>Ms</u>	<u>Fs</u>	<u>Ms</u>	<u>Fs</u>
1. soft voice, loud voice	4.54	3.83	3.90	3.92	4.10	4.77	3.75	3.25
2. unpleasant tone, pleasant tone	3.58	4.50	4.90	5.33	3.90	3.31	5.17	5.17
3. expressive, monotonous	3.92	3.50	3.50	2.75	4.00	3.85	3.08	3.42
4. spoke quickly, spoke slowly	3.92	3.58	4.20	4.50	2.90	3.15	3.50	4.42
5. expressive-faced, blank-faced	4.92	5.00	4.30	3.83	4.70	4.54	3.42	3.33
6. didn't use gestures, used gestures	3.77	3.25	4.40	4.92	2.30	2.92	3.67	3.67
7. looked at class, didn't look	2.77	2.58	2.00	2.08	2.80	2.85	1.75	1.75

<u>Item Number</u>	F-Values of Main and Interaction Effects <sup>2, 3</sup>						
	<u>A</u>	<u>B</u>	<u>C</u>	<u>AxB</u>	<u>AxC</u>	<u>BxC</u>	<u>AxBxC</u>
1. soft, loud	-	6.37*	-	-	-	-	-
2. tone	-	30.36***	-	-	4.63*	-	-
3. expression	-	5.07*	-	-	-	-	-
4. tempo	4.75*	8.87**	-	-	-	-	-
5. facial expressions	-	11.58**	-	-	-	-	-
6. gestures	8.34**	11.34**	-	-	-	-	-
7. eye contact	-	10.23*	-	-	-	-	-

1. seven-step scale, 4=midpoint

2. A= E-sex, B= E-style, C= S-sex

3. df = 1/86; \* p < .05, \*\* p < .01, \*\*\* p < .001

was rated as making slightly less use of gestures than the male. The styles were distinctly different on the three visual cues, and as intended, eye contact with the class occurred in both styles.

As can be seen in Table II, the four experimental conditions were not isomorphic in terms of subjects' ratings on the nine biosocial and psychosocial attributes. It was intended that only the styles would vary on the formal-spontaneous, vigorous-apatetic, and warm-cold items. Contrary to plan, the experimenters in both styles were rated as somewhat formal and vigorous. On the warm-cold item, however, the difference between the styles was highly significant.

Items 4 - 6 (cf. Table II) were planned to be personality constants across all experimental conditions, yet it was anticipated that subjects' sex-role expectancies might enter into the ratings. This in fact did occur, as indicated by the significant experimenter sex by experimenter style interactions found on all three attributes. While the male experimenter was rated slightly more competent than the female experimenter, more importantly, the traditional experimenter sex-role styles were rated less competent than the liberated styles. Similarly, experimenters in traditional sex roles tended to be rated less poised than experimenters in liberated styles. Ratings on inept-efficient repeated this pattern, but the significant interactions involving subject sex were most likely due to the fact that the females in the task-oriented male condition rated his behavior as inept. In addition, all subjects rated the interpersonal style, regardless of experimenter sex, more efficient. The interpersonal style was also rated more likeable, especially by subjects paired with experimenters of the same sex.

Table II

## Ratings of Experimenter Attributes and Significant Effects in ANOVAs

Items	Means of Each Subject Group <sup>1</sup>							
	TO-M		10-M		TO-F		10-F	
	<u>Ms</u>	<u>Fs</u>	<u>Ms</u>	<u>Fs</u>	<u>Ms</u>	<u>Fs</u>	<u>Ms</u>	<u>Fs</u>
1. formal, spontaneous	3.92	3.00	4.20	3.75	3.70	3.38	3.33	4.67
2. Vigorous, apathetic	3.77	3.83	3.90	2.92	3.10	3.38	3.75	3.58
3. warm, cold	4.31	4.00	3.20	2.58	4.80	4.77	2.67	2.75
4. incompetent, competent	5.08	5.50	5.80	6.25	5.50	5.46	4.75	5.25
5. poised, nervous	3.23	3.33	2.70	2.50	2.40	2.38	2.75	3.17
6. inept, efficient	5.23	3.33	5.50	5.83	5.30	5.54	5.08	5.58
7. physically attrac- tive, unattractive	4.54	4.17	4.10	3.42	3.20	3.85	4.25	3.17
8. likeable, unlikeable	3.92	3.33	2.70	3.00	3.40	4.00	3.08	2.50
9. young, old	3.92	3.83	3.40	3.42	2.80	3.00	3.42	3.33

Item Number	F-Values of Significant Effects <sup>2, 3</sup>						
	<u>A</u>	<u>B</u>	<u>C</u>	<u>AxB</u>	<u>AxC</u>	<u>BxC</u>	<u>AxBxC</u>
1.	-	-	-	-	-	-	-
2.	-	-	-	-	-	-	-
3.	-	48.48***	-	-	-	-	-
4.	4.38*	-	-	9.34**	-	-	-
5.	-	-	-	4.69*	-	-	-
6.	-	6.34*	-	8.12**	4.97*	5.83*	-
7.	-	-	-	-	-	-	-
8.	-	11.05**	-	-	-	-	4.14*
9.	4.49*	-	-	-	-	-	-

1. seven-step scale, 4=midpoint

2. A = E-sex, B = E-style, C = S-sex

3. df = 1/86; \* p < .05, \*\* p < .01, \*\*\* p < .001

Regarding the two biosocial attributes, there were no differences on physical attractiveness as planned. However, the female experimenter was rated slightly younger.

The young-old item was also included in the sex-role expectancies measure to ascertain whether, in comparison with ratings of the experimenter in the second booklet, subjects used the experimenters as models for their ratings of the concepts. A mixed analysis of variance computed on this item showed that male subjects rated both concepts younger than the females did ( $df = 1/86$ ,  $F = 6.71$ ,  $p < .05$ ). After comparing the ratings in both instruments, there was only preliminary indication that the experimenters served as models. Therefore, two mixed analyses of variance, one for each experimenter, with the ratings on the two young-old items as the repeated measures factor, were performed to determine whether both male and female subjects used the experimenters as models for concepts of the same sex as the experimenters. No significant effects were found in the analysis of the male experimenter, since the ratings of the two items were the same, demonstrating that the experimenter served as a sex-role model of the male concept for men and women subjects. In the second analysis an interaction between subject sex and the ratings on the items was found ( $df = 1/43$ ,  $F = 4.25$ ,  $p < .05$ ). It showed that, regardless of the female experimenter's style, males rated the female concept younger than they rated the experimenter. No difference was found for the women. Therefore, the female experimenter served as a model of the female concept for women, but similar evidence could not be found for men.

Summary scores analysis. Subjects' ratings of the stimulus concepts were analyzed in two ways: by two summary scores and by individual items. A

mixed analysis of variance with three independent factors and one repeated measures factor was performed in each analysis. Tukey post-hoc comparisons were computed on results which showed a significant main effect for concepts.

The summary scores consisted of the 40 items from Rosenkrantz et al. (1968) which comprised the two factors reported by Broverman et al. (1970). Factor I, competency, contained 28 male-valued items (cf. Table V): 1-9, 13, 15, 18, 20-22, 24, 27, 30, 33-35, 37-39, 42-45. Factor II, warmth-expressiveness, contained 12 female-valued items: 10, 11, 14, 16, 17, 19, 23, 25, 28, 31, 32, 41. In each summary score male- and female-valued adjectives were converted, where reversed in the booklet, to a common scale.

Summary score analysis demonstrated that the general thesis of experimenter influence was supported on each factor, whereas specific predictions received mixed support.

As Table III shows, there was a highly significant concept difference in Factor I, with the female concept rated less competent. However, the overall difference was not significant for all subject groups (mean ratings are depicted in Figure 1). Three groups, males with an interpersonal female experimenter and females with a female in either style, failed to rate a significant difference. Considerable rater disagreement also emerged; females rated the concepts more competent than the men did.

These results gave partial support to the hypotheses which predicted that males paired with a male experimenter would rate significant differences between the concepts, and females with a female experimenter would rate non-significant differences. But the remaining predictions received mixed support, due to the unexpected responding of males with the two female experimenter styles, and of females with the interpersonal male.

Table III

Factor I: Means of Summary Scores in Each Group<sup>1</sup> and ANOVA Summary Table<sup>2</sup>

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<u>Condition</u>	<u>Men</u>		<u>Women</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
task-oriented male	135.85	117.31	138.50	114.92
interpersonal male	144.20	111.20	143.92	118.42
task-oriented female	136.70	111.00	137.31	123.54
interpersonal female	124.67	112.67	137.58	127.42

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
E-sex (A)	1	132.34	132.34	0.77
E-style (B)	1	17.98	17.98	0.11
A x B	1	221.22	221.22	1.23**
S-sex (C)	1	1689.56	1689.56	9.84*
A x C	1	828.01	828.01	4.82
B x C	1	329.02	329.02	1.92
A x B x C	1	44.86	44.86	0.26
Error 1	86	14765.07	171.69	
Concept (D)	1	19334.25	19334.25	125.65***
A x D	1	1116.19	1116.19	7.25**
B x D	1	0.60	0.60	0.01*
A x B x D	1	831.14	831.14	5.40
C x D	1	192.85	192.85	1.25
A x C x D	1	93.74	93.74	0.61
B x C x D	1	4.41	4.41	0.03
A x B x C x D	1	372.92	372.92	2.42
Error 2	86	13233.61	153.88	

1. midpoint of the summary score = 112

2. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$



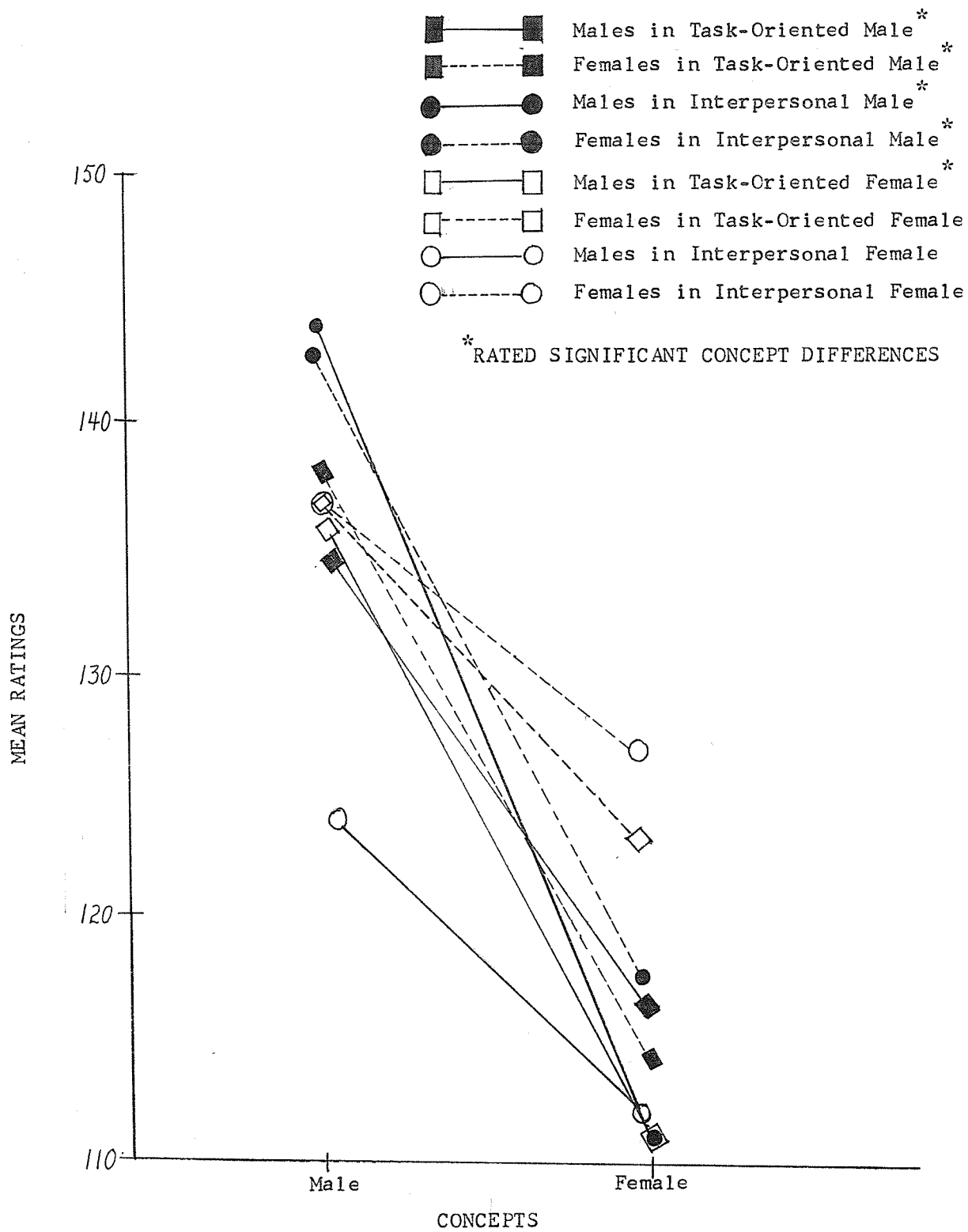


FIGURE 1. FACTOR I SUMMARY SCORES OF EACH SUBJECT GROUP

Direct evidence for experimenter influence on Factor I ratings was also found. Figure 1 shows that groups with a male experimenter rated the concepts quite similarly. How he behaved apparently made little difference. In contrast, the style of the female experimenter was important for male subjects, although in directions counter to predictions. The significant interaction between experimenter sex and subject sex in Table III showed that, exclusive of style, males with a female experimenter rated the concepts less competent than males with a male experimenter. In addition, females with a female experimenter rated the concepts more competent than males did with a female experimenter, whereas men and women rated the concepts the same with a male experimenter. The interaction between experimenter sex and sex of concepts showed that, exclusive of style and subject sex, subjects rated the male concept much more competent when the experimenter was a male than when the experimenter was a female. On the other hand, subjects rated the female concept slightly more competent when the experimenter was a female than when the experimenter was a male. The third order interaction of all factors, exclusive of subject sex, demonstrated that, within each experimental condition, the greatest difference in ratings of the concepts occurred with the interpersonal female. In other words, in the interpersonal male condition ratings of the male concept were highest and ratings of the female concept were lowest; on the other hand, in the interpersonal female style ratings of the male concept were lowest and highest for the female concept.

A highly significant concept effect was obtained for Factor II ratings (cf. Table IV) in which the male was rated less warm-expressive than the female. However, as depicted in Figure 2, the concept difference was

Table IV

Factor II: Means of Summary Scores in Each Group<sup>1</sup> and ANOVA Summary Table<sup>2</sup>

<u>Condition</u>	<u>Men</u>		<u>Women</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
task-oriented male	52.31	60.77	50.42	63.75
interpersonal male	53.40	63.50	52.67	64.42
task-oriented female	49.40	66.10	59.85	64.08
interpersonal female	44.75	57.92	50.58	61.42

<u>Source of Variation</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>
E-sex (A)	1	37.40	37.40	0.55
E-style (B)	1	238.27	238.27	3.32**
A x B	1	726.86	726.86	10.14
S-sex (C)	1	265.45	265.45	3.70
A x C	1	199.08	199.08	2.78
B x C	1	0.01	0.01	0.00
A x B x C	1	2.40	2.40	0.03
Error 1	86	6167.25	71.71	
Concepts (D)	1	5761.64	5761.64	85.93***
A x D	1	1.22	1.22	0.08
B x D	1	7.17	7.17	0.11
A x B x D	1	6.65	6.65	0.10
C x D	1	50.27	50.27	0.75*
A x C x D	1	333.18	333.18	4.97*
B x C x D	1	35.02	35.02	0.52
A x B x C x D	1	129.84	129.84	1.94
Error 2	86	5766.39	67.05	

1. midpoint of the summary score = 48

2. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

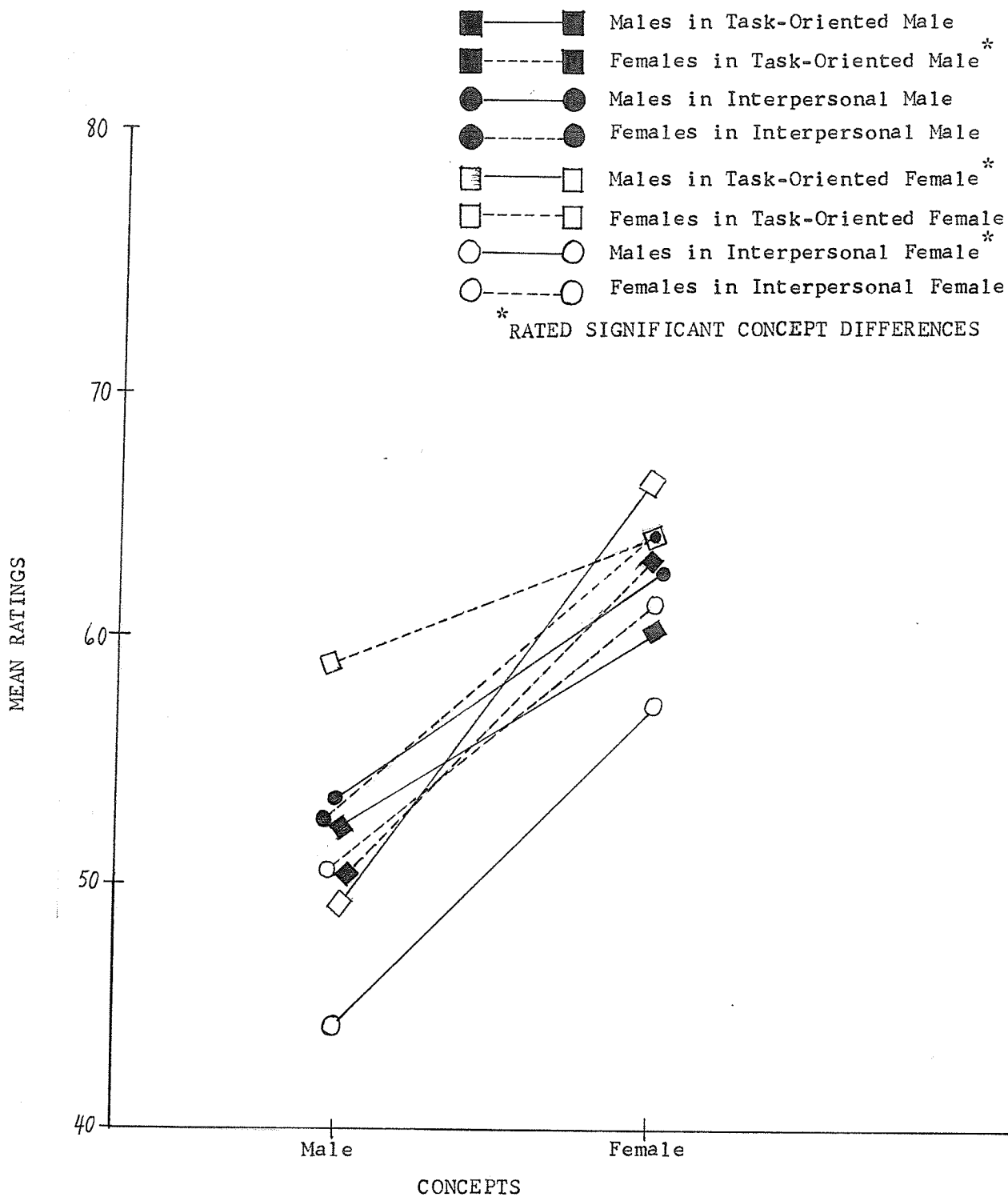


FIGURE 2. FACTOR II SUMMARY SCORES OF EACH SUBJECT GROUP

significant for only three of the groups: females with task-oriented male, and males with a female experimenter in either style. Thus, the results of Factor II supported the majority of the hypotheses. Figure 2 demonstrates that, although groups with a male experimenter rated the concepts fairly similarly, his style seemed to be important for women subjects on Factor II ratings. But with a female experimenter men and women responded quite dissimilarly. It appeared that the female experimenter's style did have an influence. Two interaction effects (cf. Table IV) demonstrated substantial experimenter influence on Factor II ratings. An experimenter sex by experimenter style interaction showed that in liberated experimenter roles subjects rated both concepts more warm-expressive than subjects in traditional experimenter roles. There was also a very large difference between subjects' ratings in the two female experimenter styles such that ratings in the female liberated style were the highest and in the female traditional role, ironically enough, were the lowest of the four experimental conditions. A third order interaction, exclusive of experimenter style, showed that, with a female experimenter, males rated the largest concept differences, while females rated the smallest differences. In addition, with the female experimenter, males rated the male concept the least warm-expressive, whereas females rated the male concept the most warm-expressive of the groups.

Item analysis. As Table V illustrates, 33 items were found to have a significant concept effect, 26 of them beyond the .001 level of significance. However, 22 of the 33 were found to have at least one significant effect due to experimenter variables. Significant experimenter effects were found on 28 items, ten of which were beyond the .01 level. Five of these ten items plus

Table V

Sources and Significant Effects from ANOVAs of Sex-Role Expectancies Items

<u>Item</u>	<u>Source</u> <sup>1</sup>	<u>Significant Effects</u> <sup>2, 3</sup>
1. not conceited about appearance/ conceited about appearance	R	D <sup>***</sup> ; ABCD <sup>**</sup>
2. sneaky/direct	R	AC <sup>*</sup>
3. skilled in business/ not skilled in business	R	B x C <sup>*</sup>
4. not adventurous/adventurous	R	n.s.
5. dominant/submissive	R	C <sup>*</sup> ; D <sup>***</sup>
6. illogical/logical	R	C <sup>*</sup>
7. not excitable in a minor crisis/ excitable in a minor crisis	R	A x C <sup>*</sup> ; D <sup>***</sup> ; A x C x D <sup>*</sup>
8. acts as a leader/does not act as a leader	R	D <sup>**</sup>
9. knows the way of the world/ does not know the way of the world	R	C <sup>*</sup> ; D <sup>**</sup>
10. religious/not religious	R	B <sup>*</sup> ; A x B <sup>**</sup> ; D <sup>***</sup>
11. does not enjoy art & literature/ enjoys art & literature	R	A x B <sup>**</sup> ; D <sup>***</sup> ; A x C x D <sup>*</sup>
12. strong/weak	N	C <sup>**</sup> ; D <sup>***</sup>
13. does not hid emotions/ hides emotions	R	A x B <sup>*</sup> ; D <sup>***</sup> ; A x B x C x D <sup>*</sup>
14. sloppy in habits/ neat in habits	R	A x C <sup>*</sup> ; D <sup>***</sup> ; A x C x D <sup>**</sup>
15. uncomfortable about being aggressive/ comfortable about being aggressive	R	D <sup>***</sup> ; A x C x D <sup>*</sup> ; B x C x D
16. not interested in own appearance/ interested in own appearance	R	D <sup>***</sup> ; A x C x D <sup>*</sup>
17. tactful/blunt	R	n.s.

Table V (cont.)

18.	self-confident/ not self-confident	R	A x B <sup>*</sup> ; A x C <sup>**</sup>
19.	strong need for security/ little need for security	R	D <sup>***</sup>
20.	talks freely about sex with men/ does not talk freely about sex with men	R	D <sup>***</sup> ; A x D <sup>*</sup>
21.	has difficulty making decisions/ does not have difficulty making decisions	R	A x C <sup>*</sup> ; D <sup>***</sup>
22.	active/passive	R	C <sup>**</sup> ; D <sup>**</sup> ; A x D <sup>*</sup>
23.	not talkative/talkative	R	n.s.
24.	aggressive/not aggressive	R	D <sup>**</sup> ; A x B x D <sup>*</sup>
25.	does not use harsh language/ uses harsh language	R	C <sup>*</sup> ; D <sup>***</sup> ; A x C x D <sup>**</sup>
26.	independent/dependent	M	A <sup>**</sup> ; C <sup>**</sup> ; D <sup>***</sup>
27.	feelings easily hurt/ feelings not easily hurt	R	D <sup>***</sup> ; A x D <sup>**</sup>
28.	loud/quiet	R	D <sup>***</sup> ; C x D <sup>*</sup>
29.	intuitive/rational	M	B x C x D <sup>*</sup>
30.	does not cry easily/cries easily	R	D <sup>***</sup> ; B x D <sup>*</sup>
31.	aware of the feelings of others/ unaware of the feelings of others	R	A x B <sup>**</sup> ; D <sup>*</sup>
32.	does not easily express tender feelings/easily expresses tender feelings	R	A x B <sup>*</sup> ; C <sup>*</sup> ; D <sup>***</sup>
33.	subjective/objective	R	A x B <sup>*</sup>
34.	likes math & science/does not like math & science	R	C <sup>*</sup>
35.	not independent/independent	R	C <sup>**</sup> ; D <sup>***</sup>
36.	decisive/indecisive	W	C <sup>***</sup> ; A x C <sup>**</sup> ; D <sup>**</sup>

Table V (cont.)

37. not ambitious/ambitious	R	C <sup>**</sup> ; B x C <sup>**</sup> ; A x B x D <sup>*</sup> B x C x D <sup>**</sup> ; A x B x C x D <sup>*</sup>
38. thinks men are superior to women/ thinks women are superior to men	R	D <sup>***</sup> ; B x D <sup>*</sup>
39. not competitive/competitive	R	n.s.
40. rugged/delicate	N	D <sup>***</sup> ; A x C x D <sup>**</sup>
41. gentle/rough	R	D <sup>***</sup>
42. not emotional/emotional	R	A x B <sup>*</sup> ; D <sup>***</sup>
43. unable to separate feelings from ideas/able to separate feelings from ideas	R	D <sup>**</sup>
44. not easily influenced/ easily influenced	R	B <sup>*</sup> ; A x B <sup>*</sup> ; D <sup>***</sup>
45. home-oriented/worldly	R	A x B <sup>*</sup> ; B x C <sup>*</sup> ; D <sup>***</sup>

1. M = Mills (1970); N = Nunnally (1961); R = Rosenkrantz et al. (1968); W = Walsh (Pilot Study).
2. A = E-sex, B = E-style, C = S-sex, D = concepts.
3. df = 1/86;  $p < .05$ ;  $p < .01$ ;  $p < .001$ .



five other items from the remaining 18 showed at least two significant experimenter effects. As a result, there was a total of 42 significant experimenter effects. Four items showed no effects whatsoever and two showed only a subject sex difference.

One of the criteria used by Rosenkrantz et al. (1968) for a stereotypic item was a 75% consensual agreement within the sexes that one pole was more descriptive of the male concept than the female and vice versa. In order for the criterion to be successfully met in the present sample the ratings of each subject group had to meet the 75% standard. They failed to do so in every item. In fact, only one subject group in each of two items (30, 40) reached the consensuality criterion. Moreover, only five items (5, 7, 28, 30, 40) showed that the mean ratings for the concepts were polarized.

A second criterion for a stereotypic item is that both men and women raters agree the concepts differ. In the present application, this would mean agreement across all experimental conditions. Of the 33 items with concept effects, most of which showed experimenter influence, none showed complete agreement of subject groups. In fact, only 16 items showed at least one group of subjects rating a significant difference between the concepts. The item with the most significant concept effect (40) had the highest number of subject groups in agreement, namely five; but it also showed an experimenter effect.

In short, since neither consensuality nor agreement across groups was obtained, there were no stereotypic items according to the Rosenkrantz et al. criteria.

Based on the variety of significant effects, item content seemed to be a determinant of the ratings. Intercorrelations were not computed, but it can

be seen that across all conditions items related to physical appearance (1, 14, 16, 40) and emotionality (7, 10, 11, 13, 19, 23, 27, 30-32, 42, 44) demonstrated a higher frequency of experimenter influence than items related to assertiveness (2-5, 8, 9, 12, 15, 17, 18, 20, 22, 24-26, 28, 35-39, 41, 45) and reasoning abilities (6, 21, 29, 33, 34, 43).

Content analysis. Within each subject group items were identified where significant concept differences were rated in order to provide a group-by-group view of sex-role expectancies (Table VI). Consequently, further support for the general thesis of experimenter influence on sex-role expectancies was obtained.

Opposite-sex pairs of subjects with experimenters seemed to respond in terms of traditional sex-role expectancies. The item content for women with a task-oriented male suggested a submissive female/dominant male emphasis. With an interpersonal male the emphasis shifted to traditional differences in emotional stability. Men with an interpersonal female responded to physical appearance items, presenting a crude male/gentle lady set of expectancies. The men with a task-oriented female seemed to be affected somewhat differently. They tended to emphasize items related to emotional and physical toughness.

On the other hand, subjects in same-sex conditions differentiated the sexes only on the more global, presumably widely shared generalized expectancies (30, 38, 40, 41). They rated fewer significant concept differences than opposite-sex paired subjects. In addition, men with an interpersonal male were the only group to rate item 38 in a liberated direction.

#### Discussion

Experimenter effects and sex-role expectancies. The results of the present experiment confirmed the general hypothesis of experimenter influence.

Table VI

## Sex-Role Expectancies within Groups

<u>Task-oriented male: men</u>	<u>Task-oriented male: females</u>
30. does not cry easily/cries easily	12. strong/weak
38. thinks men are superior to women	15. comfortable about being aggressive/uncomfortable about being aggressive
40. rugged/delicate	
41. rough/gentle	19. little need for security/strong need for security
	30. & 38 & 40
<u>Interpersonal male: men</u>	
38 & 41	
	<u>Interpersonal male: females</u>
<u>Task-oriented female: men</u>	7. not excitable in a minor crisis/excitable in a minor crisis
13. hides emotions/does not hide emotions	27. feelings not easily hurt/feelings easily hurt
14. sloppy in habits/neat in habits	42. not easily influenced/easily influenced
25. uses harsh language/does not use harsh language	12. & 38 & 40
38. thinks men are superior to women	
40. rugged/delicate	
	<u>Task-oriented female: females</u>
	38 & 40
<u>Interpersonal female: men</u>	
1. not conceited about appearance/conceited about appearance	<u>Interpersonal female: females</u>
7. not excitable in a minor crisis/excitable in a minor crisis	38 & 41
16. not interested in own appearance/interested in own appearance	
14. & 25 & 38 & 30 & 42	

Moreover, stereotypical items in the Rosenkrantz et al. (1968) sense totally failed to appear. Consequently, generalizations about sexism made by Broverman et al. (1972) from the previous research, which have been given widespread coverage in the academic and popular media, must be seriously questioned. One can only speculate what influences experimenter variables have had on previous research. It is sufficient at this point to simply observe that the measurement of so-called stereotypes is fundamentally affected by the sex roles of the experimenters themselves and by how they behave.

Although there were some indications that the generalized expectancies about sex-related behaviors found in the study reflected a less traditional view of sex roles than previous studies indicated (cf. Broverman et al.), one major exception must be noted. Seven of the eight subject groups including all the women subjects, acknowledged male superiority over women on the one Rosenkrantz et al. (1968) item related to this belief. Nevertheless, the general conclusion can be drawn that items that had been relied on in the literature as powerful discriminators between the concepts were shown to be less than powerful. Therefore, it would appear that item revision and factor analysis, contingent upon a reconceptualization of the construct of sex-role expectancies, is necessary before a reliable measure can be used.

While the male concept was again rated more competent and less warm-expressive overall than the female, the concept differences were not significant for all conditions. The male experimenter strongly affected all subjects on the competency factor, and even more so when he enacted the liberated role rather than the traditional one. In rating the male concept far more competent than the female concept, subjects likely associated the male-valued items with

the high-status position the male experimenter occupied. The female experimenter, perhaps because she too represented a high-status position, overcame strong socially-shared beliefs about sex differences on the male-valued factor of competency. This effect was strongest for women subjects, suggesting that their experience with the female model was impactful. The opportunity to observe a poised woman academic seemed to provide cues for the women to rate non-significant sex differences on behaviors typically associated with men. Male subjects with a task-oriented female, however, seemed to react in a defensive, almost hostile way. The coolly detached and poised behavior of a determined, business-like woman researcher may have threatened their perception of the way women should be, that is, feminine, not masculine. As a consequence, they rated large differences on competency. On the other hand, when the female behaved in a more traditional, interpersonal style, males did not rate significant competency differences. Possibly, a woman occupying a high-status position commonly associated with men is acceptable to younger men as long as she emits familiar feminine cues. This finding might suggest that males might not resist a woman's ascendancy in male-dominated spheres of activity, provided she maintains a traditional warm-expressive aura.

On the warmth-expressiveness factor the woman experimenter affected men and women in opposite directions: the men rated traditional concept differences and the women did not. Once again the females' experience with a high-status woman seemed to enable them to perceive the concepts in liberated terms, despite the female-valued items of this factor. The style of the female experimenter seemed to be particularly important for male subjects. When she behaved in a task-oriented style, the males rated the female concept highly warm-expressive, as if, having been confronted with a confident, unemotional

woman of superior social status, they reasserted their conception of the traditional woman. When she was warm and expressive, the males clearly indicated that the male concept was not characterized by female-valued attributes. It may be that the men in this study were threatened to some extent by a competent woman professional. Consequently, they described the sexes in quite traditional terms. In contrast, subjects with the male experimenter did not rate the concepts differently on this factor, with the exception of the women when he was task-oriented. The conclusion could be drawn, therefore, that, for men at least, ratings of stimulus persons on emotionality items are less affected by a male experimenter than by a female experimenter. As a result, one could anticipate that conceptions of adjustment and mental health might vary as a function of experimenter variables and subject sex. Needless to say, the recent literature in the area has ignored experimenter attributes (Broverman, Broverman, Clarkson, Rosenkrantz and Vogel, 1970; Nowacki and Poe, 1973).

Viewing the results overall, the responding of subjects crossed with task-oriented experimenters of the opposite sex showed that traditional stereotypical differences were accentuated under these conditions. One might conjecture, therefore, that previous findings in sex-role stereotypy may have been obtained under similar experimenter conditions. Certainly, the impact of the female experimenter on the female subjects would seem to suggest that traditional sex-role stereotypes can be obliterated by using this particular experimenter-subject combination. Such a finding might pose serious methodological implications for investigations of women's motivation (Lunneborg and Rosenwood, 1973) and academic achievement (Tressmer, 1974). Conflicting

results in this field could be partially attributable to experimenter variables.

While it is heartening from a liberationist value system to observe the absence of stereotyping in women with a woman model, it is instructive to observe the men's reactions to the woman experimenter. The men were markedly influenced by her behavior and seemed, in the face of her threat to masculine dominance, to emit chest-thumping behavior. This defensiveness was especially notable when the woman was task-oriented. Further evidence for the males' defensiveness can be found in the number of males who spoiled response booklets. The inference could be drawn that brusque and business-like professional women may experience considerable conflict with younger men. The implications for educational interactions, for example, test administrations, are obvious.

An expected but unwelcome finding was the responding of the women subjects with the task-oriented male. Their behavior can be attributed to the fact that the experimenter emitted adult male superiority cues with which women have had daily experience in secondary school environments. One would expect, of course, that women interacting with an adult woman of a social status similar to men would not behave submissively. Thus, measures taken on female high school subjects may very well be discrepant from those taken by a female experimenter, particularly if the male behaves in the traditional manner.

Although the general hypothesis of experimenter influence was confirmed, the results of the experiment were not congruent with specific predictions. Therefore, some possible explanations are offered in order to integrate the data and to lay a foundation for future investigations. Due to the complexity of the findings, however, a more parsimonious exposition is not possible.

The following tentative hypotheses are suggested:

(1) A male experimenter, regardless of style, will emit traditional cues of male competency to male subjects because of his stature as a university researcher. Since a man is expected to be successful at his job, and more successful than a woman, males will rate significant concept differences on the male-valued factor of competency. But being a man has little to do with one's variations on a continuum of warmth-expressiveness. Even if a man is warm and expressive, he remains more competent than a woman. Therefore, interpersonal cues will be irrelevant for male subjects and they will not perceive the sexes as significantly different on the female-valued factor of warmth-expressiveness.

(2) A task-oriented male experimenter will emit traditional male dominance cues to female subjects. Traditionally, men are perceived as more competent and less warm-expressive than women. Therefore, females will rate significant sex differences on both factors.

(3) An interpersonal male experimenter will nevertheless represent for female subjects the traditional model of male competency by virtue of his high-status position. The females will defer to male superiority on competency and will rate significant concept differences on this factor. But, since he enacts a warm-expressive style, which is associated with a liberated sex-role, he is on a similar emotional level as women. Therefore, females will not perceive a sex difference on the female-valued factor.

(4) A female experimenter, regardless of style, will emit liberated cues of female competency to female subjects, due to the fact that she occupies a high status position usually reserved for men. She will be regarded as a model of sex-role equality; thus, females will rate non-significant concept



differences on the two factors.

(5) A task-oriented female experimenter will emit threatening cues to male subjects, inasmuch as a female, no matter what her status, is highly aversive when behaving in a traditionally masculine manner. As a result, males will be disposed to restore the traditional sex-role equilibrium of male dominance. Therefore, they will rate significant sex differences on both factors.

(6) An interpersonal female experimenter will emit non-aversive competency cues to male subjects, since a woman, no matter what her status, is acceptable when she behaves in a traditionally feminine manner. Because of her social position as a university researcher and her poised, competent behavior, males will acknowledge that the sexes are not significantly different on the competency factor. But, since women are still women, that is, warm, expressive, emotional, etc., as demonstrated by the experimenter model, the males will recognize the traditional sex differences and rate the male concept significantly less warm-expressive than the female concept.

There remain several substantive limitations to any inferences drawn from the present study. While the data obtained from high school students represents a first in sex-role stereotypy research, it is unknown how generalizable the findings are to university students, the primary sample source in the field. Although it was noted above that subjects' age differences appeared to have little impact on the data, the age of the subjects as a group might yet prove to be an important variable, if replications can demonstrate an inverse relationship between experimenter influence and subjects' age. One could hypothesize that the more experience subjects have had with varying sex roles, the less susceptible they would be to the attributes of the experimenter. Testing of middle-aged adults would answer this empirical question. Perhaps the most

important caution that should be given is that the author's rating method on the stereotype questionnaire differed from that of Rosenkrantz et al. (1968). Whereas in the Rosenkrantz et al. method subjects indicated all their ratings of the concepts on the same scale so that subjects saw their previous ratings, the author's method presented each concept separately with the items arranged in a different order. It is possible that the presence of widespread consensus reported by Broverman et al. (1972) in sex-role stereotypy research and the absence of such agreement in the present study are partially due to this fact.

A reconceptualization of sex-role expectancies. Sex-role stereotypes have been construed as beliefs about socially-sanctioned sex-related behaviors that demonstrate widespread consensus, that is, that most people within a culture share the beliefs (Broverman et al., 1972). But it has been demonstrated that varying the conditions of measurement produced corresponding variability in subjects' responses to a standard sex-role stereotype instrument. Since experimenter variables changed the stereotypes across experimental conditions and served to eradicate consensus, previous findings of sex-role stereotypes may in fact have been methodologically confounded.

The present study has shown that subjects' ratings were determined by a number of interacting factors: experimenter sex and style, subject sex, and item content. Rather than being immutable to situational determinants as a trait conception of stereotypy would contend, the situation-bound responses that subjects emitted may more meaningfully be conceptualized as sex-role expectancies rather than stereotypes. From a social learning theory orientation (Rotter, 1967), what has been measured in this study are sets of non-consensual social beliefs varying according to the measurement situation.

Sex-role expectancies, then, can be construed as social concepts expressed in terms of gross labels and potentially influenced by situations. In the context of social learning theory they would fall under the rubric of generalized expectancies of reinforcement in specified circumstances. From this point of view, sex-role expectancies do not have important societal consequences, as Broverman et al. (1972) asserted for stereotypes. Social beliefs by themselves are insufficient to predict behavior. Rather, potential behavior is not only a function of generalized expectancies, but of the specific expectancies and reinforcement values associated with particular situations. For example, it has been shown that high school women will describe the adult female submissively on a sex-role questionnaire under one set of conditions, and describe the adult female as assertive under another set of conditions, simply as a result of varying the reinforcement value which the experimenter-model represents.

Just as sex-role stereotypy may be reconstrued in a social learning theory framework, so may other forms of stereotypy. Consensuality of beliefs also forms the basis of ethnic stereotypes (Cauthen et al., 1973; Gardner, 1973). The stimulus properties of the measurement situation, namely, experimenter variables, have not been discussed in reviews of ethnic stereotypy research (e.g., Brigham, 1971; Cauthen et al., 1971). If future research can show that varying the measurement situation, for example, the ethnic characteristics of the experimenter, differentially affects groups of subjects' responses to an ethnic stereotype instrument, then a reconceptualization of ethnic stereotypes would likewise be necessary.

Subject sex was found to be an important determinant of responses. Yet there may be other subject variables operating in sex-role expectancies research. For example, Vogel, Broverman, Broverman, Clarkson and Rosenkrantz

(1970) found that maternal employment was an important variable. A social learning theory analysis of sex-role expectancies would suggest subject differences as well. Rotter (1967) pointed out that social approval is the most critical reinforcer of subjects' responses to questionnaires. In addition, he noted the influence of the experimenter as a source of reinforcement value for subjects. The present author has argued that, in sex-role expectancies measurement, the primary form of social approval for subjects comes from the sex role the experimenter represents. Since individuals vary in the need for social approval, it would seem likely that subjects differing on the variable of reinforcement value would be influenced differently by the experimenter. Future research may well demonstrate the significance of personality factors in research situations where experimenter variables have been shown to operate. McKeachie et al. (1966) called for similar investigations in the area of classroom interactions affected by teacher attributes.

A social psychology of the classroom experiment. The study demonstrated the utility of observational learning theory (Bandura, 1969) thus providing a fruitful theoretical framework for future investigations of experimenter biosocial and psychosocial effects. One question that could be raised is whether modeling effects are limited to paradigms where the stimuli are relatively ambiguous, as they are in sex-role and ethnic expectancies research. Although observational learning theory might not be able to predict experimenter influence outside of social-personality research, it could be argued that experimenter modeling effects would occur, when the experimenter serves as a classroom model for the topic or concept being rated, regardless of stimulus concept differentiation. Specific experimenter variables would become experimenter effects relative to the task. By way of a hypothetical taxonomy,

one would expect experimenter ethnicity to be a more potent source of variance in ethnic expectancies than experimenter age. But, in surveys of attitudes toward women, experimenter ethnicity would be less important than experimenter sex and style. While experimenter age and status might be salient cues in investigations of drug usage they would be less important than experimenter sex and physical attractiveness in sex behavior research. Even though the above is obviously speculative, it should be emphasized that the body of literature on experimenter influence sorely requires a systematic classification so that future researchers would be cognizant of which experimenter variables were important for whom and under what task conditions. The current literature can fairly be described as an undifferentiated mass. As a consequence, the data gathered become like projective tests for investigators: one either believes the results are larger than life or, which is more frequently the case, dismisses them entirely as isolated phenomena, unrelated to one's own research programme.

The use of a method check in which subjects rated the intended behaviors of the experimenters proved to be efficacious. One of the purposes of the study was to offer a behavioral definition of experimenter style in a large group, classroom setting within the context of Hall's (1966, 1968) notions of the social use of space so as to provide a description of the mediators of experimenter influence. The interpersonal style was perceived by subjects as having the following characteristics: neither soft nor loud volume, quite pleasant intonation, expressive inflection, neither fast nor slow tempo; facial expressiveness, gesturing, and maximum use of eye contact with the class. The task-oriented style was rated as follows: loud volume, unpleasant intonation, less expressive inflection, fast tempo, blank face, no gestures,

diminished use of eye contact. The interpersonal style was liked far more and rated more efficient than the task-oriented style, suggesting that subjects found the latter approach to be aversive in some respects.

Ratings of the experimenters' personality attributes were found to have been affected by subjects' sex-role expectancies. Similar findings were reported by Rosenthal et al. (1965) and Silverman et al. (1972). This would seem to be a predictable result in future ratings of experimenters. Another anticipation for classroom studies might be the similarity of the two styles on formality and vigor, two factors which Silverman et al. found distinguished experimenters. It should be noted that the Silverman et al. data were based on observations of dyadic experimenter-subject interactions. Because of the contingencies of the large group, classroom environment, some formality and vigor seem to be a necessary component of both styles in order to successfully communicate instructions.

#### Summary

A review of the literature in sex-role stereotypy found that the potential influence of experimenter attributes on stereotyping was neglected. It seemed reasonable to hypothesize that, since experimenter variables had influenced performance in other paradigms (Rosenthal, 1969), similar effects might well occur in sex-role stereotypy. Given the status of women in North American society (B<sub>A</sub>verman et al., 1972), the attributes of the experimenter might have different consequences for female subjects than for males, especially if the experimenter were a woman. Furthermore, potential effects might be related to the congruence of the experimenter's behavioral style with traditional sex-role expectations. In the context of observational learning theory (Bandura, 1969) it was anticipated that, when the male behaved in a

task-oriented manner and the female in an interpersonal manner, they would represent models of traditional sex roles; but when the male experimenter behaved in an interpersonal manner and the female in a task-oriented manner, they would represent models of liberated sex roles. It was expected that subjects' stereotyping would vary as the sex and style of the experimenters varied.

The study was also intended to re-examine the construct of sex-role stereotyping from the point of view of social learning theory (Rotter, 1967). It was anticipated that, if experimenter influence and the absence of widespread agreement about sex differences were found, then sex-role stereotypes could be reconceptualized as sex-role expectancies, or situationally-determined social beliefs about sex-related behaviors.

A male experimenter and a female experimenter each played two roles: a task-oriented versus an interpersonal style. The experimenters were trained to emit virtually identical performances within each style. Each combination of experimenter sex and style was presented once to a different classroom of high school students. Each subject rated both stimulus concepts on standard sex-role stereotypic items (Rosenkrantz et al., 1968). As a check on the effectiveness of the experimental manipulations, subjects also rated the non-verbal behavior and personality attributes of the experimenters.

The results showed that, even though the experimenters were not isomorphic in their enactments, they were perceived as planned. In addition, it was found that the subjects used the male experimenter as a model of the male concept, but only the females used the female experimenter as a model of the female concept. While the general hypothesis of experimenter influence was

supported, specific predictions received mixed support. Mixed analyses of variance with repeated measures on the concepts variable showed highly significant concept differences on summary scores of two factors, competency (male-valued items) and warmth-expressiveness (female-valued items) (cf. Figures 1 and 2). The male concept was rated as more competent and less warm-expressive than the female, thus replicating the major finding in sex-role stereotypy. However, post-hoc comparisons between group means showed that concept differences were significant for only half of the groups. For example, subjects crossed with opposite-sex task-oriented experimenters rated traditional sex differences on both factors, while females with a female experimenter in either style rated non-significant differences. Numerous significant experimenter effects were found as well, substantiating experimenter influence.

Given that subjects' responses varied as the experimenter conditions varied, methodological questions were raised concerning findings in previous sex-role stereotypy research. Implications for related fields, such as women's academic achievement and conceptions of mental health, were also drawn. Possible explanations of the findings were offered to provide a tentative guide for future investigations. Since subjects' responses clearly reflected situational determinants, sex-role stereotypes, which have been based on a trait notion of behavior, were reconceptualized in terms of social learning theory (Rotter, 1967) as sex-role expectancies or social beliefs about sex-role behaviors subject to situational influence. The utility of observational learning theory (Bandura, 1969) for future research on experimenter attributes was suggested. And a behavioral definition of experimenter styles in a large group, classroom setting was offered.



## Footnotes

<sup>1</sup>Due to a proofreading error a 41st Rosenkrantz et al. item, dependent-not dependent, had to be deleted.

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APPENDIX A

BOOKLET # 1

Please indicate your age and sex: Age \_\_\_\_\_ Sex \_\_\_\_\_

Do not open this booklet until you are told to do so by the experimenter.

Example

extremely	FAIR	(1)	2	3	4	5	6	7	UNFAIR	
					or					
	FAIR	1	2	3	4	5	6	(7)	UNFAIR	extremely
quite	FAIR	1	(2)	3	4	5	6	7	UNFAIR	
					or					
	FAIR	1	2	3	4	5	(6)	7	UNFAIR	quite
slightly	FAIR	1	2	(3)	4	5	6	7	UNFAIR	
					or					
	FAIR	1	2	3	4	(5)	6	7	UNFAIR	slightly
neutral	FAIR	1	2	3	(4)	5	6	7	UNFAIR	

ADULT MALE

Imagine that you are going to meet a person  
for the first time and the only thing you know  
in advance is that the person is an Adult Male.

	extremely	quite	slightly	neutral	slightly	quite	extremely	
NOT CONCEITED ABOUT APPEARANCE	1	2	3	4	5	6	7	CONCEITED ABOUT APPEARANCE
SNEAKY	1	2	3	4	5	6	7	DIRECT
KILLED IN BUSINESS	1	2	3	4	5	6	7	NOT SKILLED IN BUSINESS
NOT ADVENTUROUS	1	2	3	4	5	6	7	ADVENTUROUS
DOMINANT	1	2	3	4	5	6	7	SUBMISSIVE
ILLOGICAL	1	2	3	4	5	6	7	LOGICAL
NOT EXCITABLE IN A MINOR CRISIS	1	2	3	4	5	6	7	EXCITABLE IN A MINOR CRISIS
DEPENDENT	1	2	3	4	5	6	7	INDEPENDENT
DOES NOT ACT AS A LEADER	1	2	3	4	5	6	7	DOES NOT ACT AS A LEADER
DOES NOT KNOW THE WAY OF THE WORLD	1	2	3	4	5	6	7	DOES NOT KNOW THE WAY OF THE WORLD

	extremely	quite	slightly	ADULT neutral	MALE slightly	quite	extremely	
RELIGIOUS	1	2	3	4	5	6	7	NOT RELIGIOUS
DOES NOT ENJOY ART & LITERATURE	1	2	3	4	5	6	7	ENJOYS ART & LITERATURE
STRONG	1	2	3	4	5	6	7	WEAK
DOES NOT HIDE EMOTIONS	1	2	3	4	5	6	7	HIDES EMOTIONS
SLOPPY IN HABITS	1	2	3	4	5	6	7	NEAT IN HABITS
UNCOMFORTABLE ABOUT BEING AGGRESSIVE	1	2	3	4	5	6	7	COMFORTABLE ABOUT BEING AGGRESSIVE
NOT INTERESTED IN OWN APPEARANCE	1	2	3	4	5	6	7	INTERESTED IN OWN APPEARANCE
FACTFUL	1	2	3	4	5	6	7	BLUNT
SELF*CONFIDENT	1	2	3	4	5	6	7	NOT SELF*CONFIDENT
STRONG NEED FOR SECURITY	1	2	3	4	5	6	7	LITTLE NEED FOR SECURITY
TALKS FREELY ABOUT SEX WITH MEN	1	2	3	4	5	6	7	DOES NOT TALK FREELY ABOUT SEX WITH MEN
HAS DIFFICULTY MAKING DECISIONS	1	2	3	4	5	6	7	DOES NOT HAVE DIFFICULTY MAKING DECISIONS

## ADULT MALE

3.

	extremely	quite	slightly	neutral	slightly	quite	extremely	
ACTIVE	1	2	3	4	5	6	7	PASSIVE
NOT TALKATIVE	1	2	3	4	5	6	7	TALKATIVE
AGGRESSIVE	1	2	3	4	5	6	7	NOT AGGRESSIVE
DOES NOT USE HARSH LANGUAGE	1	2	3	4	5	6	7	USES HARSH LANGUAGE
INDEPENDENT	1	2	3	4	5	6	7	DEPENDENT
FEELINGS EASILY HURT	1	2	3	4	5	6	7	FEELINGS NOT EASILY HURT
LOUD	1	2	3	4	5	6	7	QUIET
INTUITIVE	1	2	3	4	5	6	7	RATIONAL
DOES NOT CRY EASILY	1	2	3	4	5	6	7	CRIES EASILY
AWARE OF THE FEELINGS OF OTHERS	1	2	3	4	5	6	7	UNAWARE OF THE FEELINGS OF OTHERS
DOES NOT EASILY EXPRESS TENDER FEELINGS	1	2	3	4	5	6	7	EASILY EXPRESSES TENDER FEELINGS
SUBJECTIVE	1	2	3	4	5	6	7	OBJECTIVE

## ADULT MALE

4.

	extremely	quite	slightly	neutral	slightly	quite	extremely	
LIKES MATH & SCIENCE	1	2	3	4	5	6	7	DOES NOT LIKE MATH & SCIENCE
NOT INDEPENDENT	1	2	3	4	5	6	7	INDEPENDENT
DECISIVE	1	2	3	4	5	6	7	INDECISIVE
NOT AMBITIOUS	1	2	3	4	5	6	7	AMBITIOUS
THINKS MEN ARE SUPERIOR TO WOMEN	1	2	3	4	5	6	7	THINKS WOMEN ARE SUPERIOR TO MEN
NOT COMPETITIVE	1	2	3	4	5	6	7	COMPETITIVE
RUGGED	1	2	3	4	5	6	7	DELICATE
GENTLE	1	2	3	4	5	6	7	ROUGH
NOT EMOTIONAL	1	2	3	4	5	6	7	EMOTIONAL
UNABLE TO SEPARATE FEELINGS FROM IDEAS	1	2	3	4	5	6	7	ABLE TO SEPARATE FEELINGS FROM IDEAS
NOT EASILY INFLUENCED	1	2	3	4	5	6	7	EASILY INFLUENCED
HOME-ORIENTED	1	2	3	4	5	6	7	WORLDLY
YOUNG	1	2	3	4	5	6	7	OLD

ADULT FEMALE

Imagine that you are going to meet a person for the first time and the only thing you know in advance is that the person is an Adult Female.

CONCEITED ABOUT APPEARANCE	1	2	3	4	5	6	7	NOT CONCEITED ABOUT APPEARANCE
DOES NOT CRY EASILY	1	2	3	4	5	6	7	CRIES EASILY
WORLDLY	1	2	3	4	5	6	7	HOME-ORIENTED
DOES NOT KNOW THE WAY OF THE WORLD	1	2	3	4	5	6	7	KNOWS THE WAY OF THE WORLD
USES HARSH LANGUAGE	1	2	3	4	5	6	7	DOES NOT USE HARSH LANGUAGE
PASSIVE	1	2	3	4	5	6	7	ACTIVE
ACTS AS A LEADER	1	2	3	4	5	6	7	DOES NOT ACT AS A LEADER
THINKS WOMEN ARE SUPERIOR TO MEN	1	2	3	4	5	6	7	THINKS MEN ARE SUPERIOR TO WOMEN
SELF-CONFIDENT	1	2	3	4	5	6	7	NOT SELF-CONFIDENT
DELICATE	1	2	3	4	5	6	7	RUGGED
STRONG	1	2	3	4	5	6	7	WEAK
EASILY EXPRESSES TENDER FEELINGS	1	2	3	4	5	6	7	DOES NOT EASILY EXPRESS TENDER FEELINGS

1 → extremely  
 2 → quite  
 3 → slightly  
 4 → neutral  
 5 → slightly  
 6 → quite  
 7 → extremely

## ADULT FEMALE

2.

	extremely	quite	slightly	neutral	slightly	quite	extremely	
NOT DEPENDENT	1	2	3	4	5	6	7	DEPENDENT
STRONG NEED FOR SECURITY	1	2	3	4	5	6	7	LITTLE NEED FOR SECURITY
LIKES MATH & SCIENCE	1	2	3	4	5	6	7	DOES NOT LIKE MATH & SCIENCE
NOT SKILLED IN BUSINESS	1	2	3	4	5	6	7	SKILLED IN BUSINESS
COMFORTABLE ABOUT BEING AGGRESSIVE	1	2	3	4	5	6	7	UNCOMFORTABLE ABOUT BEING AGGRESSIVE
FEELINGS EASILY HURT	1	2	3	4	5	6	7	FEELINGS NOT EASILY HURT
COMPETITIVE	1	2	3	4	5	6	7	NOT COMPETITIVE
NOT ADVENTUROUS	1	2	3	4	5	6	7	ADVENTUROUS
SLOPPY IN HABITS	1	2	3	4	5	6	7	NEAT IN HABITS
NOT AGGRESSIVE	1	2	3	4	5	6	7	AGGRESSIVE
TALKATIVE	1	2	3	4	5	6	7	NOT TALKATIVE
RATIONAL	1	2	3	4	5	6	7	INTUITIVE



ADULT FEMALE

3.

	extremely	quite	slightly	neutral	slightly	quite	extremely	
NOT INDEPENDENT	1	2	3	4	5	6	7	INDEPENDENT
NOT EMOTIONAL	1	2	3	4	5	6	7	EMOTIONAL
SNEAKY	1	2	3	4	5	6	7	DIRECT
NOT EXCITABLE IN A MINOR CRISIS	1	2	3	4	5	6	7	EXCITABLE IN A MINOR CRISIS
ENJOYS ART & LITERATURE	1	2	3	4	5	6	7	DOES NOT ENJOY ART & LITERATURE
NOT INTERESTED IN OWN APPEARANCE	1	2	3	4	5	6	7	INTERESTED IN OWN APPEARANCE
HAS DIFFICULTY MAKING DECISIONS	1	2	3	4	5	6	7	DOES NOT HAVE DIFFICULTY MAKING DECISIONS
INDEPENDENT	1	2	3	4	5	6	7	DEPENDENT
AWARE OF THE FEELINGS OF OTHERS	1	2	3	4	5	6	7	UNAWARE OF THE FEELINGS OF OTHERS
DECISIVE	1	2	3	4	5	6	7	INDECISIVE
GENTLE	1	2	3	4	5	6	7	ROUGH
OBJECTIVE	1	2	3	4	5	6	7	SUBJECTIVE

## ADULT FEMALE

4.

	extremely	quite	slightly	neutral	slightly	quite	extremely	
UNABLE TO SEPARATE FEELINGS FROM IDEAS	1	2	3	4	5	6	7	ABLE TO SEPARATE FEELINGS FROM IDEAS
LOGICAL	1	2	3	4	5	6	7	ILLOGICAL
DOES NOT HIDE EMOTIONS	1	2	3	4	5	6	7	HIDES EMOTIONS
TALKS FREELY ABOUT SEX WITH MEN	1	2	3	4	5	6	7	DOES NOT TALK FREELY ABOUT SEX WITH MEN
LOUD	1	2	3	4	5	6	7	QUIET
AMBITIOUS	1	2	3	4	5	6	7	NOT AMBITIOUS
EASILY INFLUENCED	1	2	3	4	5	6	7	NOT EASILY INFLUENCED
DOMINANT	1	2	3	4	5	6	7	SUBMISSIVE
RELIGIOUS	1	2	3	4	5	6	7	NOT RELIGIOUS
BLUNT	1	2	3	4	5	6	7	TACTFUL
YOUNG	1	2	3	4	5	6	7	OLD

APPENDIX B

BOOKLET #2

Do not open until you have finished Booklet #1.

Please indicate your age and sex: Age \_\_\_\_\_ Sex \_\_\_\_\_

Please circle the number which best describes the experimenter's behavior when he/she read the instructions to you.

---

SOFT VOICE	1	2	3	4	5	6	7	LOUD VOICE
UNPLEASANT TONE OF VOICE	1	2	3	4	5	6	7	PLEASANT TONE OF VOICE
EXPRESSIVE*VOICED	1	2	3	4	5	6	7	MONOTONOUS*VOICED
SPOKE QUICKLY	1	2	3	4	5	6	7	SPOKE SLOWLY

\*\*\*\*\*

EXPRESSIVE-FACED	1	2	3	4	5	6	7	BLANK-FACED
DID NOT USE GESTURES	1	2	3	4	5	6	7	USED GESTURES
LOOKED AT THE CLASS	1	2	3	4	5	6	7	DID NOT LOOK AT THE CLASS

Please circle the number which best describes  
the personality of the experimenter.

---

FORMAL	1	2	3	4	5	6	7	SPONTANEOUS
VIGOROUS	1	2	3	4	5	6	7	APATHETIC
WARM	1	2	3	4	5	6	7	COLD
INCOMPETENT	1	2	3	4	5	6	7	COMPETENT
POISED	1	2	3	4	5	6	7	NERVOUS
INEPT	1	2	3	4	5	6	7	EFFICIENT
LIKEABLE	1	2	3	4	5	6	7	UNLIKEABLE
PHYSICALLY ATTRACTIVE	1	2	3	4	5	6	7	PHYSICALLY UNATTRACTIVE
YOUNG	1	2	3	4	5	6	7	OLD