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The use of the forced compliance paradigm in modifying sex role attitudes and its relation to feedback, sex role orientation and perceptual differentiation

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THE USE OF THE FORCED COMPLIANCE PARADIGM IN MODIFYING SEX ROLE ATTITUDES AND ITS RELATION TO FEEDBACK, SEX ROLE ORIENTATION AND PERCEPTUAL DIFFERENTIATION

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The use of the forced compliance paradigm in modifying sex role attitudes and its relation to feedback, sex role orientation and perceptual differentiation

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DEDICATION

To my family
for their encouragement to set high goals for myself

To my friends
for their support in helping me realize those goals

INTRODUCTION

> Teacher education offers the potential of awakening many women and men to their own experience and to their abilities to offer the same opportunity of awakening to their students.
>
> Barabara Mitrano (1981, p. 72)

In the last two decades, there has emerged a renewed concern for the roles that males and females fulfill in society. Many individuals have started to question traditional attitudes and behaviors that have in the past dictated how men and women must react and interact. Both females and males have found these more traditional sex roles limiting to human potential and have instead pursued a course more in line with individual interests and ambitions.

The questioning of traditional sex roles by individuals has resulted in changes in societal institutions. Families, for example, are no longer forced to follow the nuclear pattern where the father was the sole provider while the mother stayed home to keep the house and rear the children. Today in many families both parents build careers and share the responsibilities of maintaining the household and raising the children. The career opportunities available to these individuals have also expanded greatly in the last quarter century. Men and women were once restricted in the professions that each could enter. Now, however, these sorts of biases have been overcome so that traditional limitations are less prevalent.

Sex Role Stereotypes in Education

Another institution that was influenced by this pressure to overcome traditional sex role stereotypes was education. Efforts were made to change educational practices so that male and female students would no longer be limited to stereotypic roles. As a result, curriculum offerings were expanded so that courses such as home economics and industrial arts which once segregated male and female students have now been opened to all students. Textbooks also began to reflect broader perspectives and more realistic social trends as publishers adopted nonsexist guidelines and standards. The effect that teachers have in perpetuating sex role stereotypes was also focused upon. A recent study by Jacko, Karmos and Karmos (1980) noted that:

> The primary responsibility for effecting change in the attitudes and behaviors of young people lies with classroom teachers themselves. Until the classroom teachers have developed nonsexist attitudes and awarenesses, chances of creating an atmosphere of equality for both male and female students are limited (p. 43).

Jacko, Karmos and Karmos (1980) surveyed eighty-six teachers in two southern Illinois school districts and found that while these teachers were aware of stereotyping in society, this sensitivity to the problem did not extend into the classroom. The researchers concluded that "awareness alone is not sufficient for change. Genuine changes in attitudes precede substantive changes in teaching behaviors" (p. 48).

The need to change teacher attitudes and behaviors so that a more nonsexist orientation is prevalent becomes even more imperative after

consideration of the effects that such attitudes and behaviors have upon students. Research conducted during the 1960s and 1970s revealed that male and female students were treated differently by their teachers. Several summaries of this research in various literature reviews illustrated this differential treatment. Brophy and Good's book Teacher-Student Relationships: Causes and Consequences (1974) outlined the results of many studies and concluded that sex differences were apparent in the way students were treated and the way they achieved. For instance, they contended that teachers were more likely to hold negative attitudes toward boys because of expected behavior problems. Teachers were also prone to underestimate male intelligence and achievement which sometimes resulted in lower grades for male students. A 1977 review of research conducted by the Cornell University Community Services Department contended that teachers were the key to helping students expand roles, but that teachers often tended to ascribe sex stereotyped characteristics to typical boys and girls. These findings indicated that numerous studies have further documented the reading and behavior problems associated with males, have shown teacher-student interaction patterns to favor males, have noted differential treatment in male-female career counseling and have substantiated the decline in female achievement and confidence that occurs in adolescence. The summary of research done by Barnett and Baruch (1978) noted that teachers preferred dependent, achieving girls over boys in the elementary grades and further encouraged this dependence by giving girls attention when they were in close physical proximity to the teacher. They also reported that research showed that male students received more

teacher attention and that secondary school teachers revealed a preference for working with males. A 1980 review of literature conducted by Stockard found that boys were more likely to have reports of defiant behavior or to be labeled as learning disabled, but in spite of this show of disapproval for male behavior, boys were likely to receive more praise and approval. Stockard's review of literature also revealed differences in access to educational resources. Another 1980 research review undertaken by Bank, Biddle and Good in an attempt to account for sex differences in reading ability noted differential treatment of students in the classroom and sex relevant teaching styles. More academic contacts with girls in reading and boys in mathematics were also evidenced in the summary done by Finn, Reis and Dulberg (1980). They also detailed research indicating that boys receive more encouragement for creative, problem solving behaviors while girls were usually either ignored or rewarded for following directions. Finn, Reis and Duhlberg also discussed research that revealed teacher's predictions for the future success of their students were steeped in traditional stereotypes. These seven summaries of research about sex role stereotypes in education clearly indicate that very real differences exist in how teachers relate to male and female students.

That such differential treatment continues to occur is apparent from several studies done within the last few years. These studies demonstrated that teachers evaluate, interact with and perceive students based to some extent on gender.

The studies done by Harris (1977) and Bernard (1979) support the

hypothesis that male and female students are evaluated differently by teachers. Harris asked twenty-seven female and twenty-seven male undergraduate education majors to respond to eight descriptions of students which varied in terms of gender, masculinity/femininity and trait favorability. From these responses, Harris generalized that individuals possessing masculine traits would be seen as more intelligent with higher grades and the ability to do better in college than those individuals reflecting more feminine traits. In a similar study, Bernard had two hundred forty teachers read and rate descriptions of students who demonstrated either masculine or feminine behaviors and then had these same teachers evaluate essays supposedly written by these students. The teachers in this study illustrated different sets of expectations for male and female students and judged the essays by male students superior . . . in terms of grammar, logic and understanding. From this, Bernard concluded that the impressions that teachers form of students, based upon sex role behaviors, may influence the way teachers evaluate students.

Another area where more recent studies have detailed a difference in the treatment of male and female students is in terms of the interaction that occurs between teachers and students. Caplan (1977) investigated whether student gender had an impact upon determining if a student received extra help. Two-hundred-eighty undergraduates prioritized a list of students who were in need of extra help. These rankings were based upon descriptions of these students. Significant differences emerged with boys being more likely to receive extra help first. Caplan theorized that this trend in interaction might exist because society has placed more

emphasis on boys' learning or because teachers predict males will cause more discipline problems if attention is not given when difficulties are encountered. In focusing upon differences in reading achievement, Wuhl (1977) selected four teachers who anticipated no differences in male and female readers and four teachers who expected female students to outperform male students in reading achievement. Observations were then made of these eight teachers and reading achievement was assessed. Those teachers who predicted differences were observed to interact more frequently with male students. The prior expectations, however, were realized with these teachers. The four teachers who did not see differences did not interact differently with male and female students. Male and female students showed similar achievement in these classes. A study that investigated reading and math achievement differences done by Leinhardt, Siewald and Engel (1979) correlated student performance on standardized tests with interactions recorded on videotape. Their conclusion was that teachers made more contacts and spent more time with female students in reading and male students in math. Cleveland (1978) assessed whether femininist beliefs were reflected in the sort of tasks that students were assigned in the classroom. One-hundred-fifty female elementary teachers completed a measure on feminist beliefs and a checklist of classroom job assignments typically given to male and female students. Those teachers who were more feminist tended to assign tasks to students regardless of gender while the teachers who were less femininist indicated a more stereotyped approach to such assignments. The 1980 study conducted by Good, Cooper and Blakey asked sixteen teachers to rank order students in

terms of expectations. An observer then systematically recorded interactions that occurred between students and teachers. These observations revealed patterns where girls initiated more contacts with the teachers than boys, and where boys received more disciplinary reprimands when interacting with teachers.

In addition to the evaluations given by teachers and the interactions occurring with teachers, the perceptions that teachers hold toward students may also be linked to sex role identity. These perceptions determine how accepting a teacher may be to certain behaviors and also what expectations teachers relate to certain behaviors. Some recently completed studies indicated that sex identity may not be as influential as other factors. Cornbleth and Korth (1980) found in their study of 189 students in seven classrooms, that race was more of a factor in influencing teacher perceptions than was sex role identity. Prawat and Jarvis's (1980) research surveying teachers in selected elementary grades indicated that information on ability and achievement was more likely to affect teacher perceptions than was gender.

While these studies would indicate that student's gender is not a significant factor in determining teacher expectations, other research contradicts these findings to suggest that sex roles do mediate a change in teacher perception. In asking over eight hundred teachers to rate student behaviors on a five point scale, Motta and Vane (1976) discerned that female students were perceived as more creative, achievement oriented and dependent while males seemed more aggressive to their teachers. Motta and Vane contended that IQ and socioeconomic status did not affect perceptions. Bell,

Menke and Lamke (1980) asked a group of female teachers to rate one-hundred preschool boys and girls on self-esteem and on sex role traits. The researchers noted that "it appears that children rated high in self-esteem by teachers are those perceived as assertive, active and athletic - those characterized in general by traits stereotypically associated with masculinity" (p. 292). Simmons (1980) surveyed two-hundred teachers to discover that these teachers felt males were more aggressive, independent and more physically fit, and that females were more emotional, creative, intuitive, empathic and ambitious. After presenting fifty-six classroom teachers with four case studies of students, Schlosser and Algozzine (1980) reported that teachers tend to be more accepting of student behavior that is appropriate for student sex role rather than that which is cross-sexed. Benz and others (1980) asked seventy teachers to rate the abilities of students from various hypothetical descriptions. They concluded that typically feminine traits are not those perceived in high achieving students. In a study conducted by Wise (1978) which connected the performance of two-hundred teachers on various personality measures with ratings of descriptions of hypothetical students, the researcher concluded that teachers do differentiate on the basis of sex. Teachers perceived females as being more emotional and better in literature and art with male students performing better in math or science. While the evidence of teacher perceptions is not conclusive, research indicated that to some degree, teachers do tend to expect different types of behavior from their male and female students.

The research conducted during the last two decades presents a definite indication that teachers may be continuing the perpetuation of sex role stereotypes with the students in their classrooms. Students seem to receive different treatment based upon their gender. If progress is to be made toward the goals of reducing sex role stereotypes and increasing options and potential, the attitudes and behaviors of teachers must be modified. In facilitating this modification, the preservice and inservice training of teachers must be considered carefully. Teacher education needs to prepare individuals to work with children in a nonsexist manner. Unfortunately, teacher education has failed to meet this challenge. The Community Service Department of Cornell University (1977) reported that "all too frequently the professional education of teachers has subtly taught them to expect their students to be limited by sex-related characteristics and behaviors. Rather than questioning and challenging traditional ideas, preservice course work, textbooks, curriculum, research and professors have tended to perpetuate and reinforce them" (p. 34). A recent analysis done by Sadker and Sadker (1979) of twenty-four textbooks frequently used in educational foundations, psychology and content area methods courses revealed that over 95% of these books devote less than 10% of their content to a consideration of sexism. The failure of teacher education to respond to the need for reform in this area is summarized by Burdin (1980) when he noted:

> The large scale endeavor that is teacher education pays only minimal attention to sex equity concerns. A 1974 survey of most schools of education (twelve hundred of fourteen hundred) indicated that relatively few institutions were engaged in a

> comprehensive study of sex bias. Only eighteen percent were giving important attention to sex bias and the issue of sex equity. The majority of institutions indicated that their faculty did not even have the opportunity to study the issues. A recent content analysis study indicated that the most widely used teacher education textbooks largely ignore sex equity issues. The lack of sex fair teacher education courses and materials makes it likely that new teachers will enter schools knowing materials and teaching procedures that perpetuate sex inequality in education (p. 20).

The pressure to change these practices, however, is increasing. Recently, revised guidelines of the National Council for the Accreditation of Teacher Education (Note 1) require schools to present evidence that they are working to reduce sexism. Several states have also adopted certification requirements that mandate training in sex equity for teachers. Changes such as these in guidelines and requirements make it necessary for teacher educators to begin consideration of means which can be used to change attitudes and behaviors.

Cognitive Dissonance Theory as a Means of Modifying Attitudes

Changing the attitudes of perspective teachers is a challenge. By the time individuals reach the stage where they are preparing for future occupations, attitudes are well-formulated and developed. As Pate (1981) reported when summarizing research that studies various attempts to alter prejudicial attitudes, facts alone are not influential in changing previously formed impressions. Attitude change techniques must also be employed. As will be noted in the review of literature, many different strategies have been studied to reduce sex role stereotypes. Evaluations

of these strategies, however, indicate that they have not consistently produced the desire changes and may not be entirely suitable for the preservice education classroom. What is needed is an approach that is grounded in theory and proved effective, an approach that can be adapted to many different types of education courses and an approach that does not require an expert in the area of attitude change or psychology to implement the practice in the classroom. Cognitive dissonance theory provides just such as approach.

Cognitive dissonance theory postulates that once dissonance is aroused, individuals will attempt to reduce discomfort that dissonance produces (Festinger, 1957). One way this discomfort can be reduced is through attitude change. Festinger contended that one means of creating dissonance was to require individuals to verbalize attitudinal positions that may be counter to their own. In so doing, the individual experiences dissonance between overt behavior and covert attitude. To reduce this dissonance, the attitude was modified to fit the behavior. If such a strategy can be proved effective for use in teacher education courses and with sex role stereotypes, it would meet the three needs stated above.

First, this strategy is based upon a well-explored theory which has been studied in considerable detail. As will be noted in the review of literature, the creation of cognitive dissonance through counterattitudinal advocacy has been shown to modify many different attitudes in many different settings. Previous research has illustrated that this technique can have an impact upon sexist attitudes and upon attitudes in the educational setting.

Second, the attitude change strategy investigated in this research would be easily adapted to a variety of educational settings. Counter-attitudinal advocacy is a specific learning experience that can be applied in many situations. In a more general educational foundations, psychology or methods course, it could be incorporated as a brief assignment. In a class that is specifically designed to study sex role attitudes it could be expanded to fit the goals of the course. Other theories of attitude change and approaches to attitude modification are not as flexible. If teacher education is to develop a response to the problem of sexist teacher attitudes, teacher educators must devise strategies that are suitable to the wide range of course offerings that are a part of the teacher preparation curriculum.

Finally, counterattitudinal advocacy as based upon cognitive dissonance theory requires minimal expertise for implementation. Many other methods of attitude modification necessitate that the person who is conducting the procedure have a strong background in the theory being utilized and its practice. For example, when using behavior modification or when conducting group consciousness raising experiences, the individuals in charge must have a strong understanding of the strategy employed in order to achieve the desired results. Such expertise may be outside the domain of many teacher educators and such procedures could not, therefore, be effectively incorporated into their teaching. The technique explored in this research would not require such an extensive background. Counter-attitudinal advocacy could be successfully implemented with only a cursory

understanding of dissonance theory.

Statement of the Problem

Research shows that teachers continue to perpetuate sex role stereotypes that can prove limiting to students. In order to reduce these stereotypes, teacher education must design a response. A need exists to develop and evaluate specific strategies which can be easily incorporated into courses such as educational foundations, psychology and methods of teaching. This study attempted to meet this need.

This study investigated the effectiveness of a counterattitudinal advocacy technique. Subjects were asked to write three short essays that endorsed a nonsexist position. Attitudes on sex role stereotypes were assessed before the first essay was written, immediately after the third essay was written and one month after the writing of the third essay.

Several other dimensions were also added to this study. Since this technique was for use in the classroom, the effect of feedback similar to what a teacher might give on the essays was also considered. Since individual differences may interact with the change process, subjects were also tested on their psychological sex role orientation (masculinity, femininity, androgyny) and on perceptual differentiation (field independence and field dependence). These differences have demonstrated relationships to gender, attitudes and attitude change.

Hypotheses

The following four hypotheses were developed for testing in this study.

1. Completion of a series of essays that advocate nonsexist positions will liberalize attitudes related to sex role stereotypes when these attitudes are measured immediately after completion of the writing task and one month after completion of the task.

2. Feedback on the writing task will liberalize attitudes related to sex role stereotypes when these attitudes are measured immediately after completion of the writing task and one month after completion of the task.

3. Masculine, feminine, androgynous and undifferentiated subjects will exhibit differences in attitude change or differences in the interaction of feedback and attitude change when attitudes related to sex role stereotypes are measured immediately after completion of the writing task and one month after completion of the task.

4. Field independent and field dependent subjects will exhibit differences in attitude change and differences with the interaction of attitude change and feedback when sex role stereotypes are measured immediately after completion of the writing task and one month after completion of the task.

Purposes of the Study

The study was developed to fulfill four purposes. First, the researcher was interested in determining if advocating a nonsexist position on a series of short essays would influence sex role stereotypic attitudes. As shown in the review of literature, prior cognitive dissonance research using the forced compliance paradigm revealed that if counter-attitudinal positions could be expressed and stabilized in a way that allowed individuals to experience personal responsibility for their positions, then this technique had the potential to induce change. Research in educational settings and on sex role stereotypes was not, however, conclusive and further study was indicated.

The second purpose of this study was to determine if feedback would have an impact upon attitude change. Since the technique was intended for ultimate use in the classroom, it was deemed important to assess how feedback would interact with attitudes. Previous studies have not established a definite trend on this dimension.

Third, the interaction that field independence and dependence had with the counterattitudinal expression and feedback was considered. The review of studies in this area illustrated that individuals who were field independent formulated and modified attitudes differently than did those individuals who were field dependent. Studies showed that because field independent individuals were guided more by their own behavior, they would be more susceptible to counterattitudinal advocacy. The component of feedback, however, added a consideration since field dependent individuals

could be more easily influenced by these communications.

Finally, the study was designed to assess whether psychological sex role identity would interact with the other elements of the study. Literature in the field contended that masculine, feminine, androgynous and undifferentiated individuals would hold different initial attitudes and would react differently to the forced compliance paradigm. These psychological orientations were also linked by research to field independence and field dependence.

Definition of Terms

Cognitive dissonance theory is an approach to attitude change that states that through the arousal of an aversive motivational state within an individual attitude modification can occur.

The forced compliance paradigm is one means of creating an aversive motivational state. Dissonance is created by endorsing a counterattitudinal position. This paradigm is also termed counterattitudinal advocacy.

Perceptual differentiation refers to the ability of an individual to perceive forms in relation to their background or environment.

Field independent individuals are able to separate forms from their background. Their personalities tend to be more individualistic and less social.

Field dependent individuals are not able to easily discern forms from their background. Their personalities tend to be more attuned to the society in which they must function.

Psychological sex role orientation refers to the personality characteristics that an individual possesses and reflects. It is sometimes termed sex role identity.

A masculine orientation reflects characteristics and traits typically associated with males.

A feminine orientation refers to a personality that reflects characteristics and traits typically associated with females.

An androgynous orientation combines highly masculine and highly feminine traits in the personality.

An undifferentiated orientation refers to personalities that do not clearly possess masculine, feminine or androgynous characteristics.

A sex role stereotype refers to applying general attributes and characteristics to all members of a gender without regard to individual differences. The action of doing this is stereotyping.

Basic Assumptions

It is assumed that the subjects that participated were from a normal population of college students. Since these subjects were randomly assigned to treatment groups, it was assumed that the error term was normally and independently distributed.

Limitations

The design of this study did not allow for consideration of the following points:

1. The study did not attempt to investigate whether subjects who reflected more nonsexist attributes would perform differently in classroom situations.

2. The study did not attempt to explore whether attitude change that occurred as a result of these treatments would be maintained beyond a one month time period.

3. The study did not evaluate or compare the technique used to induce attitude change with other attitude change techniques.

Summary

Society has started to awaken to the need to maximize human potential by reducing sex role stereotypes. This need has manifested itself in encouragement for change in many societal institutions, one being education. Research clearly indicates that teachers continue to perpetuate stereotypes. Teacher educators must, therefore, develop strategies which can be employed to dispel such stereotypes. One such strategy investigated in this study was counterattitudinal advocacy which is well-established in the literature. It also is adaptable to a variety of teacher preparation curricula and does not necessitate an extensive background in the theory to implement. The effectiveness of this technique was assessed and its relationship to the feedback component and to the individual differences of perceptual and sex role differentiation was determined.

REVIEW OF LITERATURE

> Educational settings may be an arena where institutional and individual levels can influence one another to produce social change. As individuals pressure the institutions and the institution, in turn, teaches the individual, both levels are affected.
>
> Alexandra G. Kaplan and Joan P. Bean (1976, p. 387)

To provide a basis for this study, the review of literature has been divided into four parts. First, previous studies of strategies to reduce sex role stereotypes are discussed. Second, a background in cognitive dissonance theory is presented with an overview of studies which have utilized the forced compliance paradigm in changing attitudes. The third part focuses upon how feedback on a task influences attitudes. The fourth section explains the individual differences of field independence and field dependence, and masculinity, femininity and androgyny.

Approaches to Eliminating Sexism

Each of the approaches to reducing sexism that are described in the literature falls into one of four areas: individualized kits, consciousness raising groups, women's studies courses and workshops. A brief review of several specific programs in each of these four areas provides a background in previously used practices in addressing sexism.

A limited amount of research exists concerning the results of individualized kits in decreasing sexism. Such kits contain self-study modules or are multimedia packages which can be pursued on an individual

basis. For instance, an intervention strategy entitled Decisions and You which was developed by Scott (1979) worked on expanding self-concept and academic ability in sex dominated subject areas with junior high school females. A self-confrontation manual designed to lessen the impact of sex role stereotyping in vocational programs was tested by Trent and others (1979). When the one hundred thirty vocational educators and counselors who completed the manual were compared to the one hundred thirty individuals in the control, the experimental group showed a significant decrease in sex bias. Similar results were not, however, reported by Sidney (1976). Her dissertation developed a treatment entitled Sex-Role Discovery Kit which was a self-instructional, multimedia package. Use of the kit did not appear to result in a significant change in those tested. Sidney theorized that this might have occurred because subjects were highly androgynous from the beginning and as a result measurement scales were not sensitive enough to show growth.

Another approach that has been documented for use in modifying sexist attitudes is consciousness-raising sessions. This small group format is intended to help make individuals aware of their own attitudes and behaviors, and to create a better understanding of the alternatives available to each individual. Such sessions tend to focus upon a sharing of personal experiences with a facilitator encouraging the investigation of alternatives and options. Reports of these experiences show varying degrees of success. Many studies of this technique have compared consciousness raising with other types of small group formats. In

studying encounter and consciousness raising groups, Thistle (1975) assigned graduate counseling students to same gender and mixed gender groups. Her posttest results indicated that the consciousness raising group was more effective than the encounter format, and that women were more likely to show growth when they were in a same sex group. Naffziger (1976) compared women who participated in assertiveness, consciousness raising and encounter groups. Findings suggested that consciousness raising was more likely to change attitudes, to increase the desire to affiliate with women and to result in a more satisfying experience. A similar experiment by Wysocki (1976) found no differences in attitudes or self-actualization between undergraduate and graduate students participating in encounter, consciousness raising or assertiveness training groups. The consciousness raising format, however, led to better self-concepts. Stiglitz (1977) placed more assertive, feminist women in a nondirective consciousness raising group while women with a more traditional orientation were placed in more structured groups. The nondirected group showed an increased rejection of stereotypes, a greater personal efficacy and an integrated self-concept. The directed group developed better leadership skills, but still placed a high value on feminine traits. Langberg (1977) divided twenty-three women into consciousness raising, vocational training and no treatment groups. The comparison of pretest and posttest measures of attitudes did not reveal any change.

The ability of consciousness raising groups to change attitudes did not produce consistent results in several other studies that focused solely

on this format. In the studies conducted by Sargent (1974) and Baker and Snodgrass (1979), men were found to be more sensitive to the consciousness raising treatment than were women. Both treatments were conducted over a semester (approximately forty to forty-five hours), and included consciousness raising techniques incorporated with experiences designed to increase awareness of stereotypes. The explanation offered by the researchers in accounting for the discrepancy between male and female group members was the untraditional orientation of the women who participated in these sessions. Erskine's (1974) study had subjects participate in a four hour consciousness raising experience. The subjects exhibited no overall change in attitudes. When post posttested four weeks later no change continued to be reported. Kahn's (1975) research tended to indicate that longer treatment periods may be necessary to influence attitudes. This study used four three-hour consciousness raising sessions with students in a counselor education course. When pretest and posttest scores on two measures were compared to the control group, the experimental group possessed more nonsexist attitudes but did not exhibit a change in overall sex role orientation.

The structure of the consciousness raising sessions was investigated in two studies. Follingstad, Robinson and Pugh (1977) compared a sixteen hour marathon consciousness raising group with an eight week two hour per week group. Both groups showed more profeminist attitudes after participation with the longer running group producing more increase in self-esteem. Findings reported by Grandinetti (1979) suggest that consciousness raising may be effective in altering sexist attitudes toward educational issues

but not overall, broadly-based sex role attitudes. In this study, consciousness raising groups met for two or five hours. When compared to a control group, scores on a general sex role attitude measure did not show significant change, but scores on an educational sexist attitude scale did show improvement. Grandinetti discovered no differences due to varying treatment length. While consciousness raising groups have been effective in some cases, they do not always modify sexist attitudes.

Inconsistency was also present in research on the effectiveness of women's studies courses in encouraging more nonsexist attitudes. These courses center on a variety of topics related to women. Some deal with the role of women in history, others with the psychology of women, or with women in education and still others are seminars designed around issues concerning women. Usually a number of different teaching strategies are employed such as lectures, discussions, simulations, films and guest speakers. Two recent studies question the effectiveness of such an approach. Haynes (1977) reported that a one semester course on sex roles did not produce any change in sexist attitudes. Vedocato and Vaughter (1980) noted that a one semester psychology of women course did result in a shift to more nonsexist orientation by women students, but male students in the class showed less change than the males in the control group who were simply a part of a developmental psychology class. The researchers theorized that perhaps male students were more threatened by this direct confrontation of their attitudes.

Findings from seven other studies indicate that women's studies

courses can modify student attitudes. Research conducted by Speizer (1975); Ruble, Croke, Frieze, and Parsons (1975); Scott, Wade, and Richards (1977) and Mattei (1979) which evaluated various women's studies courses using pretest-posttest control group designs revealed that such courses can have an impact upon the attitudes of students. In an open ended survey of 136 students who had completed such a course, students reported feeling an increase of confidence, better self-awareness, higher career aspirations, greater tolerance and more social participation (Elovson and Cockroft, 1977).

Three studies assess women's studies courses linked more directly to educators. At Cleveland State University, fifty women who took courses such as "Women in Physical Education" and "Women in School Administration" showed a reduction of stereotypes and a questioning of traditional practices (Del Ray & Russell, 1978). Reisman (1978) found that a special seminar entitled "Counseling Women" for students preparing to become school counselors did result in a change to more nonsexist attitudes but did not appear to influence counseling skills when working with women. Counseling skills were modified by participation in a counseling course that included role playing and other exercises to increase sensitivity to the sex bias issue (Gilbert & Waldrop, 1978). The students also showed more liberal attitudes after the completion of the course than did those students who were in a similar class that did not focus on sex bias.

Most evaluation of interventions designed to modify sexist attitudes has focused upon workshops and training programs. Several general

workshops have concentrated upon modifying stereotypes and attitudes of faculties and students. In assessing a workshop consisting of discussions and activities designed to create an awareness of sex role attitudes, Dorn (1975) noted that performance on a task did not improve, but sex role attitudes did become more liberal. Gun's dissertation (1975) evaluated a six hour workshop on building self-concepts and concluded that such an approach could be helpful in addressing stereotyping. Gulanick (1977) compared workshops using action oriented techniques of examining stereotypes, with workshops that discussed stereotypes. When subjects in these two groups were compared with subjects who did not receive a treatment, no differences were found. Two months later, however, individuals in both treatment groups demonstrated a tendency to be more androgynous. Carter (1977) identified college men who scored extremely high or extremely low on a sex role stereotype survey. Half of these men then participated in a seminar designed to sensitize them to stereotypes. The seminar did not appear to influence the attitudes of these men. At Montana State University students and faculty who participated in a career/life planning workshop did not exhibit any change in their attitudes toward women. The participants did, however, score unusually high at the onset, and as a result, testing may have had a ceiling effect (Leiterman-Stock, 1978). After a workshop for adolescent girls focusing upon ego development, Wintersteiner (1979) suggested that such an approach did influence such development but not occupational aspirations or sex role attitudes.

Other workshops have centered more directly on teachers, education students and other educational personnel. These too are rather indefinite

in their effectiveness. Schniedewind (1975) detailed a workshop used with teacher educators based upon personal and social change models. She concluded from various standardized reports and action projects that this was an effective means of dealing with sexism. A short in-service project entitled "Rethinking Conventional Sex Roles" that was conducted in the Philadelphia schools also helped to improve teacher understanding and awareness of sexism (Sobo, 1976). According to Griffin and Kelly (1978), a combination of a slide presentation and group activities for home economics and vocational education professionals did produce an awareness of sex bias and sex stereotyping in vocational education. A workshop for child development faculty and staff utilized awareness activities and discussion which resulted in less stereotypic attitudes for those involved in the workshop (Moore, 1979).

Two other studies of teachers involved in workshops did not evidence such growth. For example, Redd (1976) reported on a four session workshop for elementary teachers that failed to realize a change on measurement instruments but did suggest a modification of observable behaviors. In testing a package developed for the Hawaiian Education Equity Program, Stein and others (1978) noted that the sample of twenty-three elementary and thirty secondary teachers evidenced little change. The researchers hypothesized that the sample, the use of low powered statistics and the implementation of untested instruments resulted in this finding.

Three additional studies of teacher inservice programs have indicated that even if the workshop did modify teacher attitudes, this change

did not necessarily carry over to the classroom. In a four session workshop described by Kesselman (1974) where teacher attitudes did become more liberal, no overall change was apparent when students were presented with such workshops by their teachers. Project Equality, when piloted in Seattle schools, revealed no correlation between teacher attitude and the amount of teacher behavior directed toward changing student sex stereotypes (Woolever, 1976). Similarly, Mahon (1978) reported that a workshop conducted with one hundred elementary teachers did increase their sensitivity to sexism and stereotyping, but this change did not translate to similar results in students.

In four research investigations of workshop interventions used with counselors and counselor trainees, only one study found changes. A workshop consisting of a booklet on stereotyping followed by two small group discussions, was found by Moore (1974) not to have any significant impact upon counselor trainees. The eight hour workshop that included lectures, discussion, consciousness raising and skill acquisition for helping professionals failed to produce significant differences in attitudes when these attitudes were measured immediately after completion of the workshop and when they were assessed eight weeks later. Kohn (1980) reported that a three day session for counselors interested in assisting women with career planning resulted in no difference in attitudes between those attending and those not attending the conference. Bowman and Nickerson (1977), however, suggested that a one and one-half hour workshop in which graduate students presented their research on stereotyping and followed this with a discussion did liberalize the attitudes of thirty-four

participating counselors and that this modification held over time.

Summary

The four intervention strategies most commonly documented in the literature are individualized kits, consciousness raising groups, women's studies courses and workshops. They have not shown the ability to produce consistent results. In some cases, success is evident while in other very similar situations it is not. These studies do not tend to build upon each other. These studies also have not considered individual differences in learning styles in the construction and evaluation of the various approaches. Finally, evaluation also has failed to focus in on the specific techniques which were used.

Cognitive Dissonance Theory and the Forced Compliance Paradigm

The strategy used in this study to modify attitudes related to sex role stereotypes was based upon a theory introduced by Festinger in 1957. The cognitive dissonance theory purports that the basic units of beliefs, opinions, behaviors and attitudes are cognitive elements. Those cognitive elements which are related or relevant to each other can be consonant or dissonant. When elements are dissonant, an aversive state is created which the individual works to reduce. As Insko (1967) noted in summarizing this theory:

> Dissonance may arise because the obverse of one cognitive element follows another in a strictly logical fashion. Dissonance may also arise because the obverse of one's present behavior follows from expectations based on past experience. (p. 199)

Over the last few decades, considerable research has been undertaken to establish the boundaries of this theory. This research has concentrated upon exploring the aversive state of dissonance and changes which occur in basic cognitive elements. One of the major modifications that resulted from this research effort was the realization that personal responsibility for the action must accompany the arousal of dissonance (Wicklund & Brehm, 1976; Greenwald & Ronis, 1978). Wicklund and Brehm explained that,

> While the precise parameters of personal responsibility will only be uncovered by additional research, a number of research projects offer telling conclusions. Two of these seem particularly important. (1) Responsibility, hence, dissonance reduction, evidently comes about readily when a person engages in a discrepant act under conditions of high choice and when he is able to foresee the potentially dissonance-arousing consequences of that act. (2) Relatively recent research shows that unforeseen consequences can arouse dissonance under special conditions, one of these being when the individual's abilities are connected to the consequences. (p. 71)

Festinger identified several different means which can be employed to create dissonance. These included forced compliance to a given attitudinal position, free choice of a certain attitudinal position or exposure to new information for a particular attitudinal position. The most frequently studied technique and the one used as a model for the development of the treatment in this experiment was the forced compliance paradigm (Festinger & Carlsmith, 1959). Such an approach asks the individual to express an attitude that implies endorsement of a certain position. After this oral or written commitment, the individual's attitude is assessed to determine if it has aligned itself with the position that was expressed. Festinger contended that by advocating a

certain attitude in such a manner, dissonance could be created between cognitive elements. Attitude change then occurred to reduce this dissonance.

The following studies illustrate the effectiveness of the forced compliance paradigm. Interest in the effect that verbalizing an attitude had upon attitude change gained momentum in 1954 with the work of Janis and King. Their initial study required college students to give an informal talk from a prepared outline which advocated a certain position. The results indicated that active participation resulted in attitude shift in the direction of the speech. In a follow-up study in 1956, King and Janis sought to determine how involvement in role playing affected attitude change. They compared students who were asked to improvise their own speech in contrast to those students who only had to read a prepared speech. Those students who were asked to generate their own arguments revealed an attitude change while the others did not. Stanley and Klausmeier (1957) did not find such consistent results. In comparing graduate students who presented a speech on world government arguing for their own position, against their own position or just observing the speeches, no difference in attitudes could be found. They suggested that a minimal effort to generate arguments would not create much dissonance. Dissonance was created, however, in a 1957 study by Culbertson. Students who advocated integration revealed more favorable attitudes than those individuals who merely observed these presentations. Harvey and Beverly (1961) contrasted attitude change in individuals initially opposed to the sale and use of alcohol who read and wrote down arguments from a pro-alcohol communication with individuals who wrote their own pro-alcohol

communication. The latter group evidenced slightly more change as a result of their experience. The long term effects of forced compliance were noted in a 1965 experiment conducted by Janis and Mann in which smokers were asked to portray a patient who was just told of the need for a serious operation to combat lung cancer. Not only were immediate changes in smoking attitudes and behaviors apparent in assuming this role, but in a follow-up eighteen months later, these subjects evidenced a continued decrease in the amount of smoking.

Since these early studies, the forced compliance paradigm has been employed to modify attitudes in a variety of situations. A sampling of some of the recent studies indicates this diversity. Mirels and McPeek (1977) indicated that students who were required to write three self-laudatory essays later reflected higher self-concepts than those students who wrote on a social issue. The latter showed increased advocacy of the position they espoused. Success was reported by Sichel (1977) in modifying nurse's attitudes. In his study, forty student nurses and forty public health nurses who all expressed favorable attidues toward nursing unions, were asked to write a short anti-union essay. Those nurses who were less involved in the issue revealed a change in attitude caused by the creation of this dissonance. When students at Southern Illinois University role played a change agent and were requested to work on modifying attitudes and behaviors of others toward the environment, it was found that their own behavior toward the environment also reflected more concern (Horsley, 1977). Zimmerman (1979a) required a group of adults in a family relations workshop to keep a six week journal of what they found pleasing in their

spouses. At the end of this period she concluded that such self-recording led to more positive attitudes toward spouses. In a study devised by Lofaro and James (1980), counselors were asked to role play a disabled person being turned down for a job or being confronted by physical barriers in homes and in more public settings. Their findings indicated that the experience left counselors with a new awareness and a new set of attitudes toward the problems faced by the disabled.

Many studies using the forced compliance paradigm have also helped to further delineate this particular method of attitude change and dissonance theory in general. Jensen (1973), for example, investigated whether accountability had any influence on attitudes. When the attitudes of subjects who received credit for the experiment only after the essays had been written, read and checked were compared to subjects who received credit regardless of the essay, Jensen could find no differences. Pittman (1975) studied the condition of dissonance arousal and found that if the dissonance produced could be attributed to some source outside the individual (such as the anticipation of an electrical shock) then attitudes that were addressed by the counterattitudinal advocacy would not be changed. Similar findings were also reported by Zanna, Higgins and Taves (1976). After writing a counterattitudinal essay, those subjects who were told that a pill they had just taken would make them tense attributed the dissonance they were experiencing to that source. Those subjects who were told the pill would have no effect or a pleasant effect changed attitudes. The researchers concluded that "dissonance is an aversive

state and that subjects will seize when possible, an external attribution for this state" (p. 530). Cook (1977) explored whether the attitudes produced by forced compliance were stable or unstable. He found that when given a choice those individuals who had expressed a dissonance producing attitude would choose to investigate that particular attitude in more detail than would those individuals who had written an essay ascribing to a consonant position. From this he concluded that individuals who experience a dissonant attitude may seek out further information to stabilize that attitude. This need to stabilize attitudes produced by forced compliance was further investigated by Shaffer and Tabor (1980). Subjects in their study who were given time to think about arguments to be advanced in their counterattitudinal essays evidenced more attitude change in the direction of the essay than did those subjects who were not given such preparation time. When both sets of essays were evaluated by judges for theme consistent arguments, they received similar ratings so the added time did not produce more arguments, but those arguments that were advanced were more salient. In studying the process of how assuming a certain position affects attitudes, Jensen and Carter (1981) found that students in selecting their own persuasive speech topics, had their attitudes toward that topic intensified after preparation for the speech had been completed and remained at this same level even after delivery.

The forced compliance paradigm has also been tested in educational settings. The following four experiments indicated its effectiveness in changing attitudes that students hold toward certain learning experiences. A study done at the University of Illinois which identified students with

favorable and unfavorable attitudes toward physical education courses and had them write favorable statements about the class reported that those holding positive attitudes intensified their position while those holding less favorable attitudes changed their attitudes to a more positive orientation (Al-Talib, 1970). Such success in influencing attitudes was not, however, reported by Book (1976) in attempting to promote positive attitudes toward teaching in prospective student teachers. The subjects in this study were divided into four groups. One group wrote an essay favoring a student oriented philosophy of teaching. Another group read such an essay. A third group wrote and read an essay on this topic, and the fourth group served as the control receiving no treatment. The researcher found no differences in the teaching attitudes of these subjects at the conclusion of these experiences. Simonson (1977) did, however, realize this goal of changing attitudes. Subjects in this study were students in an educational media course who had attitudes and achievement levels pretested. Subjects were then assigned to one of three groups. One group videotaped short presentations espousing a favorable position toward the media course. The second group videotaped favorable reactions toward another unrelated course. The third group served as the control and therefore, did not participate in a treatment. Simonson reported that those who advocated a favorable position toward the media course demonstrated improvement in attitudes toward the course. When assessed two months later, attitudes and achievement did not appear to maintain the influence from the treatment, although a trend was noted for more positive attitudes

and better achievement. More positive attitudes toward music courses were induced in a study by Zimmerman (1979b). Students were asked to role play music critics reacting favorably to various musical compositions. Some subjects wrote favorable essays and read them aloud. Some wrote and submitted essays advocating favorable positions while others were part of groups that discussed favorable aspects of the music. When subjects in these conditions were compared to participants in the no treatment control, they demonstrated favorable attitudes toward the type of music they had experienced. This favorable attitude change did not, however, extend to other types of music.

Not only has the forced compliance paradigm proved successful in modifying attitudes in various educational settings, it has also been effective in influencing sexist attitudes and sex role stereotypes. Chapman (1974), for example, reported that after assuming roles in a social simulation game designed to confront racism and sexism, and then discussing these issues, male students exhibited more positive attitudes toward women, while female students did not. A 1975 study conducted by Shaffer at Kent State University had female subjects who either strongly agreed or strongly disagreed with a statement that women were regarded as sex objects write an essay advocating that women did receive such treatment. The greatest shift in attitudes occurred in those individuals who had initially disagreed with this position. While those women who did write consonant essays strengthened their position, a ceiling effect tended to limit change. Subjects who wrote the dissonant essays reported the most

discomfort from their writing although both dissonant and consonant writers found the task difficult. As part of her two three-hour workshop sessions, Collins (1975) employed role playing to focus upon various stereotypic roles and role reversals. She reported for her treatment group, significant reductions in sexist attitudes when it was compared with the control group. Schuh and Young (1978) asked a group of male business students to act as personnel managers assigning a company recruiter the task of employing more women. More attitude intensification was found in the personnel managers and more attitude change in the recruiter when the personnel manager demonstrated a prior commitment to affirmative action. Those who participated in the role play also reflected behaviors that were more egalitarian.

Summary

The forced compliance paradigm of cognitive dissonance theory does provide a reliable means for changing attitudes. Numerous studies have illustrated that advocating a counterattitudinal position can influence attitudes. This approach to producing attitude change has proven effective in many situations with many different types of attitudes. Theory and research in the field suggest the importance of creating personal responsibility and stability for the position espoused when utilizing this technique so that the dissonance is not assigned to some external source.

Feedback

In the classroom,students are usually given feedback on their performances. This can be in the form of verbal comments either oral or written or in nonverbal facial expressions or gestures. This sort of feedback is designed to give students some indication of the quality of their work and to encourage students to perform at the highest possible level. When attempting to modify attitudes, such feedback may have an impact that needs to be investigated. Research is not yet conclusive on the role that feedback plays in attitude change.

Some experiments have suggested that positive feedback on a counter-attitudinal performance may increase the level of dissonance and thereby produce more attitude change. One study supporting this hypothesis was conducted by Gross, Riemer and Collins (1973). When male high school and college students were assigned to speak for or against their beliefs on women's roles, those students who were told their communications were perceived by others as being sincere realized more attitude change in the direction of the speech than did those who were given no feedback or were told of an insincere perception. Shirai (1975) reported that subjects who were told after their presentation of counterattitudinal speeches that they had successfully persuaded all their audience members evidenced greater attitude change than those speakers who were told they had been unsuccessful or those speakers who received no feedback on their performances. McMillan (1977a, 1977b) asked students to write either a one page or a three page paper about a chapter in a textbook. These papers

were then given randomly either favorable or unfavorable feedback on their performance. A comparison of pretest and posttest assessment of attitudes revealed that those students who had written the longer paper and were given positive feedback on their efforts had the most change in attitudes. McMillan theorized that intrinsic rewards such as praise after performing a high effort task produced more dissonance. In a 1978 study by Eisner and Osman, thirteen and fourteen year old subjects were asked to write a short essay on adult authority in which they were to use as many words off of a word list as was possible. Half of the words on the list were favorably slanted toward such authority. The other half were more negative about adult authority. At the second session, half of the subjects were told the positive words were used more frequently while the other half were told the negative words appeared more often in the essay. The overall attitude index indicated that such feedback did produce change in the direction of the feedback. Two other measures of attitudes, however, did not support these findings.

Other studies have also offered rather contradictory conclusions on the role that feedback plays in the attitude change process. Walenick (1974) tested a means of helping prospective teachers become more humanistic in their interactions with students. Three times during their student teaching experiences thirty-six industrial arts student teachers were rated by their students. One group of student teachers received the actual ratings given by their students. Another group received feedback that was fifty percent higher than their actual ratings. The third group did not

receive any feedback. Those individuals who were given the actual feedback reflected the most change in humanistic behaviors. Walenick suggested this occurred because these were subjects who experienced a higher level of dissonance between themselves and their goal. In a 1976 study conducted by Shannon, subjects gave a short speech advocating the use of a certain commercial product. Afterward, subjects were told their audience either was or was not convinced by the speech and felt the speaker was either sincere or insincere. Subjects who experienced the most attitude change were those given feedback that speeches were considered sincere, but that their audience remained unconvinced. Mindell's 1978 study asked undergraduates to present a counterattitudinal speech. They were then given positive or negative evaluations and were told these evaluators either did or did not know they were speaking against their attitudes. In this situation, those who received negative feedback on their performances evidenced more attitude change. Awareness about the prior position of the speaker did not seem to have an effect. An experiment by Freeman and Stormes (1977) suggested that the source of the feedback influenced attitude change. In this research, fifty male and fifty female subjects ranked nine characteristics about themselves and then did a personality assessment sentence completion test. They were then to receive feedback from an interpreter on this task. In actuality, the interpreter selected one of the lower ranked characteristics to stress. Subjects then reranked these characteristics. The subjects exhibited more change in the direction advocated if the interpretation came from someone of the same gender. The researchers suggested that individuals are more

likely to accept negative feedback from someone of the same gender.

Summary

From previous research it is apparent that feedback had some impact upon attitude change. The effect of type and source of feedback is not clearly understood from this research.

Individual Differences

Differences between individuals influence the way students respond to treatment. Various differences in cognitive functioning have been isolated. Guilford (1980) summarized some of the major ones as field independence/dependence, complexity/simplicity, equivalence range, leveling/sharpening, focusing/scanning and analytical/global. Each of these characteristics exist to some degree in each individual and may have an impact upon the way attitudes are formed, maintained and modified. For the purposes of this study, two individual differences will be assessed for study in relation to attitude change. These are field independence and field dependence, and masculinity, femininity and androgyny.

Field independence and field dependence

The concept of field independence and field dependence started with an extensive research project conducted by Asch and Witkins at Brooklyn College in the late 1940s. At that time, their object was to

isolate perceptual differences that existed between people. Their Rod-and-Frame, Tilting-Room-Tilting-Chair, and Rotating Room Tests clearly differentiated between individuals. Some individuals could pick out an object from its background and rely on internal referent points while other people were much more reliant on the external environment in forming perceptions. Witkin and his associates, in studying this phenomenon, found that the characteristic went far beyond visual perceptions and extended to personality differences (Tyler, 1956). In a recent summary of the research on field independence and field dependence, Davis and Frank (1979) reported that the following differences were evident. Field dependent individuals were more social and reflected an interpersonal orientation. They tended to prefer a more passive approach to learning and were willing to accept material as given. Field independent individuals were more apt to restructure and reorganize learning. They were capable of seeing structure and applying new structures to complex elements. They also wanted to be actively involved in their learning. As Witkin and Goodenough (1977) explained:

> Field dependence-independence conceived as an expression of self-nonself aspect of differentiation, has obvious implications for interpersonal behavior. Experience of one's own self as separate and distinct from that of others, and with it, reliance on internal referents, are likely to make for autonomy in social relations. In contrast, a less delineated self and primary reliance on external referents limit personal autonomy. (p. 662)

The reason for considering this particular cognitive style in a study on sexist attitudes is twofold. First, field independent and field dependent individuals may have differences in their reactions to various

attitude change strategies, and second, field dependence and field independence has a strong relationship to gender and sex role identity. In first considering how individuals react to the attitude change process, Witkin and Goodenough reported in their summary of personality characteristics associated with these traits that field dependent individuals tended to modify attitudes in situations where group cohesiveness was important. Studies such as those by Poeth (1973) and Bodine (1976) illustrated this propensity of field dependent individuals to change attitudes in order to conform with others. In both studies field dependent individuals revealed a desire to comply to group pressure. Witkin and Goodenough stressed, however, that "field independent people have not been found to be less influenced by arguments attributed to an authoritative source," and "in situations in which no information is required from others for making judgments or for self-definition, field independent people appear to be as much influenced by others as are field dependent people" (p. 664).

While the role of other people may be important for field dependent individuals in some instances, clearly this is not the only factor which might mediate attitude change. In one of the few studies directly linking the forced compliance paradigm to field independence and field dependence, Laird and Berglas (1975) noted that this individual difference accounted for differences in attitude change. In this experiment, forty subjects completed an attitude survey, and from this survey two topics were selected for each subject, based upon the amount of disagreement expressed.

Subjects were then asked to generate counterattitudinal arguments on these topics. Before attitudes were posttested, subjects were questioned on their awareness of the discrepancy between their attitudes and behaviors. When attitude change was correlated with field independence and field dependence, Laird and Berglas found that field independent subjects who were unaware of the discrepancy modified their attitudes more than field dependent subjects. Laird and Berglas suggested that this was because field independent individuals were much more likely to take cues on their attitudes based upon their own actions.

The type of active argument advocacy that occurs in the forced compliance paradigm might also be appealing to field independent individuals. Noppe and Gallagher (1977) purported that field independent people tend to be more creative and possess the ability to generate ideas more freely. Wright (1977) contended that the writing of field independent individuals is more ordered and precise. Weissenberg (1978) found in assessing the relationship of field independence and field dependence, and attitudes toward birth control that field independent people were more favorable toward active problem solutions and that they possessed a clearer understanding of the issues involved.

Since this particular study also incorporated a feedback component, it was important to consider previous research that associated field independence and field dependence with feedback. Studies by Greene (1973, 1977) using patients at a diet clinic found that those subjects who were field dependent showed a greater need for accepting evaluative

feedback which resulted in more willingness to comply with dieting recommendations during the evaluative interview. These subjects did not, however, lose as much weight. Renzi (1974) reported success in influencing performance. Field dependence and feedback during a self-instructional task interacted to produce better performance. When college students were given bogus feedback on a personality measure, the field dependent reacted more by changing their own self-reported personality assessments than did field independent subjects (Bernstein, 1976). Feedback did not appear, however, to influence field independent and field dependent subjects differently in performing a symbol task as reported by Felsen (1978).

The second reason why field independence and field dependence was considered in this particular study was because research suggested that a relationship could be established between biological and psychological sex role orientation and perceptual differentiation. While several studies continued to question whether males and females differed in terms of field independence and field dependence (Torness, 1977; Hughes, 1978; Allen & Cholet, 1978; Blue, Cooper & Ross, 1980), sufficient evidence existed to also prove that such differences were apparent. In their 1962 book, Witkin, Dyk, Faterson, Goodenough and Karp maintained that males were more field independent because the socialization process has encouraged more autonomy. They found, however, that between group differences were much smaller than within group differences. These larger within group differences could best be accounted for by considering psychological masculinity and femininity. A masculine sex role identity proved more

likely to be field independent than a feminine one. Subsequent research by Vaught (1965), Rosenberg (1976) and Hulfish (1977, 1978) tended to support this contention. These researchers suggested that those experiences which build a masculine sex role orientation are the same ones which develop field independence so that an individual regardless of gender will be field independent after encountering such experiences. An alternative theory for this phenomenon was advanced by Arbuthnot (1975) who contended that those individuals who experienced sex-reversed sex role identities had more flexibility in role taking opportunities and, therefore, were more likely to be field independent. He conducted two studies to prove his contention. Whatever the cause of the relationship between sex role identity and perceptual differentiation, the relationship appeared worthy of further consideration in the attitude change process.

Summary

Field independence and field dependence is a cognitive style which differentiates individuals according to their reliance upon themselves and their surroundings. Field independent and field dependent individuals appear to react differently to attitude change. Field independent individuals seem more susceptible to changing attitudes after counter-attitudinal advocacy while field dependent individuals may be influenced by feedback.

Sex role orientation

The other individual difference to be considered in this study was psychological sex role orientation. As LaTorre (1979) explained, this orientation includes what individuals believe about themselves, acquired characteristics such as traits, behavior and appearance, preferences for certain roles and the ability to present certain identities. In the past, this has been viewed as a dichotomy. Individuals were either masculine or feminine. During the early 1970s, researchers such as Constantinople (1973), Bem (1974) and Spence, Helmrich and Stapp (1974, 1979) developed a new perspective in viewing sex role identity. Where once sex role identity was thought to be either masculine or feminine, these researchers suggested the concept of androgyny. As Garnets and Pleck (1978) noted, "In contrast to the bipolar view of masculinity-femininity assumed by sex role identity theorists, the construct of androgyny presupposes that psychological masculinity and femininity are two orthogonal unipolar dimensions" (p. 270).

According to the work done by Bem (1974) and Spence, Helmrich and Stapp (1974, 1979), individuals can be either masculine, feminine, androgynous or undifferentiated. The masculine individual tends to possess instrumental, agential characteristics such as independence, dominance, competitiveness and confidence. The feminine individual reflects more expressive and communal characteristics which are more emotional, gentle, kind and dependent. An undifferentiated individual does not clearly show any strengths in personality characteristics as opposed to an androgynous individual who identifies strongly with both masculine and

feminine traits. A 1978 article by Lorr and Manning illustrated that such distinctions could be made between these four personality groups. As Bem (1976) explained:

> The concept of psychological androgyny implies that it is possible to be both assertive and compassionate, both instrumental and expressive, both masculine and feminine, depending upon the situational appropriateness of these various modalities; and it further implies that an individual may even blend these complementary modalities in a single act. (p. 58)

Given that such differences exist between individuals, it is possible that sex role orientation may influence attitudes on sex role stereotypes. For example, studies by Ott (1976) and Jones, Cherhovetz and Hansson (1978) suggested that sex role identity may affect sex role attitudes. Ott found that androgynous individuals had less stereotypic attitudes. Jones, Cherhovetz and Hansson contended that masculine females tended to be more feminist in their attitudes. Spence and Helmreich (1978) noted that the attitudes of both high school and college students were influenced by their sex role orientations. They explained, "Individuals who conspicuously violate traditional expectations by being high in psychological attributes stereotypically associated with the other sex and low in the attributes associated with their own sex tend to be more egalitarian in their attitudes than their contemporaries" (p. 57). In addition to how initial attitudes are influenced by sex role orientation, a study done by Montgomery and Burgoon (1977) showed that sex role identity may also mediate attitude change. In this study, subjects read a persuasive message on restrictive enrollment. When pretest and posttest attitude change was correlated with sex role identity, sex-typed females demonstrated more

attitude change than androgynous females while traditional male subjects evidenced less change than androgynous males.

Summary

Psychological masculinity, femininity and androgyny are sex role orientations that describe differences in personalities. Research has shown that these sex role identities are associated with field independence/field dependence and that such differences may influence such attitudes and attitude change.

Summary of the Review of Literature

Previous strategies to modify sex role stereotypes have tended to be of four types. These strategies have not always proved reliable in achieveing their desired goals. The practices which have been evaluated may not be suitable for use in the teacher education classroom even if they do prove successful in changing attitudes.

The forced compliance paradigm of cognitive dissonance theory provides a basis for changing attitudes. Research indicated that if subjects developed a personal responsibility for a position that was endorsed that this could produce a dissonance that would result in subsequent attitude change. This formed a basis for the treatment developed in this study. Subjects were asked to express a nonsexist position in writing three different essays. Prior research utilizing similar approaches revealed that such an activity had the potential to change attitudes.

Some of the subjects who wrote essays received feedback on their

work. Previous research in this area was not altogether conclusive on the effect that feedback would have on the attitude change process. This study gave further insights into the interaction that feedback had with attitude change.

Finally, two individual differences were assessed to determine their relationship to attitude change in the forced compliance paradigm. Past research revealed that field independent individuals might react differently to counterattitudinal advocacy than would field dependent individuals. Masculine, feminine, androgynous and undifferentiated individuals also demonstrated that they too might respond differently to the attitude change process. This study was designed to provide more information on the relationship of these constructs to modification of attitudes in the forced compliance paradigm.

METHODOLOGY

> One problem in fully understanding the findings is that it is difficult to determine what aspects of the women's studies courses were most effective in producing change. These courses provided information through lectures, small group discussions, female role models and an environment supportive of less traditional values. Each of these factors could be important singly or in interaction with other factors in producing attitude changes. Future research should attempt to control or systematically manipulate these variables.
>
> (Ruble, Croke, Frieze and Parsons, 1975, p. 110)

In attempting to fulfill the need for systematic analysis of attitude change on sex role stereotypes, the experiment described herein was conducted. As with most research in the social sciences, the human element introduces a measure of subjectivity that must be considered when drawing final conclusions. Nevertheless, this study provided some insights into a few of the variables that can influence attitudes. The subjects, design, treatments, measures and procedures used in this study are described.

Subjects

Two hundred subjects completed the experiment. These subjects were enrolled in psychology courses at Iowa State University during the spring semester of 1982. Permission was given by the Human Subjects Committee prior to soliciting volunteers (Appendix A). The students received extra credit points in their psychology courses for participation in this experiment. Subjects signed up to participate at times convenient

to their schedules. This usually resulted in one to five subjects being involved at a given time. It took approximately two months for all subjects to complete all phases of the study.

Half of the subjects were female who had a mean age of 19.8 years. The half of the sample who were males averaged twenty years. The average age for both males and females was 19.9 with a range from eighteen to fifty-seven years. As Table 1 indicates, these subjects had varied backgrounds prior to entering college. Some were from rural communities while others were from large metropolitan settings.

Table 1. Size of subjects' home community

Size	Females		Males		TOTAL	
	n	%	n	%	n	%
0-999	9	9.0	10	10.0	19	9.5
1,000-24,999	35	35.0	30	30.0	65	32.5
25,000-49,999	14	14.0	18	18.0	32	16.0
50,000-99,000	16	16.0	14	14.0	30	15.0
100,000-199,999	8	8.0	9	9.0	17	8.5
Over 200,000	16	16.0	19	19.0	35	17.5
Unknown	2	2.0	0	0	2	1.0

The subjects also represented a variety of majors as Table 2 illustrates. Six subjects identified themselves as education majors.. Subjects in other majors may also have been preparing for secondary school certification with majors in content areas. A 1979 study by Panko indicated that education and noneducation majors held similar attitudes toward women. This indicated that while not all subjects were education majors, findings

Table 2. Majors of subjects participating in the study

Major	Males		Females		TOTAL	
	n	%	n	%	n	%
Engineering	41	41.0	5	5.0	46	23.0
Business	20	20.0	20	20.0	40	20.0
Agriculture	3	3.0	4	4.0	7	3.5
Education	6	6.0	7	7.0	13	6.5
Science	9	9.0	17	17.0	26	13.0
Humanities	11	11.0	27	27.0	38	19.0
Home Economics	1	1.0	5	5.0	6	3.0
Comp Science/Math	2	2.0	4	4.0	6	3.0
Undeclared	7	7.0	11	11.0	18	9.0

from this study would be applicable to education courses.

Research Design

In order to test the hypotheses of this experiment, a pretest-post-test-post posttest control group design was used (Campbell & Stanley, 1963). This design allowed subjects to be randomly assigned to one of three groups. Seventy-two subjects were in the control group, sixty-six subjects were in the first experimental group and sixty-two subjects were in the second group. Equal numbers of males and females were in each group. The subjects were then administered the pretest Attitudes Toward Women Scale (ATWS), and subjects who were in one of the two treatment groups

wrote their first short essay. The subjects in the two treatment groups returned one week later to write a second short essay. One group received feedback on the previous essay prior to writing this second one. The third week all subjects returned. Treatment subjects first wrote the third short essay with one group again receiving feedback first. Treatment groups then completed the ATWS and Personality Attributes Questionnaire (PAQ). Control subjects also completed these measures when they reported for participation. One month later all subjects were again asked to return to complete the ATWS and the Group Embedded Figures Test (GEFT).

The following diagram illustrates this research design:

G_1 R M_1——————— M_1 M_2 ——————— M_1M_3

G_2 R M_1 T_1——T_2——T_2 M_1 M_2 ——————— M_1M_3

G_3 R M_1 T_1——T_1——T_1 M_1 M_2——————— M_1M_3

Where: R = Random assignment of subjects to groups

M_1 = Attitudes Toward Women Scale (ATWS)

M_2 = Personality Attributes Questionnaire (PAQ)

M_3 = Group Embedded Figures Test (GEFT)

T_1 = Assignment of writing task

T_2 = Feedback on prior writing task followed by assignment of the next writing task

So that subjects would not be unduly influenced by the fact that their attitudes toward a sex role stereotypes were being studied, the Attitudes toward Women Scale was interspersed with other statements asking

attitudes about various issues. The subjects were told that their writing tasks related to a study on persuasive communications. At the conclusion of this study this deception was corrected (Appendix B).

Treatment

The treatments that subjects in the second and third experimental groups received involved writing essays that reflected nonsexist perspectives. Half of subjects also received feedback on the essays they had written previously. Since not all subjects were given writing instructions and feedback at the same time, the need to establish consistency in the research setting was important. To accomplish this goal, all of the writing instructions and feedback were recorded on tape and printed on handouts. When subjects reported for participation, they were taken to a room where they were instructed to listen to the feedback and writing task instructions on a cassette tape while they followed along with the same information on a handout. Once they had received this information, the taped and printed instructions told subjects to begin with the next writing task. The taped and printed instructions were used to insure some measure of uniformity in the study.

Writing task

Three situations were developed for subjects to respond to in writing. These scenarios were based upon techniques for role playing suggested by Kenworthy (1973), Mathis, Fairchild and Cannon (1980), and Sloan (1979). All three described situations related to schooling where an individual had

been the victim of sex discrimination. All three writing tasks asked subjects to express positions that were counter to traditional sex role stereotypes. For those subjects who held these attitudes, the essays were intended to create dissonance. For subjects who possessed more liberal attitudes, writing these responses would intensify these attitudes. In a pilot study the scenarios were administered to a group of thirty-five students during the fall of 1981. The resulting essays were found to generate arguments that advocated a more liberal nonsexist position. The scenarios were as follows:

Scenario A:

> Assume that one evening you receive a phone call from your friend Jane who is obviously very upset. Jane has recently completed the requirements needed in order to qualify to be a school principal. A few weeks ago she had an interview for a position that she felt well suited to fill. After the interview she felt confident that she would be able to do a good job. Jane has just learned, however, that she has not gotten the position. Instead a man who was in many of the same courses that she took has been offered the principalship. Jane suspects she has been the victim of sex discrimination. She recalls that during the interview, she had the distinct feeling that the hiring committee did not think a woman could handle such a position. While you try to comfort Jane, you have to agree that she probably got a bad deal.
>
> A few weeks later you happen to meet the chairperson of the hiring committee who made the selection of the principalship. What might you say to this person to indicate that Jane was treated unfairly?

Scenario B:

> Pretend you are the parent of a junior high school son, Jim. One day your son comes home from school and tells you that he must decide which elective classes he is to take next year. That evening you sit down together and one of the choices you both consider is a home economics class. Your son has already shown an interest in gourmet cooking, and you both decide this might

be a good way to pursue this interest.

The next day when Jim returns home from school he is upset because his counselor would not let him register for the home economics class because he is a boy. You decide that you should have a chat with this counselor and go over to the school to talk with this person. What would you say to the counselor so that Jim would be allowed to take home classes?

Scenario C:

Assume that you are a coach at a small Iowa high school which is currently facing severe budgetary constraints. In order to make ends meet the school board has decided to eliminate the two sports you coach, girls' basketball and girls' track. Cuts in other athletic programs are not being considered at this time.

You have one last chance to preserve your programs at tonight's school board meeting. What will you say to the school board to preserve girls' basketball and girls' track at your school?

Feedback

Half of the subjects who completed the writing task received feedback from the researcher on the quality of their writing on the previous essay and suggestions for improvement on the next essay. This feedback was designed to be similar to how a teacher might respond to a student's assignment if it were completed for class assignment.

To facilitate the feedback process, each essay was read by the researcher and assigned to one of three categories. These categories were determined through an analysis of the essays that were written by students in the fall of 1981. The characteristics of each category were as follows:

CATEGORY A:

Three or more arguments are advanced to support the position.
These arguments are developed and explained with supporting evidence such as reasons, facts or examples.
The opposing position is acknowledged and in some cases, accommodated by alternative solutions to the problem.
The writing is clear and organized.

CATEGORY B:

Two or three arguments are advanced in support of the position.
These arguments need more development in order to be effective.
The opposing position is acknowledged and in some cases accommodated.
The writing is clear.

CATEGORY C:

One or two arguments are advanced in support of the position.
The arguments are not adequately explained or developed.
The opposing position is not acknowledged.
The writing style is vague and confusing.

To determine the reliability of the researcher in assigning the essays to a category, two graduate English students were hired to read a portion of the essays and assign them to one of the three categories based upon the aforementioned criteria. The readers rated sixty essays, twenty on each scenario. A Cronbach alpha was computed on these ratings and yielded a value of .84. An alpha coefficient of .84 is considered good for this type of evaluation.

The assignment of the first essay to a category determined the feedback that a subject received prior to writing the second essay. The assignment of the second essay to a category determined the feedback given prior to writing the third essay. The different types of feedback were:

FEEDBACK TO RESPONSES IN CATEGORY A:

Thanks for taking the time to return for participation in this experiment. Your response to the problem situation that you wrote one week ago was well done. You presented clear, well articulated arguments that countered the situation. Your response also showed that you were willing to hear the other person's point of view and were interested in working toward a positive solution to the problem.

FEEDBACK TO RESPONSES IN CATEGORY B:

Thanks for taking the time to return for participation in this experiment. Your response to the problem situation that you wrote last week did a good job of focusing in on a couple of arguments that were pertinent to the situation. This week when you are writing your response, try to add a few more arguments to support your position and also work on explaining these arguments in more detail. Your response might also try to find out about the other person's viewpoints so that an adequate solution to the problem can be reached. Try keeping these points in mind as you write your response to the following situation.

FEEDBACK TO RESPONSE IN CATEGORY C:

Thank you for taking the time to return for participation in this experiment. While the response you gave to last week's problem situation is a good start, you need to work on being a little more persuasive. Try to think up a few more reasons to support your position and work on explaining these reasons so that others will really be convinced. You might also try to find out more about the opposing position so that you are assured of an adequate understanding of the entire situation. Also, be sure that your ideas are clear and easy to follow. Work on making these improvements in your response to this next situation.

Instruments

Three measurement instruments were administered during the study. The dependent variable of attitude change was measured three times using the Attitudes Toward Women Scale (ATWS). The Personality Attributes Questionnaire (PAQ) and the Group Embedded Figures Test (GEFT) were each administered once to aid in the explanation of results.

Attitudes Toward Women Scale

The measure which was used as the dependent variable in this study is a shortened version of a scale first introduced by Spence and Helmreich in 1972 (Appendix C). The Attitudes Toward Women Scale was designed to provide a "standardized, psychometrically sound instrument for surveying the attitudes which members of society have about the proper roles of women" (p. 2). The original scale contained fifty-five declarative statements that described various elective behaviors available to men and women. These behaviors were categorized into six groups. One group of statements referred to vocational, educational and intellectual roles, another to behaviors relating to freedom and independence, the third to dating, courtship and etiquette, the fourth to drinking, swearing and telling dirty jokes, the fifth to sexual behavior and the final category of behaviors related to marital relationships and obligations. Four response alternatives were available for each statement: Agree Strongly, Agree Mildly, Disagree Mildly and Disagree Strongly. Each statement was scored zero to three with zero representing the traditional attitude and three indicating

the more liberal position. Some statements were in the traditional perspective while others were in the liberal one.

To collect normative data on this instrument, Spence and Helmreich tested 713 males and 768 females who were students at the University of Texas during the 1971-1972 school year. They also collected data from the parents of these students (292 mothers and 232 fathers). A statistically significant difference ($p<.001$) was found between male and female students and between mothers and fathers ($p<.01$) with the women being more liberal. Image analysis was used to identify factors. In 1973 Spence, Helmreich and Stapp developed a twenty-five item scale which was significantly correlated (.97) to the longer version.

Several other researchers also provided data on this instrument. Collins (1973) administered the ATWS to four different groups of people under varying conditions to test reliability and validity. She established test-retest reliability at .95 and was able to show criterion-related validity. The mean score for this sample was higher than that of Spence and Helmreich, and the factor analysis identified different factors than did the initial study. Collins suggested that the scale might be rather limited on the liberal end. Lunneborg (1974) administered the ATWS to seventy-four students at the University of Washington before and after a course on the psychology of sex differences. The same propensity for males to be less liberal than females again emerged although as a whole students at the University of Washington were significantly more liberal than their Texas counterparts. At the end of the course, the mean score

for women was significantly higher. The men's scores, however, did not change. Loo and Logan (1977) collected data from sixty-nine males and eighty-one females at the University of Calgary. Like Lunneborg they found their female subjects to be more liberal than those used by Spence and Helmreich. The male subjects were more liberal than males at the University of Texas but more conservative than those at the University of Washington. In 1980, Smith and Bradley administered the longer version of the ATWS to four hundred fifty subjects who were members of a Los Angeles area tennis association. They reported test-retest reliability of .95, split half reliability of .92 and a Cronbach alpha of .93. Smith and Bradley summarized their research by noting:

> The findings of this study in concert with the abundant examples of criterion validity show the Attitudes Toward Women Scale quite capable of separating persons favoring traditional roles for women from those favoring nontraditional roles for women. Indeed, both from former and from present results, it seems safe to conclude that the scale is a highly valid and reliable instrument. As such, it should be considered worthy of much future use. (p. 520)

In their 1978 book Masculinity and Femininity, Spence and Helmreich presented their fifteen item version of the ATWS which was subsequently used in this study. At that time they reported that using a sample of college students, the fifteen-item version had a correlation of .91 with the fifty-five item scale and a Cronbach alpha of .89. The fifteen item scale contained five of the six original categories omitting the statements on sexual behavior. The fifteen statements used on this scale all had factor loadings of .40 and above in the 1972 collection of data. The fifteen items were again scored from zero to three so scores on this

scale could range from a high of forty-five indicating the most liberal position to a low of zero showing the most traditional position. After administering the scale to over fourteen hundred high school and college students, Spence and Helmreich reported mean scores of 26.18 (SD=8.21) for college males, 29.59 (SD=9.58) for college females, 23.34(SD=8.16) for high school males and 30.35 (SD=8.76) for high school females.

Personality Attributes Questionnaire

The Personality Attributes Questionnaire (PAQ) was designed by Spence, Helmreich and Stapp (1974, 1978) as an alternative to the longer Sex Role Stereotype Questionnaire (SRSQ) that was developed by Rosenkrantz, Vogel, Bee, Broverman and Broverman (1968). Wesley and Wesley (1977) referred to these as definition scales since they are indicated as a means of classification. The PAQ was designed to assess whether individuals considered their personalities to reflect instrumental behaviors or expressive behaviors (Parson & Bales, 1955). The instrumental behaviors tended to reflect more typically male characteristics such as adventurousness, outspokenness, ambition and restlessness. The expressive behaviors included more typically female personality traits such as gentleness, excitability, helpfulness and warmth. From these assessments of behavior, individuals could be designated as masculine, feminine, androgynous or undifferentiated.

In devising their instrument, Spence, Helmreich and Stapp selected fifty-five items from the original SRSQ. The items were placed on a five point bipolar scale (scored zero through four). One pole named the typical female behavior while the other pole the typical male behavior.

The questionnaire had three subscales. One subscale contained descriptions of behaviors typically found in males but desirable in both males and females (M scale). Another scale contained items typically relating to females but desirable in both males and females (F scale). The value of four was assigned to the most masculine or feminine behavior on these two scales. The third scale was made up of adjectives that could be associated with either males or females but were not desirable characteristics for either sex (M-F scale). This scale was not used in the present study.

Normative data were drawn from 248 male and 282 female subjects who were students at the University of Texas. Subjects were first asked to rate themselves on each item. To establish that some behaviors were stereotypically considered masculine and others feminine, subjects were then asked to rate the typical college male or female on each of the fifty-five items. Males and females were found to show differences on both ratings of these items. The alpha coefficients computed to measure internal consistency on the self-report testing were .73 for men and .91 for women. Test-retest reliability was reported as .80 for males and .91 for females.

The PAQ form used in this study was the shortened version of twenty-four items that was devised from the original (Appendix D). It contained eight items for each subscale and was correlated (.92) with the full version. In 1978, Spence and Helmreich reported correlations between the full and shortened versions of .93 for the M scale, .93 for the F scale

and .91 for the M-F scale. Cronbach alphas were .85, .82 and .78 for M, F and M-F scales. The means and standard deviations for 713 college students who completed this shortened scale are reported in Table 3.

Table 3. Spence and Helmreich data on Personality Attributes Questionnaire

Sex	M Scale		F Scale		M-F Scale	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Males	21.69	4.18	22.43	3.73	16.69	4.12
Females	19.54	4.32	24.37	3.68	12.52	4.25

In terms of classifying individuals into the personality dimensions of masculinity, femininity, androgyny and undifferentiated, Spence, Helmreich and Stapp suggested a median split technique. Classification depended upon whether or not a person's score on the M scale and the F scale fell above or below the medians. The following diagram illustrated this classification:

		M Scale	
		Above median	Below median
F Scale	Above Median	Androgynous	Feminine
	Below Median	Masculine	Undifferentiated

Figure 1. Classifications from Personality Attributes Questionnaire

Two studies explored whether the findings that Spence, Helmreich and Stapp reported also applied to populations outside those of college age. O'Connor, Mann and Bardwick (1978) administered the PAQ to approximately one hundred forty to fifty-year-old men and women. They found older men to be slightly more masculine than their college counterparts while the women were very similar. Erdwins, Small, Gessner and Gross (1978), using four hundred fifteen subjects compared those over age twenty-five with those under age twenty-five. Their findings showed males to be similar but females to be less traditional.

Group Embedded Figures Test

The Group Embedded Figures Test (GEFT) was devised by Oltman, Raskin and Witkin (1971) as an alternative form to other tests of perceptual differentiation such as the Rod and Frame test or the Embedded Figures, which are more difficult to administer (Appendix E). The GEFT tests for field independence and field independence by having subjects pick out simple forms from complex figures. Some of the figures are shaded and others are put in reversed perspective to make this task more difficult. Although some researchers have questioned whether shading and perspective are in fact related to overall performance, sufficient proof has not yet warranted a change in these items (Loo, 1977; Loo, 1978; Walsh, 1979). Those subjects who are able to differentiate more figures are labeled as field independent.

The eighteen figures which appear on the GEFT were selected from a battery of thirty-two figures that had previously appeared on the Embedded

Figures Test and on another earlier perception test. Performance on these figures by 168 male and 168 female college students was then correlated with other measures of field independence and field dependence, and those figures which yielded the highest correlations were chosen for the final form. The test consists of three sections. Subjects are asked to locate the simple forms found on the back of the booklet in each of the more complex figures. The first section of seven items is a two minute practice session. The second and third sections of nine items each are matched for difficulty and arranged so that the items become more difficult as subjects precede through the test. The time limits of five minutes for each section were also determined by the college sample. Five minutes allowed college subjects to attempt every item, but still resulted in a normal distribution.

Normative data on this instrument were gathered from a sample of 155 male and 242 female students who attended an eastern liberal arts college. Male students were found to perform significantly different ($p<.005$) than female students. The mean for males was 12.0 with a standard deviation of 4.1. The mean for females was 10.8 with a standard deviation of 4.2. A reliability estimate of .82 was computed, and the GEFT was found to be substantially to moderately correlated to three other measures of field independence.

Two other studies of this measure suggested that normative data may be affected by the type of subjects that completed the measure. For example, Renna and Zenhausen (1976) found their subjects at St. John's University

to be more field dependent. They reported means of 9.23 for 165 male students and 8.91 for 172 female students. In 1980, however, Carter and Loo found that 173 female and 93 male students at the University of Calgary to be more field independent. The mean for males was 13.85 and for females 13.04. Carter and Loo computed a Cronbach alpha of .86. Findings from these studies indicated the importance of basing labels of field independence and field dependence upon the data from the sample being considered rather than upon previously determined means.

Summary

Two hundred college subjects were assigned to one of three groups. They completed three measures. The Attitudes Toward Women Scale was the dependent measure of attitude change and was administered three times. The Personality Attributes Questionnaire assessed sex role orientation. The Group Embedded Figures Test measured the perceptual differentiation constructs termed field independence and field dependence. No attempt was made to control on other subject characteristics such as writing ability, writing instruction or ethnic background. Control group subjects completed the ATWS during the first experimental session. During the second session two weeks later, they completed the ATWS and the PAQ. One month later they returned to complete the ATWS and GEFT. Subjects in the treatment groups completed these same measures on this same schedule. Their treatment occurred during the interval between the first and second administration of the ATWS. Subjects in the treatment groups wrote three short essays at one week intervals that implied endorsement of a nonsexist

perspective. One treatment group received feedback on their previously written essay before writing the second and third essays.

FINDINGS AND RESULTS

> Among other neglects, research and development efforts have, for the most part, failed to include the investigation of issues or the development of products that related to sex role socialization, sex role stereotyping or sex discrimination. The cumulative effect of multiple investigations initiated and supported by faculty could make a substantial contribution to a relevant issue facing practitioners and the larger society.
>
> (McCune, Matthews and Earle, 1978, p. 64)

If the products of research are ultimately to be of use to practitioners and the larger society, careful considerations of findings is necessary. This section on results is divided into two parts. The first part describes the performance of the subjects on the three measures and the writing task. The second part tests the four hypotheses that were stated in the first chapter.

Descriptive Statistics

Subjects in this experiment completed three different measures, the ATWS, the PAQ and the GEFT. The ATWS was administered on three occasions and scores on this measure served as the dependent variable. The PAQ and the GEFT were each administered once. Subjects in the two treatment groups wrote three short essays during the course of this experiment. Performance on these variables is described below.

Attitudes Toward Women Scale

Results in Table 4 report the pretest administration of the ATWS to have an average score of 32.07 for all two-hundred subjects. Subjects who were in the third experimental group receiving treatment with no feedback had a slightly higher initial mean score than did their counterparts in the other two groups. A one-way analysis of variance on these mean scores failed to reveal any significant differences between these groups ($p<.05$). This indicated that at the beginning of the experiment, all subjects had similar attitudes toward women and that all three experimental groups were similar on this dependent variable.

The mean scores of this sample on the fifteen item version of the ATWS are significantly higher ($p<.01$) than were the means reported by Spence and Helmreich (1978). This suggested that from the onset, this sample held more liberal attitudes toward women than had similar groups of college subjects.

Like previous studies that have used the ATWS, this sample again revealed higher mean scores for females when compared with males. The mean score for females was 34.97, and the mean score for males was 29.16. A t-test on these means indicated that they were statistically different ($p<.01$). One-way analyses of variance were used to determine if females who were in different treatment groups held different initial attitudes or if males in different treatment groups held different initial attitudes. These tests failed to indicate any significant differences ($p<.01$). All females in the various treatment groups and all males in the various treatment groups were essentially alike on the ATWS.

Personality Attributes Scale

As can be seen from Table 4, scores from the sample used in this study were quite similar to those reported previously on this measure. The mean score on the M scale of the PAQ was 21.91, on the F scale it was 23.33 and on the MF scale it was 15.50. As was the case with the data reported by Spence and Helmreich (1978), males scored higher on the M scale ($\bar{X}$=23.08) and MF scale ($\bar{X}$=16.99) while females scored higher on the feminine scale ($\bar{X}$=21.05).

One-way analysis of variance was used to determine if any differences were apparent between the three groups on this measure. This procedure found no significant differences ($p<.05$) between subjects in the three groups. When males and females were analyzed separately, no differences were found. This would suggest that subjects did not differ to a great extent on this variable.

As will be recalled from the Review of Literature, labels as to sex role orientation are assigned by a median split method. The median for both sexes on the M scale was 21.86 and on the F scale was 23.07. Subjects whose scores on both these scales were above the median were labeled androgynous. Subjects with scores above the median on one scale but not on the other were labeled feminine or masculine. Subjects who scored below the median on both scales were termed undifferentiated. Table 5 presents the number of subjects in each category.

As previous literature suggested, more males than females were labeled masculine and more females than males were termed feminine. A large number of the individiduals in this sample fell into the undifferentiated category.

Table 4. Mean scores on the pretest ATWS, the PAQ and GEFT by experimental treatment group and by gender

	ATWS	PAQ			GEFT
		M Scale	F Scale	MF Scale	
Males	29.16	23.08	22.62	16.99	14.00
Control group	27.88	22.52	22.11	16.61	13.88
Treatment with feedback group	28.63	23.39	22.93	16.63	13.93
Treatment without feedback group	31.19	23.38	22.87	17.80	14.19
Females	34.97	20.73	24.05	14.02	11.17
Control group	34.58	19.77	23.94	13.19	10.36
Treatment with feedback group	34.42	21.90	23.90	14.66	11.60
Treatment without feedback group	36.00	20.58	24.32	14.29	11.64
TOTAL	32.07	21.91	23.33	15.51	12.58
Control group	31.23	21.15	23.02	14.90	12.12
Treatment with feedback group	31.53	22.65	23.42	15.65	12.77
Treatment without feedback group	33.59	21.98	23.59	16.04	12.91

Table 5. Number of subjects by gender assigned to each sex role orientation

	Androgynous	Masculine	Feminine	Undifferentiated
Females	17	13	37	33
Males	22	33	16	29
TOTAL	39	46	53	62

These individuals did not report personality traits that were clearly feminine or masculine. The smallest number of subjects were labeled androgynous.

Group Embedded Figures Test

The mean scores for subjects in the sample are noted in Table 4. The mean scores of 14.00 for males and 11.17 for females were higher than those scores reported in the review of literature from studies previously done. These mean scores, however, are not considerably different than those reported by Oltman, Raskin and Witkin (1971) or Carter and Loo (1980). As was noted earlier, the type of students who attend a certain college may have an impact upon the perceptual differentiation ability of a college sample. Similar to what had been found in previous studies, the male subjects in this sample were significantly ($p<.01$) more field independent than were female subjects.

To determine if any of the groups differed in terms of this field independence/field dependence variable, analysis of variance was used. No differences were found when males and females were analyzed separately.

All groups were essentially alike on this dimension of the study.

In order to label subjects as extremely field independent or extremely field dependent, quartiles were identified. Those subjects who had seventeen or more items correct were in the fourth quartile and were termed extremely field independent. Those subjects who had nine or fewer items correct were a part of the first quartile and were considered highly field dependent. Those subjects in the third quartile were slightly field independent, and those subjects in the second quartile were slightly field dependent. Table 6 represents the number of subjects by gender in each category.

Table 6. Number of subjects by degree of perceptual differentiation by gender

	Males	Females	TOTAL
Extremely field independent	30	16	46
Slightly field independent	37	22	59
Slightly field dependent	19	29	48
Extremely field dependent	14	33	47

Essays

In order to statistically analyze the ratings assigned by the researcher to the essays, the letter rating was recoded to a numerical rating. Categories of A became three, B became two and C became one.

Table 7 illustrates the mean ratings on each essay. The first essays were rated the lowest with an average of 1.45. The mean rating on

Table 7. Mean ratings on essays by experimental treatment groups and gender

	Essay Number		
	1	2	3
Males	1.51	1.98	2.00
Treatment with feedback group	1.39	2.12	2.18
Treatment without feedback group	1.64	1.83	1.80
Females	1.40	2.04	1.98
Treatment with feedback group	1.42	2.15	2.15
Treatment without feedback group	1.38	2.04	1.80
TOTAL	1.45	2.01	1.99
Treatment with feedback group	1.40	2.13	2.16
Treatment without feedback group	1.51	1.88	1.80

the second essay was 2.01, and 1.99 was the mean for the third essay. When these ratings were compared with each other by means of t-tests, the first essay was significantly different than the second and the third. The ratings on the second and third essays did not appear different. This same trend was apparent in the mean scores of each treatment group that wrote essays. The first essays did not contain as many well-developed arguments as did the second and third. To determine if male and female subjects in different groups received different ratings on their essays

a series of one-way analyses of variance were employed. Males and females in different groups did not show differences in ratings on the first essay. Male subjects in the two treatment groups differed on their essay ratings. On the second essay the analysis of variance yielded an F-value of 3.64 ($p<.06$). On the third essay the F-value from the analysis of variance was 4.13 ($p<.04$). Female subjects in the two groups revealed different ratings on the third essay. The F-value of 5.11 is significant at the .02 level. These findings suggest differences between the two groups in terms of the rating received. Whether or not subjects received feedback on their rating may have had an impact upon the quality of that writing.

Relationships between variables

Table 8 reports the correlation coefficients for some of the variables in this study. Several variables were significantly correlated with each other. It should be realized that while some of the correlations were statistically significant, they were relatively low to moderate.

Those individuals who indicated more liberal attitudes on the ATWS also scored higher on the F scale of the PAQ. The data also support the previously mentioned tendency for women to score higher on the ATWS.

In terms of the PAQ, the correlation matrix duplicates previous findings. Gender was significantly correlated with scores on the M scale and the F scale. These correlations demonstrate that males were associated with higher masculine scores while females were associated with higher feminine scores. M scale and F scale scores were also significantly

Table 8. Correlation matrix between the variables of pretest ATWS, gender, M scale, F scale, GEFT, Essay 1, Essay 2 and Essay 3[a]

	ATWS	Gender	M Scale	F Scale	GEFT	Essay 1	Essay 2	Essay 3
Gender	.39 (<.01)							
M Scale	.02 (.38)	-.29 (<.01)						
F Scale	.17 (.01)	.18 (.01)	.01 (.46)					
GEFT	-.12 (.04)	-.31 (.01)	.10 (.07)	-.05 (.23)				
Essay 1	.06 (.18)	-.04 (.28)	.15 (.01)	.09 (.08)	.05 (.22)			
Essay 2	.11 (.05)	.01 (.39)	.08 (.13)	.08 (.11)	.07 (.14)	.25 (<.01)		
Essay 3	.08 (.11)	.00 (.47)	.14 (.01)	.08 (.11)	.06 (.19)	.23 (<.01)	.39 (<.01)	

[a] ( ) = significance level.

correlated. The tendency to label subjects as androgynous or undifferentiated was noted since F scores can be associated with M scores. High F scores can be linked to high M scores; low F scores can be linked to low M scores.

Three significant correlations are apparent when focusing upon the GEFT. First, a negative relationship existed between the ATWS and the GEFT. This suggested that at least initially more liberal attitudes were held by field dependent subjects. Upon considering the association between the GEFT and gender, and the relationship between the ATWS and gender, the link between these two measures was understandable. As was mentioned earlier, males were more field independent. A high M score was also somewhat linked to field independence.

Relationships were also noted in essay ratings and several of the other variables. For example, on the second essay higher ratings were associated with higher scores on the initial ATWS. This indicated that individuals with more liberal attitudes received higher ratings on their second essay. The M score on the PAQ was significantly correlated with the ratings on the first and third essays. Individuals with more masculine personalities received higher essay ratings on these two essays. The essays were also significantly correlated with each other. Subjects who received higher ratings on the first essay also received higher ratings on the second and third essays. Lower ratings on the first essay were related to lower ratings on the second and third essays. Subjects tended to remain consistent between essays.

To assess the variance in the initial attitudes toward women as reflected in the pretest ATWS, a stepwise multiple regression procedure was used. The variables of gender, M scale, F scale, and GEFT score were regressed on the ATWS. It is reported in Table 9 that gender and M scale made significant contributions. Alone, gender accounted for approximately 15 percent of the variance in ATWS scores. The M scale accounted for three percent. F scale and GEFT scores did not make significant contributions after these two variables were removed. Gender appeared to be the best predictor of attitudes toward women.

Table 9. Stepwise multiple regression of gender, M scale, F scale and GEFT score on pretest ATWS

	Step 1	Step 2		Step 3		
	Gender	Gender	M Scale	Gender	M Scale	F Scale
Multiple R	.39		.42		.43	
R square	.15		.18		.18	
F value for equation	37.17		21.71		15.13	
F value for variables in equation	37.17	43.26	5.42	32.27	4.98	1.81

Summary and conclusions

On the ATWS which was the measure of the dependent variable, the mean score was 32.07. This proved to be significantly higher than the mean reported by Spence and Helmreich (1978) for the fifteen-item version of the ATWS. Two reasons could account for this discrepancy. First, as the studies by Collins (1973), Lunneborg (1974), and Loo and Logan (1977) noted,

the University of Texas student sample which was used in the Spence and Helmreich studies tended to be more conservative in their attitudes toward women than did other college samples. Second, five years have passed since the collection of data by Spence and Helmreich, the increased awareness of sex role stereotypes in society may have resulted in more liberal attitudes toward women.

The scores on the three scales of the PAQ tended to be very similar to the scores reported in previous research. This study also repeated earlier findings in terms of males being more masculine and females being more feminine. Close to half of the subjects fell into the androgynous or undifferentiated categories. The positive correlation between the M Scale and the F Scale supported this finding.

The mean score on the GEFT was 14.00 for males and 11.17 for females. The score for males was higher than that reported by the test developers (Oltman, Raskin & Witkin, 1971) but was close to the mean score found by Carter and Loo (1980). Given the number of males in this sample who were engineering majors, where field independence would be an asset, the slightly higher score for males is understandable. The female mean score was within the range of mean scores reported in earlier studies. The GEFT was negatively correlated with the ATWS suggesting that field dependent individuals held more liberal attitudes. Since female subjects had more liberal attitudes than males and more females were also classified as field dependent, the relationship between attitudes and field dependence is understandable.

The three essay scenarios produced mean scores of 1.45 for the first essay, 2.01 for the second essay and 1.99 for the third essay. The first scenario did not evoke the same quality of persuasive writing as did the second and third essays. The arguments generated by this first scenario addressed why the friend might be wrong in her opinion that she was discriminated against rather than advocating that a woman was as suitable as a man for a school principal position. The other two scenarios did produce more nonsexist arguments. Receiving feedback also influenced the essay classifications. Those subjects who were told to generate persuasive arguments that were developed and supported and that considered opposing viewpoints were more apt to receive higher classification ratings on the second and third essays than those subjects who did not receive such information.

The correlation matrix and the multiple regression pointed to one important relationship between variables that needed to be considered when testing hypotheses. Gender was significantly correlated with the pretest ATWS and was the one variable that accounted for a substantial amount of the ATWS variance. Whether subjects were male or female had an influence on their attitudes toward women. Females in all treatment groups were more liberal than males. It was apparent that this difference needed to be explored when studying the attitude change process to determine if males and females reacted differently to the attempt to modify their attitudes toward women.

Hypotheses

The dependent variable in each of the four hypotheses was attitudes toward women as measured by the ATWS. The mean scores on each testing for each group and each gender are presented in Table 10. This table gives an overall picture of the attitude change that occurred. Mean scores remained similar between the first and the second testing but dropped slightly at the third testing. Table 11 presents the mean scores on the two variables of psychological sex role orientation and perceptual differentiation. It appeared that individuals who differed on these variables did not differ on their attitudes toward women. To statistically test each hypothesis, several subhypotheses were developed for each general hypothesis. In the following section, each general hypothesis is stated. This is then followed by the more specific null hypotheses that were tested. The procedures and results associated with each null hypothesis is then given.

Hypothesis One

The first hypothesis was: Completion of a series of essays that advocate nonsexist positions will liberalize attitudes related to sex role stereotypes when these attitudes are measured immediately after completion of the writing task and one month after completion of the task. In order to determine whether the form of counterattitudinal advocacy used in this study was effective in changing attitudes, subjects were analyzed in two groups. Those subjects who wrote essays were compared

Table 10. Pretest, posttest, and post posttest ATWS mean scores by group and by gender

	Pretest	Posttest	Post posttest
Males	29.16	29.07	28.66
Control group	27.88	27.61	27.52
Treatment with feedback group	28.63	28.06	27.45
Treatment without feedback group	31.19	31.83	31.25
Females	34.97	35.58	34.97
Control group	34.58	34.69	34.00
Treatment with feedback group	34.42	35.63	35.42
Treatment without feedback group	36.00	36.54	35.61
TOTAL	32.07	32.32	31.81
Control group	31.23	31.15	30.76
Treatment with feedback group	31.53	31.84	31.43
Treatment without feedback group	33.59	34.19	33.43

Table 11. Mean scores on pretest ATWS, posttest ATWS and post posttest ATWS by psychological sex role orientation and perceptual differentiation

	Pretest	Posttest	Post posttest
SEX ROLE ORIENTATION			
Masculine	31.23	31.63	30.84
Males	28.90	29.06	28.15
Females	37.15	38.15	37.69
Feminine	32.75	33.35	33.22
Males	30.50	30.81	31.18
Females	33.72	34.06	34.10
Androgynous	32.87	32.87	32.51
Males	30.18	29.63	29.81
Females	36.35	37.05	36.00
Undifferentiated	31.58	31.61	30.88
Males	27.93	27.68	26.96
Females	34.78	35.06	34.33
PERCEPTUAL DIFFERENTIATION			
Extremely field independent	31.15	31.69	31.28
Males	28.33	28.90	28.76
Females	36.43	36.93	36.00
Slightly field independent	31.35	31.57	31.15
Males	29.64	29.32	29.00
Females	34.22	35.36	34.77
Slightly field dependent	33.37	33.43	33.27
Males	29.05	28.73	28.68
Females	36.20	36.51	36.27
Extremely field dependent	32.51	32.74	31.68
Males	29.78	29.07	27.50
Females	33.66	34.24	33.45

to those who did not. Seven null hypotheses were developed for testing.

The first null hypotheses was: When the group not writing essays and the group writing essays are analyzed individually, there will be no difference between pretest and posttest mean scores. Table 12 reports the t-tests that were used to assess the changes that may have occurred as a result of treatment. In the control group, the difference between the pretest and posttest scores yielded a value of .22 which was not significant. For subjects writing essays the t-test produced a value of 1.72 which was significant at the .08 level. Subjects who wrote essays evidenced a growth between the pretest and the posttest.

The second null hypothesis was: When the group not writing essays and the group writing essays are analyzed individually, there will be no difference between pretest and post posttest mean scores. Table 12 reports the t-values between pretesting and post posttesting were 1.28 in the control group and .42 in the treatment group. These values were not significant.

To determine if significant changes occurred between the post-testing and the post posttesting, a third null hypothesis was developed. This stated: When the group not writing essays and the group writing essays are analyzed individually, there will be no difference between posttest and post posttest mean scores. The t-tests on this hypothesis produced values of 1.06 for the control group and 2.47 for the treatment group. These tests are also a part of Table 12. Both groups recorded changes in the negative direction. The changes exhibited by the treatment group were significant. Subjects who wrote essays did not maintain the

Table 12. t-tests for differences between pretest, posttest and post posttest ATWS by control subjects who did not write essays and treatment subjects who wrote essays

	$\bar{X}$	SD	t-value	DF	Two-tailed probability
CONTROL - DID NOT WRITE ESSAYS					
Pretest ATWS with Posttest ATWS	31.23 31.15	6.97 7.07	.22	71	.82
Pretest ATWS with Post posttest ATWS	31.23 30.76	6.97 7.02	1.28	71	.20
Posttest ATWS with Post posttest ATWS	31.15 30.76	7.07 7.02	1.06	71	.29
TREATMENT - DID WRITE ESSAYS					
Pretest ATWS with Posttest ATWS	32.53 32.98	7.50 7.31	-1.72	127	.08
Pretest ATWS with Post posttest ATWS	32.53 32.40	7.50 7.76	.42	127	.67
Posttest ATWS with Post posttest ATWS	32.98 32.40	7.31 7.76	2.47	127	.01

liberal attitudes shown in the posttesting to the post posttesting session.

In order to assess differences between those who wrote essays and those who did not write essays, two further hypotheses were devised. The fourth null hypothesis was: Control and treatment groups will show no differences in mean scores on the ATWS when it is administered during the posttesting session. A t-test between mean posttest scores for those who did not write essays and those who did write essays (Table 13) resulted in a t-value of -1.74 ($p<.09$). This suggested that those who did express the nonsexist position in writing did show more liberal attitudes on the posttest ATWS.

Table 13. t-tests on posttest ATWS and post posttest ATWS differences between subjects who did not write essays and subjects who did write essays

	$\bar{X}$	SD	t-value	DF	Two-tailed probability
POSTTEST ATWS					
Control	31.15	7.07			
with			-1.74	151.48	.09
Treatment	32.98	7.31			
POST POSTTEST ATWS					
Control	30.76	7.02			
with			-1.53	159.84	.13
Treatment	32.40	7.76			

To see if this difference was maintained over a one month period, the fifth null hypothesis stated: Control and treatment groups will show no differences in mean scores on the ATWS when it is administered during the post posttesting session. The t-value (Table 13) resulting from the t-test of this hypothesis was -1.53 ($p<.13$). The finding from this hypothesis questioned whether any attitude change which did occur would be sustained beyond the time of treatment.

Since a significant amount of the variance in the initial administration of the ATWS was associated with gender, the sixth null hypothesis was: Males and females who did not receive treatment and males and females who did receive treatment will show no differences in mean scores on the ATWS when it is administered during the posttesting session. The analysis of variance reported in Table 14 confirmed previous findings for main effects. The mean scores for individuals who wrote essays were different than for those that did not. Gender was also significant. Males and females did show differences on the posttesting ATWS. No interaction effect was found. A one-way analysis of variance was then employed to study this difference. As was the case in the pretest, females were significantly more liberal than males on the posttest ATWS.

The seventh null hypothesis stated: Males and females who did not receive treatment and males and females who did receive treatment will show no differences in mean scores on the ATWS when it is administered during the post posttesting session. As can be noted from the second analysis of variance in Table 14, the main effect associated with group

Table 14. Analysis of variance on posttest ATWS and post posttest ATWS by gender and by group [a]

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST					
Main Effects	2273.59	2	1136.79	27.09	<.01
Gender	154.58	1	154.58	3.68	0.05
Group	2119.00	1	2119.00	50.50	<.01
2-Way Interactions	9.24	1	9.24	0.22	0.63
Group Gender	9.24	1	9.24	0.22	0.63
Explained	2282.84	3	760.94	18.13	<.01
Residual	8222.79	196	41.95		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Main Effects	2115.09	2	1057.54	22.59	<.01
Group	124.29	1	124.29	2.65	0.10
Gender	1990.80	1	1990.80	42.54	<.01
2-Way Interactions	0.74	1	0.74	0.01	0.90
Group Gender	0.74	1	0.74	0.01	0.90
Explained	2115.84	3	705.28	15.07	<.01
Residual	9172.08	196	46.79		
TOTAL	11287.92	199	56.72		

[a]The two groups were those who did not write essays and those who wrote essays.

membership decreased in significance while the differences between males and females continued to persist. Again, no interaction was found between group membership and gender. A one-way analysis of the post posttest ATWS by gender indicated that females were significantly more liberal than males.

Summary and conclusions

Writing a series of essays that advocated a nonsexist position did tend to liberalize attitudes. The analysis of changes in attitudes between the testing periods indicated that those subjects who wrote essays had higher scores on the posttest than on the pretest, but that these scores deteriorated between the posttest and post posttest sessions. Null hypotheses four and six indicated that expressing a nonsexist perspective can have an impact upon attitudes toward women when they are measured immediately after completion of the advocacy task. Null hypotheses five and seven, however, indicated that this impact was not maintained at as high a level.

This study repeated the findings of numerous other studies noted in the review of literature that utilized the forced compliance paradigm. When an attitude is measured immediately after endorsing a position, the attitude is changed in the direction of the endorsement. The permanence of that attitude change has not been as closely studied. Janis and Mann (1965) found that smokers who role played a cancer patient maintained their attitude change eighteen months after the role playing experience. Simonson (1977), however, reported that attitude change resulting from advocacy of a favorable position toward a media course was not maintained when tested two months after treatment. In this study, while differences between control and treatment subjects were still significant one month after treatment, these differences had started to diminish. A number of reasons may account for this deterioration in attitude change.

First, the attitude change that is produced may not be stabilized. Cook (1977) reported that those who experienced dissonance sought out other experiences to stabilize their newly formed attitudes. Counter-attitudinal advocacy may be a good way to arouse the dissonance that is needed to initially modify attitudes, but may need to be followed up with other experiences to stabilize the attitudes so that they persist.

Second, the subjects must assume responsibility for the attitudinal position that is endorsed. When that position is something life threatening like cancer as used in the Janis and Mann (1965) study, the acceptance of personal responsibility may be accomplished more easily than was the case in this study. While attitudes toward women were initially modified, subjects may not have felt a need for maintaining their attitudes.

Third, attitudes about men and women are formed at a very early age and are practiced throughout the developing years. It may not be possible to significantly influence these attitudes with a relatively short treatment. Sex role attitudes and behaviors are an integral part of the socialization experience and may not be easily modified.

Hypothesis Two

The second hypothesis was intended to focus upon the effect that feedback would have upon the forced compliance paradigm. It was specifically stated as: Feedback on the writing task will liberalize attitudes related to sex role stereotypes when these attitudes are measured immediately after completion of the writing task and one month after completion of the task. To analyze this hypothesis, nine specific null

hypotheses were devised. The first three concentrated upon changes within each group, the next two upon differences between groups, the next two upon differences between males and females and the final two upon the effect of covarying on pretest ATWS scores.

The first specific null hypothesis to be tested was: When the control group and the treatment group that did receive feedback and the treatment group that did not receive feedback are analyzed individually, no differences will be found between the pretest and posttest scores. To assess this change a series of t-tests were employed and reported in Table 15. A t-value of .22 was found for the difference between pretest and posttest scores for the control group. A t-value of .94 was found for the difference between pretest and posttest scores for the treatment group with feedback. A t-test yielded a value of 1.46 for the difference between pretest and posttest ATWS scores for the treatment group that did not receive feedback. None of these t-values were significant, and therefore, the null hypothesis could not be rejected. No differences were apparent in pretest and posttest scores.

The second specific null hypothesis was: When the control group and the treatment group that did receive feedback and the treatment group that did not receive feedback are analyzed individually, no differences will be found between the pretest and post posttest ATWS scores. This time the t-tests produced t-values of 1.28 for the control, .21 for the treatment with feedback group and .38 for the treatment without feedback group (Table 15). These values were not significant, and the null hypothesis

Table 15. t-tests for differences between pretest, posttest and post posttest ATWS by group

	$\bar{X}$	SD	t-value	DF	Two-tailed probability
CONTROL					
Pretest ATWS	31.23	6.97			
with			.22	71	.82
Posttest ATWS	31.15	7.07			
Pretest ATWS	31.23	6.97			
with			1.28	71	.20
Post posttest ATWS	30.76	7.02			
Posttest ATWS	31.15	7.07			
with			1.06	71	.29
Posttest post ATWS	30.76	7.02			
TREATMENT WITH FEEDBACK					
Pretest ATWS	31.53	7.45			
with			-.94	65	.34
Posttest ATWS	31.84	7.75			
Pretest ATWS	31.53	7.45			
with			.21	65	.93
Post posttest ATWS	31.43	8.41			
Posttest ATWS	31.84	7.75			
with			1.27	65	.20
Post posttest ATWS	31.43	8.41			
TREATMENT WITHOUT FEEDBACK					
Pretest ATWS	33.59	7.45			
with			-1.46	61	.15
Posttest ATWS	34.19	6.67			
Pretest ATWS	33.59	7.45			
with			.38	61	.70
Post posttest ATWS	33.43	6.93			
Posttest ATWS	34.19	6.67			
with			2.21	61	.03
Post posttest ATWS	33.43	6.93			

was retained. No differences in mean scores between the pretest ATWS and the post posttest ATWS could be discerned in any of the three treatment groups.

The final hypothesis dealing with mean score changes was the third specific null hypothesis which stated: When the control group and the treatment group that did receive feedback and the treatment group that did not receive feedback are analyzed individually, no differences will be found between the posttest and post posttest ATWS scores. The t-test (Table 15) failed to show any differences between posttest and post posttest ATWS scores for the control or the treatment group with feedback. A significant difference was detected in the treatment group without feedback. The t-value of 2.21 ($p<.03$) can be interpreted to mean that the average score had significantly deteriorated between the posttesting and the post posttesting sessions.

The next two null hypotheses were related to differences between the groups. The fourth specific null hypothesis was: The control group and treatment group that did receive feedback and the treatment group that did not receive feedback will show no differences in mean scores on the ATWS when it is administered during the posttesting session. A one-way analysis of the posttest ATWS (Table 16) by group yielded a significant F-value of 3.19 ($p<.04$). To determine which groups were different, multiple comparison techniques were employed. The Scheffé procedure failed to find any differences at the .05 level, but the more liberal Duncan procedure revealed that on the posttesting ATWS the control group was significantly

different than the treatment that did not receive feedback.

To discover if this trend persisted, the fifth specific null hypothesis stated: The control group and the treatment group that did receive feedback and the treatment group that did not receive feedback will show no differences in mean scores on the ATWS when it is administered during the post posttesting session. The one-way analysis of variance (Table 16) testing this hypothesis resulted in an F-value of 2.24 ($p<.10$). The Duncan procedure identified differences between the control and the treatment group that did not receive feedback. The treatment group had significantly higher scores than the control. These findings indicated that while the difference between the control group and the treatment group not receiving feedback continued to the post posttesting, the difference was tending to lessen.

Table 16. One-way analysis of variance of posttest ATWS, and post posttest ATWS by three experimental groups

	DF	Sum of squares	Mean squares	F ratio	F probability
POSTTEST ATWS					
Between groups	2	330.37	165.18	3.19	0.04
Within groups	197	10175.46	51.65		
TOTAL	199	10505.83			
POST POSTTEST ATWS					
Between groups	2	251.71	125.85	2.24	0.10
Within groups	197	11036.44	56.02		
TOTAL	199	11288.15			

The sixth specific null hypothesis sought to determine if gender interacted with feedback to influence attitudes. This hypothesis stated: Males and females who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences in mean scores on the ATWS when it is administered during the posttesting session. The analysis of variance (Table 17) to test this hypothesis resulted in significant main effects for differences between the three experimental groups ($F=4.01$, $p<.02$) and for differences between males and females ($F=51.50$, $p<.00$). No interaction effect between these two variables was determined.

This investigation was then extended to include the post posttesting ATWS. The seventh specific null hypothesis was: Males and females who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences in mean scores on the ATWS when it is administered during the post posttesting session. Analysis of variance was used to test this hypothesis (Table 17). The procedure yielded significant F-values for the main effects of group ($F=2.73$, $p<.06$) and for gender ($F=43.20$, $p<.00$), but did not show an interaction effect between the two variables.

To discover the effect that controlling for the variance from pretesting ATWS had upon the posttest ATWS, the eighth specific null hypothesis postulated that: The control group and the treatment group that did receive feedback and the treatment group that did not receive feedback will show no differences in mean scores on the ATWS when it is administered during the posttesting session and covaried on the scores

Table 17. Analysis of variance of posttest ATWS and post posttest ATWS by gender and by experimental groups

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Main Effects	2449.39	3	816.46	19.84	<.01
Group	330.39	2	165.19	4.01	0.02
Gender	2119.00	1	2119.00	51.50	<.01
2-Way Interactions	74.89	2	37.44	0.91	0.40
Group Gender	74.89	2	37.44	0.91	0.40
Explained	2524.29	5	504.85	12.27	<.01
Residual	7981.33	194	41.14		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Main Effects	2242.47	3	747.49	16.22	<.01
Group	251.66	2	125.83	2.73	0.06
Gender	1990.80	1	1990.80	43.20	<.01
2-Way Interactions	105.17	2	52.58	1.14	0.32
Group Gender	105.17	2	52.58	1.14	0.32
Explained	2347.65	5	469.53	10.18	<.01
Residual	8940.27	194	46.08		
TOTAL	11287.92	199	56.72		

of the initial testing. An analysis of covariance as represented in Table 18 revealed that pretest variance did account for a significant amount of the variance in the posttest. When posttest variance was adjusted for pretest variance, gender continued to be a significant main effect, but neither group affiliation, or group and gender interaction

Table 18. Analysis of covariance of posttest ATWS and post posttest ATWS covaried on pretest ATWS by gender and by experimental groups

Sources of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Covariates	8709.35	1	8709.35	1029.12	<.01
Pretest ATWS	8709.35	1	8709.35	1029.12	<.01
Main Effects	129.10	3	43.03	5.08	<.01
Group	34.40	2	17.20	2.03	0.13
Gender	101.11	1	101.11	11.94	<.01
2-Way Interactions	33.83	2	16.91	1.99	0.13
Group Gender	33.83	2	16.91	1.99	0.13
Explained	8872.30	6	1478.71	174.74	<.01
Residual	1633.33	193	8.46		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Covariates	9171.69	1	9171.69	892.70	<.01
Pretest ATWS	9171.69	1	9171.69	892.70	<.01
Main effects	62.31	3	20.77	2.02	0.11
Group	11.46	2	5.73	0.55	0.57
Gender	53.00	1	53.00	5.16	0.02
2-Way Interactions	71.02	2	35.51	3.45	0.03
Group Gender	71.02	2	35.51	3.45	0.03
Explained	9305.03	6	1550.83	150.94	<.01
Residual	1982.88	193	10.27		
TOTAL	11287.92	199	56.72		

were significant.

A similar specific null hypothesis was formulated for the post post-test ATWS. It stated: The control group and the treatment group that

did receive feedback and the treatment group that did not receive feedback will show no differences in mean scores on the ATWS when it is administered during the post posttesting session and covaried on the scores of the initial testing. In the analysis of variance on this hypothesis (Table 18), pretest ATWS was again a significant covariate. Of the two main effects of group and gender, gender was the only significant variable. The interaction between these two variables was significant. In the variance which could be associated to post posttest, ATWS males and females reacted differently to at least one of the treatment conditions. The differences in mean scores between the pretest ATWS and the post posttest ATWS is represented in Figure 2. A fairly wide dispersion can be seen between males and females in the treatment group that received feedback. Females in this group reflected a significantly more liberal attitude than did the males.

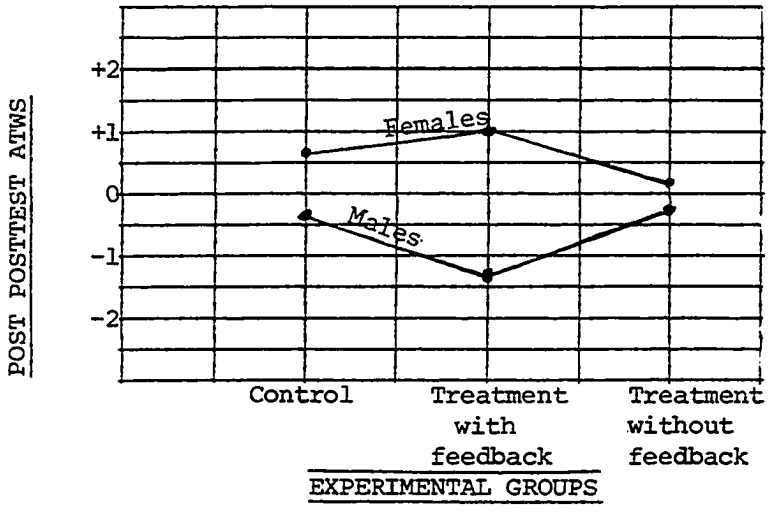

Figure 2. Graph of the interaction between gender and group

Summary and conclusions

While the descriptive statistics revealed that feedback was a component in improving the persuasive quality of the essays, the effect of feedback on the attitude change process suggested that feedback did not liberalize attitudes. When determining the influence that feedback had upon counterattitudinal advocacy, testing of mean change scores suggested only a few significant differences. Those subjects who wrote arguments but who did not receive feedback became significantly less liberal in their attitudes toward women in the one month period between their posttesting and post posttesting sessions. When studying differences between groups, it seemed that feedback did not have an impact upon attitudes. When compared with the control group, those individuals who received a treatment but did not receive feedback reflected more liberal attitudes than did those who received treatment with feedback. In the analysis of covariance performed on post posttest scores controlled on pretest scores, females in the treatment group that received feedback were more liberal in their attitudes than the males in that group.

Previous research in this area did not clearly establish an indication of the effect of feedback. Several researchers (Gross, Riemer & Collins, 1973; Shirai, 1975; McMillan, 1977a, 1977b; Eisner & Osman, 1978) reported that positive feedback promoted attitude change. When individuals are told of the effectiveness of their counterattitudinal statements, it created more dissonance which in turn lead to more modification of attitudes. Four other studies (Walenick, 1974; Shannon, 1976; Mindell, 1978)

found that negative feedback was more effective in inducing attitude change since subjects saw a discrepancy between their goal and their actual behavior. These studies did not focus upon the type of feedback used in this study which was designed to encourage quality performance on the counter-attitudinal task. In this study, feedback did not, for the most part, promote attitude change. Two factors help to explain this lack of attitude modification in subjects who did receive feedback.

First, the introduction of feedback may have allowed subjects to attribute the dissonance that they were experiencing to another source outside themselves. As the studies by Pittman (1975), and Zanna, Higgins and Taves (1976) noted, when subjects were able to attribute dissonance to another source, attitudes were not modified. In this study, subjects may have attributed the dissonance they experienced to the feedback. The information they received about their previously written statements asked them to generate and support a certain position. These arguments were not self-initiated, and therefore, did not create dissonance.

This same effect may also have resulted in a lack of acceptance of responsibility for the arguments that were generated. As Wicklund and Brehm (1976), and Greenwald and Ronis (1978) explained it is important for subjects to assume responsibility for the arguments that are endorsed. The feedback asked subjects to improve the quality of their persuasive arguments. While this quality did improve, the arguments were generated to fulfill the suggestions made in the feedback, and subjects did not accept responsibility for the arguments. As the study by Shaffer and Tabor (1980) illustrated, the number of arguments generated in counter-

attitudinal advocacy is not as important in producing attitude change as is the salience of the arguments.

The only evidence that feedback could be effective in inducing attitude change was noted when post posttest scores were covaried on pretest scores. The interaction of gender and treatment was significant. Females who received feedback were significantly more liberal than males who received feedback one month after the completion of the writing task. In the group that received feedback, females reflected more liberal attitudes on the post posttest than on the pretest, and males were less liberal on the post posttest than on the pretest. Possibly the effect that Freeman and Stormes (1977) reported was also active in this case. When feedback came from someone of the same gender, it modified attitudes. Another explanation is that the feedback tended to focus attention on the attitudes expressed about women. For females who were already more liberal, this resulted in an increased liberalization of attitudes. For males, this focusing of attention led to a move in a more traditional direction.

Hypothesis Three

The third hypothesis assessed the influence that psychological sex role orientation had upon attitude change. The labels of androgyny, masculinity, femininity and undifferentiated were used to determine whether individuals of various psychological sex role identities would react differently. The third hypothesis was: Masculine, feminine, androgynous and undifferentiated subjects will exhibit differences in attitude change or differences in the interaction of feedback and attitude change when

attitudes related to sex role stereotypes are measured immediately after completion of the writing task and one month after completion of the task.

In order to investigate this hypothesis, a series of null hypotheses were formulated. To assess whether sex role orientations had an influence upon change within each of the three groups, the first three specific null hypotheses were developed. The first specific null hypothesis stated that: When the three experimental groups are analyzed individually, masculine, feminine, androgynous and undifferentiated individuals will show no differences between pretest and posttest scores. The series of t-tests employed to analyze this hypothesis are reported in Table 19. They suggest that different sex role identities exhibited significant changes in two cases. Feminine subjects in the treatment group that received feedback and masculine subjects in the treatment group that did not receive treatment evidenced higher attitudes toward women on the posttest than were apparent on the pretest. No other groups revealed significant changes.

The second specific null hypothesis conjectured that: When the three experimental groups are analyzed individually, masculine, feminine, androgynous and undifferentiated individuals will show no differences between pretest and post posttest scores. The t-value for the differences between these measures (Table 19) revealed that feminine individuals in the treatment group that received feedback were significantly different between the pretest and post posttest. Androgynous individuals in the control group also demonstrated a significant change. This change, however, indicated a reduction in the more liberal attitudes expressed on the

pretest.

The third specific null hypothesis stated: When the three experimental groups are analyzed individually, masculine, feminine, androgynous and undifferentiated individuals will show no differences between posttest and post posttest scores. A significant t-value was apparent for masculine subjects in the treatment group that did not receive feedback (Table 19). This difference was in the direction opposite the treatment. Masculine subjects in this group reflected less liberal attitudes on the post posttest than had been reported on the posttest.

The fourth null hypothesis stated: Subjects of different sex role identities who did not receive treatment, who received treatment with feedback and who received treatment without feedback will show no differences on the ATWS when it is administered during the posttesting session. The analysis of variance in the posttest ATWS (Table 20), associated with group membership and sex role identity, reported significant main effects for the group. Sex role orientation and the interaction of sex role orientation with experimental group were not found to be significant.

The fifth null hypothesis stated: Subjects of different sex role identities who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences on the ATWS when it is administered during the post posttesting session. The analysis of variance (Table 20) found no significant main or interaction effects for the variables under consideration. Experimental group and sex role orientation did not have a significant effect

Table 19. t-test differences between pretest ATWS, posttest ATWS and post posttest ATWS scores by sex role orientations in each experimental group[a]

	Control				Treatment with Feedback				Treatment without Feedback			
	M	F	A	U	M	F	A	U	M	F	A	U
MEANS												
Pretest	32.92	31.25	33.71	29.90	28.76	31.00	31.35	32.29	32.46	33.38	34.20	34.42
Posttest	32.07	31.25	32.71	30.32	29.52	35.00	30.94	31.94	33.60	34.00	35.13	34.07
Post posttest	31.78	31.15	32.42	29.67	29.17	35.33	30.76	30.94	31.86	33.77	34.53	33.50
DF	13	19	6	30	16	14	16	16	14	17	14	13
PRETEST TO POSTTEST												
t-value	.86	0	.98	-.69	-1.24	-2.58	.53	.52	-1.71	-.87	-1.04	.34
Two-tailed probability	.40	1.0	.36	.49	.23	.02	.81	.60	.11	.39	.31	.74
PRETEST TO POST POSTTEST												
t-value	1.36	.14	2.27	.37	-.54	-2.20	.58	1.59	.60	-.55	-.33	1.31
Two-tailed probability	.19	.89	.06	.71	.59	.04	.57	.50	.50	.58	.74	.21
POSTTEST TO POST POSTTEST												
t-value	.54	.14	.37	.98	.69	.09	.24	1.60	2.83	.34	.81	.79
Two-tailed probability	.59	.89	.72	.33	.50	.92	.81	.12	.01	.74	.43	.44

[a]M = masculine, F = feminine, A = androgynous, U = undifferentiated.

Table 20. Analysis of variance of posttest ATWS and post posttest ATWS by sex role identity and experimental group

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Main Effects	421.75	5	84.35	1.61	0.15
Group	299.85	2	149.92	2.87	0.05
Identity	91.36	3	30.45	0.58	0.62
2-Way Interactions	273.25	6	45.54	0.87	0.51
Group Identity	273.25	6	45.54	0.87	0.51
Explained	695.01	11	63.18	1.21	0.28
Residual	9810.61	188	52.18		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Main Effects	435.26	5	87.05	1.54	0.17
Group	214.28	2	107.14	1.90	0.15
Identity	183.59	3	61.19	1.08	0.35
2-Way Interactions	273.61	6	45.60	0.81	0.56
Group Identity	273.61	6	45.60	0.81	0.56
Explained	708.87	11	64.44	1.14	0.32
Residual	10579.04	188	56.27		
TOTAL	11287.92	199	56.72		

either in isolation or in combination upon the variance in the post post-testing ATWS when these two variables were considered together.

The effect that gender had in relation to the variables of experimental group and psychological sex role orientation was assessed in two specific hypotheses and summarized in Table 21. The sixth specific null hypothesis stated that: Male and female subjects of different sex role identities who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences on the ATWS when it is administered during the posttesting session. When these variables were entered in the analysis of variance with posttest ATWS, the main effects of experimental group and gender were significant as they had been in the second general hypothesis. Sex role orientation as measured by the PAQ, was not a significant main effect. No two-way or three-way significant interactions were apparent.

The seventh null hypothesis stated: Male and female subjects of different sex role identities who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences on the ATWS when it is administered during the post posttesting session. In this analysis of variance (Table 21), gender was the only significant main effect. When focusing upon significant two-way interactions, the only significant interaction was between sex role orientation and gender ($p<.09$). A graph (Figure 3) of the means of this interaction revealed that feminine males and females were more similar in their attitudes toward women on the post posttest than males

Table 21. Analysis of variance of posttest ATWS and post posttest ATWS by sex role identity, experimental group and gender

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Main Effects	2522.38	6	420.39	10.49	<.01
Group	282.64	2	141.32	3.52	0.03
Identity	72.98	3	24.32	0.60	0.61
Gender	2100.62	1	2100.62	52.42	<.01
2-Way Interactions	637.87	11	57.98	1.44	0.15
Group Identity	411.56	6	68.59	1.71	0.12
Group Gender	67.02	2	33.51	0.83	0.43
Identity Gender	239.03	3	79.68	1.98	0.11
3-Way Interactions	293.39	6	48.89	1.22	0.29
Group Identity Gender	293.39	6	48.89	1.22	0.29
Explained	3453.64	23	150.15	3.74	<.01
Residual	7051.98	176	40.06		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Main Effects	2327.60	6	387.93	8.67	<.01
Group	199.94	2	99.97	2.23	0.11
Identity	85.13	3	28.37	0.63	0.59
Gender	1892.34	1	1892.34	42.31	<.01
2-Way Interactions	678.92	11	61.72	1.38	0.18
Group Identity	361.44	6	60.24	1.34	0.23
Group Gender	62.27	2	31.13	0.69	0.50
Identity Gender	291.79	3	97.26	2.17	0.09
3-Way Interactions	410.50	6	68.41	1.53	0.17
Group Identity Gender	410.50	6	68.41	1.53	0.17
Explained	3417.03	23	148.56	3.32	<.01
Residual	7870.88	176	44.72		
TOTAL	11287.92	199	56.72		

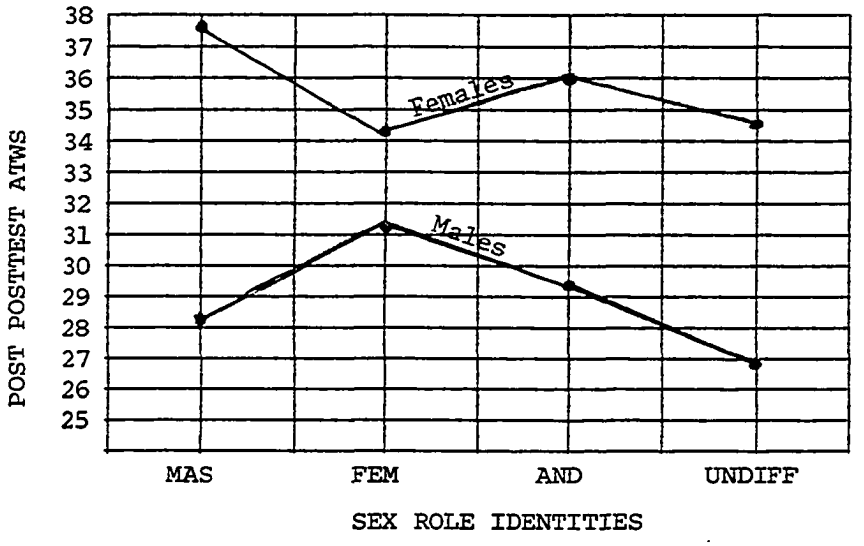

Figure 3. Graph of interaction between sex role identity and gender on the post posttest ATWS

and females in the other orientations.

Since covarying on pretest ATWS showed some results in the second general hypothesis, two specific null hypotheses again explored this dimension. The analysis of covariance procedures used to test these hypotheses are reported in Table 22. The eighth specific null hypothesis stated: Male and female subjects of different sex role identitied who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences on the ATWS when it is administered during the posttesting session and covaried on pretest ATWS scores. The analysis of covariance on this hypothesis revealed that pretest ATWS scores were a significant source of variance in

posttest ATWS scores. When this posttest variance was adjusted for pretest variance, gender was the only significant main effect. Two-way and three-way interactions were not significant.

The ninth null hypothesis stated: Male and female subjects of different sex role identities who did not receive treatment, who received treatment with feedback and who received treatment with no feedback, will show no differences on the ATWS when it is administered during the post posttesting session and covaried on pretest ATWS scores. Results similar to those reported in other hypotheses were apparent. Gender was the only significant main effect and the interaction between experimental group and gender was the only significant interaction effect.

Summary and conclusions

While not proving any definite relationships between the variables in this hypothesis, the tests did indicate a few differences that might be attributed to psychological sex role orientation. The t-tests of changes in scores suggested that feminine individuals in the group that was given feedback revealed significant differences in attitudes between the pretest and the posttest, and between the pretest and the post posttest. Masculine subjects in the group that was not given feedback evidenced a significant liberalizing effect between the pretest and posttest, but showed a significant reduction in attitudes between the posttest and the post posttest. Androgynous individuals in the control showed a similar move to more traditional attitudes between the pretest and the post posttest. When assessing differences between the three treatment

Table 22. Analysis of covariance of posttest ATWS and post posttest ATWS covaried on pretest ATWS by sex role identity, experimental group and gender

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Covariates	8709.35	1	8709.35	988.24	<.01
Pretest ATWS	8709.35	1	8709.35	988.24	<.01
Main Effects	139.21	6	23.20	2.63	0.11
Group	30.45	2	15.22	1.72	0.18
Identity	10.10	3	3.36	0.38	0.76
Gender	97.08	1	97.08	11.01	0.00
2-Way Interactions	79.40	11	7.21	0.81	0.62
Group Identity	41.09	6	6.84	0.77	0.58
Group Gender	12.90	2	6.45	0.73	0.48
Identity Gender	8.34	3	2.78	0.31	0.81
3-Way Interactions	35.38	6	5.89	0.66	0.67
Group Identity Gender	35.38	6	5.89	0.66	0.67
Explained	8963.36	24	373.47	42.37	<.01
Residual	1542.27	175	8.81		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Covariates	9171.69	1	9171.69	876.47	<.01
Pretest ATWS	9171.69	1	9171.69	876.47	<.01
Main Effects	94.06	6	15.67	1.50	0.18
Group	7.74	2	3.87	0.37	0.69
Identity	31.74	3	10.58	1.01	0.38
Gender	38.48	1	38.48	3.68	0.05
2-Way Interactions	125.97	11	11.45	1.09	0.36
Group Identity	36.83	6	6.13	0.59	0.74
Group Gender	54.38	2	27.19	2.60	0.07
Identity Gender	17.23	3	5.74	0.55	0.64
3-Way Interactions	64.91	6	10.81	1.03	0.40
Group Identity Gender	64.91	6	10.81	1.03	0.40
Explained	9456.64	24	394.02	37.65	<.01
Residual	1831.27	175	10.46		
TOTAL	11287.92	199	86.7		

groups, sex role orientation and the type of treatment received did not interact in producing attitude change. The only interaction effect that was significant was between gender and sex role orientation on the post posttest ATWS.

The review of literature on sex role orientation suggested that androgynous individuals and females with more masculine orientations were likely to have less stereotypic attitudes (Ott, 1976; Jones, Cherhovetz & Hansson, 1978). The study by Montgomery and Burgoon (1977) indicated that feminine females were more prone to modify attitudes than androgynous females, and androgynous males were more prone to attitude change than masculine males.

The attitudes of various sex role orientations toward women correspond quite closely to reports in the literature. Masculine and androgynous females were the most liberal individuals on all three ATWS testings. Androgynous and feminine males were more liberal than their masculine and undifferentiated counterparts. This study supported the contention that those individuals who do not have gender-typed orientations will be more liberal in their attitudes toward women.

In terms of attitude change, this study deviated somewhat from previous research studies. Overall feminine subjects experienced the most amount of variation from the treatment. The analysis of scores between the pretest and posttest and between the pretest and post posttest showed feminine subjects in the treatment group that received feedback were significantly changed. The analysis of variance of post posttest scores

revealed a significant interaction between gender and the feminine orientation. Feminine subjects may demonstrate more of a sensitivity to the attitude change process because initially females of this group tend to be more traditional while the males tend to be more liberal. As a result of detailed directions in advancing counterattitudinal arguments, both males and females become more liberal. In fact, this was the only orientation group that showed continued improvement of attitudes from the pretest to the posttest to the post posttest. Without detailed feedback, feminine subjects do not generate the sort of arguments that are sufficient to change attitudes. The interaction effect indicates that as a group, the feminine males and females are more closely aligned in their attitudes toward women.

Two other significant changes in attitudes were apparent in masculine subjects in the treatment without feedback group and androgynous subjects in the control group. Masculine subjects initially held more traditional attitudes toward women. Generating counterattitudinal arguments without the influence of feedback created a dissonance between those initial attitudes and the counterattitudinal behavior that resulted in attitude change. When counterattitudinal behavior was no longer a persistent influence, masculine subjects returned to their more traditional attitudes. The androgynous subjects in the control group that showed a significant reduction in scores between the pretest and posttest initially held the most liberal attitudes toward women in comparison to the orientations in the control group. The decline in these attitudes

toward women can best be explained by the tendency for high scores to regress toward the mean when some intervention strategy does not work to maintain those attitudes. Other orientations also demonstrated this tendency, but their losses were not significant.

When comparing the three experimental groups on the dimension of sex role orientation, the effects of treatment and orientation do not significantly interact to produce attitude change. This may be because sex role orientation is so closely tied to sex role attitudes. In the Montgomery and Burgoon (1977) experiment, the attitude studied concerned a college enrollment policy which is not associated to sex role orientation. To discover if sex role orientation does indeed have an effect upon the forced compliance paradigm, attitudes not so closely aligned with sex role orientations must be studied.

Hypothesis Four

The final hypothesis tested differences associated with perceptual differentiation. It stated: Field independent and field dependent subjects will exhibit differences in attitude change and differences in the interaction of attitude change and feedback when attitudes related to sex role stereotypes are measured immediately after completion of the writing task and one month after completion of the task. In order to investigate this hypothesis, several null hypotheses were formulated.

The first specific null hypothesis was: When the three experimental groups are analyzed individually, field independent and field dependent individuals will show no differences between pretest and posttest ATWS

scores. To determine if significant change differences occurred based upon perceptual differentiation t-tests were used. These findings as presented in Table 23, revealed that the only group to show significant changes were extremely field independent subjects in the treatment group that did not receive feedback.

The second null hypothesis stated: When the three experimental groups are analyzed individually, field independent and field dependent individuals will show no differences between pretest and post posttest ATWS scores. The t-tests (Table 23) used in this case indicated that extremely field independent subjects in the control group revealed significantly more liberal attitudes between the pretest and posttest. No other groups were significantly different.

The third null hypothesis was: When the three experimental groups are analyzed individually, field independent and field dependent individuals will show no differences between posttest and post posttest ATWS scores. These t-tests shown in Table 23 revealed the trend for extremely field independent subjects in the control group to reveal more liberal attitudes between the posttest and the post posttest. Extremely field independent subjects in the treatment group that did not receive feedback also changed significantly. This was, however, a significant decrease in attitudes between posttesting and post posttesting.

To determine if field independent and field dependent subjects in the various treatment groups reacted differently, the fourth null hypothesis stated: Field independent and field dependent subjects who did not receive

Table 23. t-test differences between pretest ATWS, posttest ATWS and post posttest ATWS by perceptual differentiations in each experimental treatment group[a]

	Control				Treatment with Feedback				Treatment without Feedback			
	EI	SI	SD	ED	EI	SI	SD	ED	EI	SI	SD	ED
MEANS												
Pretest	29.70	30.96	32.40	31.00	31.78	30.20	32.28	31.77	31.29	32.78	36.41	35.07
Posttest	30.00	30.52	32.59	30.86	31.47	30.60	32.64	32.66	32.94	33.73	35.91	34.85
Post posttest	31.10	30.28	31.77	29.86	30.84	30.46	33.00	31.66	31.88	32.84	36.33	33.64
DF	9	24	21	14	18	14	13	17	16	18	11	13
PRETEST TO POSTTEST												
t-value	-.56	.70	-.25	.12	.47	-.52	-.48	-1.54	-1.89	-1.57	.60	.22
Two-tailed probability	.59	.49	.80	.90	.19	.60	.64	.14	.07	.13	.55	.82
PRETEST TO POST POSTTEST												
t-value	-2.04	1.10	.95	1.25	1.35	-.28	-.81	.12	-.72	-.07	.12	1.39
Two-tailed probability	.07	.28	.35	.23	.19	.78	.43	.90	.48	.94	.90	.18
POSTTEST TO POST POSTTEST												
t-value	-1.82	.46	1.44	.82	.97	.27	-.63	1.33	1.97	1.31	-.67	1.42
Two-tailed probability	.10	.64	.16	.42	.34	.79	.54	.20	.06	.20	.51	.17

[a]EI = extremely field independent, GEFT score of 17 or above,
SI = slightly field independent, GEFT score between 14 and 16,
SD = slightly field dependent, GEFT score between 10 and 13,
ED = extremely field dependent, GEFT score of 9 or below.

treatment, who received treatment with feedback and who received treatment with no feedback will not show differences in mean scores on the ATWS when it was administered during the posttesting session. The analysis of variance that was done on these variables is represented in Table 24. The main effect of group was significant, but perceptual differentiation was not a significant effect nor was the interaction between group and perceptual differentiation.

The fifth null hypothesis studied the same variables in relation to the post posttest ATWS. It stated: Field independent and field dependent subjects who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will not show differences in mean scores on the ATWS when it is administered during the post posttesting session. The F-value yielded by the analysis of variance was not significant (Table 34), and the null hypothesis could not be rejected. From these last two hypotheses, it appeared that field independent and field dependent individuals did not react differently to the treatment conditions.

Since gender had in other hypotheses proven to be a significant variable, two hypotheses were developed to analyze the influence of gender and perceptual differentiation. The sixth null hypothesis stated: Male and female field independent and field dependent subjects who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will not show differences in mean scores on the ATWS when it is administered during the posttesting session. Table 25 shows that the analysis of variance yielded significant results for the main effects of

Table 24. Analysis of variance of posttest ATWS and post posttest ATWS by perceptual differentiations and experimental group

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Main Effects	490.69	5	98.13	1.84	0.10
Group	371.71	2	185.85	3.49	0.03
Differentiation	160.29	3	53.43	1.00	0.39
2-Way Interactions	29.08	6	4.84	0.09	0.99
Group Differentiation	29.08	6	4.84	0.09	0.99
Explained	519.77	11	47.25	0.89	0.55
Residual	9985.85	188	53.11		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Main Effects	434.72	5	86.94	1.51	0.18
Group	293.21	2	146.60	2.55	0.08
Differentiation	183.05	3	61.02	1.06	0.36
2-Way Interaction	63.45	6	10.57	0.18	0.98
Group Differentiation	63.45	6	10.57	0.18	0.98
Explained	498.18	11	45.29	0.78	0.65
Residual	10789.73	188	57.39		
TOTAL	11287.92	199	56.72		

Table 25. Analysis of variance of posttest ATWS and post posttest ATWS by perceptual differentiations, experimental group and gender

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Main Effects	2509.72	6	418.28	9.72	<.01
Group	335.58	2	167.79	3.90	0.02
Differentiation	60.32	3	20.10	0.46	0.70
Gender	2019.03	1	2019.03	46.93	<.01
2-Way Interaction	263.34	11	23.94	0.55	0.86
Group Differentiation	136.42	6	22.73	0.52	0.78
Group Group	118.32	2	59.16	1.37	0.25
Differentiation Group	51.91	3	17.30	0.40	0.75
3-Way Interactions	160.62	6	26.77	0.62	0.71
Group Differentiation Gender	160.62	6	26.77	0.62	0.71
Explained	2933.69	23	127.55	2.96	<.01
Residual	7571.93	176	43.02		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Main Effects	2390.21	6	398.36	8.46	<.01
Group	261.88	2	130.94	2.18	0.06
Differentiation	147.74	3	49.24	1.04	0.37
Gender	1955.48	1	1955.48	41.53	<.01
2-Way Interactions	338.18	11	30.74	0.65	0.78
Group Differentiation	210.73	6	35.12	0.74	0.61
Group Gender	160.39	2	80.19	1.70	0.18
Differentiation Gender	24.77	3	8.25	0.17	0.91
3-Way Interactions	274.02	6	45.67	0.97	0.44
Group Differentiation Gender	274.02	6	45.67	0.97	0.44
Explained	3002.42	23	130.54	2.77	<.01
Residual	8285.49	176	47.07		
TOTAL	11287.92	199	56.72		

group and gender, but did not reach significance for the effect of perceptual differentiation or for the two-way and three-way interaction effects. The null hypothesis was retained.

The seventh null hypothesis stated that: Male and female field independent and field dependent subjects who have different sex role identities who did not receive treatment who received treatment with feedback and who received treatment with no feedback will not show differences in mean scores on the ATWS when it is administered during the post posttesting session. Results of the analysis of variance (Table 25) yield significant main effects for group and gender. Perceptual differentiation, gender and treatment group did not interact to produce significant effects.

To assess the relationship between sex role identity, perceptual differentiation and attitude change, two hypotheses were devised. The eighth null hypothesis stated: Field independent and field dependent subjects who have different sex role identities who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will not show differences in mean scores on the ATWS when it is administered during the posttesting session. The analysis of variance of the posttest ATWS (Table 26) on the variables of experimental group, perceptual differentiation and sex role identity produced only one significant main effect that being the effect identified between the control group and the experimental group that did not receive feedback. All other main effects, two-way interaction effects and three-way interaction effects were not significant.

Table 26. Analysis of variance of posttest ATWS and post posttest ATWS by perceptual differentiations, experimental group and sex role identities

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Main Effects	555.40	8	69.42	1.28	0.25
Group	334.84	2	167.42	3.09	0.04
Differentiation	133.64	3	44.54	0.82	0.48
Identity	64.71	3	21.57	0.39	0.75
2-Way Interactions	827.80	21	39.41	0.72	0.79
Group Differentiation	39.79	6	6.63	0.12	0.99
Group Identity	428.83	6	71.47	1.32	0.25
Differentiation Identity	466.03	9	51.78	0.95	0.47
3-Way Interactions	906.40	18	50.35	0.93	0.54
Group Identity Differentiation	906.40	18	50.35	0.93	0.54
Explained	2289.60	47	48.71	0.90	0.65
Residual	8216.02	152	54.05		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Main Effects	568.89	8	71.11	1.24	0.27
Group	246.93	2	123.56	2.16	0.11
Differentiation	133.63	3	44.54	0.78	0.50
Identity	134.16	3	44.72	0.78	0.50
2-Way Interactions	1002.02	21	47.71	0.83	0.67
Group Differentiation	66.55	6	11.09	0.19	0.97
Group Identity	414.45	6	69.07	1.21	0.30
Differentiation Identity	651.44	9	72.38	1.26	0.25
3-Way Interactions	1043.85	18	57.99	1.01	0.44
Group Identity Differentiation	1043.85	18	57.99	1.01	0.44
Explained	2614.77	47	55.63	0.97	0.52
Residual	8673.14	152	57.06		
TOTAL	11287.92	199	56.72		

The ninth null hypothesis stated: Field independent and field dependent subjects who have different sex role identities who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will not show differences in mean scores on the ATWS when it is administered during the post posttesting session. As can be seen from Table 26, when the variables of perceptual differentiation, sex role identity and experimental group are examined with an analysis of variance on the post posttest ATWS variance, no main effects, two-way interaction effects or three-way interaction were identified as significant. From these two hypotheses it was determined that sex role identity and perceptual differentiation did not act upon the attitude change process.

Since covarying on the pretest ATWS had produced significant effects in other hypotheses, this was studied in the final two null hypotheses. The tenth null hypothesis was: Male and female field independent and field dependent subjects who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences on the ATWS when it is administered during the posttesting session and covaried on pretest ATWS scores. This analysis of covariance as presented in Table 27 again showed that the pretest ATWS accounted for a significant amount of posttest ATWS variance. When this variance was adjusted on pretest variance, the main effect of gender was significant. All other main and interaction effects could not be considered significant.

The eleventh null hypothesis was: Male and female field independent and field dependent subjects who did not receive treatment, who received treatment with feedback and who received treatment with no feedback will show no differences on the ATWS when it is administered during the post posttesting session and covaried on pretest ATWS scores. The analysis of covariance (Table 27) for this hypothesis duplicated the results of the previous hypothesis, the gender variable was the only main or interaction effect to account for a significant amount of the variance in the post posttesting ATWS when covarying on pretest ATWS scores.

Summary and conclusions

Field independence and field dependence did not appear to have a great influence on the attitude change studied in this experiment. The investigation of change scores indicated that those most affected were extremely field independent individuals in the control group. These individuals evidenced significant differences between the pretest and post posttest, and the posttest and post posttest scores. Extremely field independent subjects in the treatment group without feedback demonstrated more liberal attitudes in the posttest than in the pretest, but these attitudes appeared to deteriorate between the posttest and the post posttest. When the three experimental groups were compared with each other, no differences could be found between subjects in the groups who were field independent and field dependent. When perceptual differentiation was considered in relation to gender and to sex role identity, the variables did not interact significantly. When posttest ATWS and post

Table 27. Analysis of covariance of posttest ATWS and post posttest ATWS covaried on pretest ATWS by perceptual differentiations, experimental group and gender

Source of variation	Sum of squares	DF	Mean square	F	Significance of F
POSTTEST ATWS					
Covariates	8709.35	1	8709.35	974.88	<.01
Pretest ATWS	8709.35	1	8709.35	974.88	<.01
Main Effects	138.24	6	23.04	2.57	0.02
Group	30.76	2	15.38	1.72	0.18
Differentiation	9.13	3	3.04	0.34	0.79
Gender	109.27	1	109.27	12.23	<.01
2-Way Interactions	82.23	11	7.47	0.83	0.60
Group Differentiation	36.23	6	6.04	0.67	0.66
Group Gender	30.45	2	15.22	1.70	0.18
Differentiation Gender	11.77	3	3.92	0.43	0.72
3-Way Interactions	12.38	6	2.06	0.23	0.96
Group Differentiation Gender	12.38	6	2.06	0.23	0.96
Explained	8942.22	24	372.59	41.70	<.01
Residual	1563.40	175	8.93		
TOTAL	10505.63	199	52.79		
POST POSTTEST ATWS					
Covariates	9171.69	1	9171.69	881.28	<.01
Pretest ATWS	9171.69	1	9171.69	881.28	<.01
Main Effects	103.12	6	17.18	1.65	0.13
Group	11.38	2	5.69	0.54	0.58
Differentiation	40.80	3	13.60	1.30	0.27
Gender	72.07	1	72.07	6.92	<.01
2-Way Interactions	162.87	11	14.80	1.42	0.16
Group Differentiation	48.20	6	8.03	0.77	0.59
Group Gender	59.03	2	29.51	2.83	0.06
Differentiation Gender	36.40	3	12.13	1.16	0.32
3-Way Interactions	28.96	6	4.82	0.46	0.83
Group Differentiation Gender	28.96	6	4.82	0.46	0.83
Explained	9466.66	24	394.44	37.90	<.01
Residual	1821.25	175	10.40		
TOTAL	11287.92	199	56.72		

posttest ATWS scores were covaried on pretest ATWS, the remaining variance could not be attributed to perceptual differentiation.

Previous research efforts in this area did not establish a clear direction for the variables under examination in this study. The Laird and Berglas (1975) study suggested that field independent individuals would be more likely to change their attitudes after counterattitudinal advocacy since their attitudes are directed more by their own behavior. Other studies (Noppe & Gallagher, 1977; Wright, 1977; Weissenberg, 1978) indicated that the sort of active problem confrontation used in the forced compliance paradigm would be more appealing to field independent individuals. The dimension of feedback incorporated in this study was found to be more closely associated with field dependence. Research done by Greene (1973, 1977), Renzi (1974) and Bernstein (1976) reported that the attitudes of field dependent individuals were more likely to change as a result of feedback than were the attitudes of field independent individuals. The findings of this study were not consistent with the findings of other research.

The only major differences identified between field independent and field dependent subjects were in change scores. The extremely field independent individuals in the control group were the only ones to show a liberalization of attitudes. This would suggest that slight focusing on sex role attitudes as done on the ATWS was a more successful means of influencing attitudes of extremely field independent individuals than was counterattitudinal advocacy. If field independent individuals are given

the opportunity to consider their attitudes without any outright effort being made to modify these attitudes, they might be more apt to change.

The other significant change score was in the treatment group that did not receive feedback. The extremely field independent subjects in this group had higher scores on the posttest ATWS than on the pre-test ATWS which indicated more liberal attitudes. They had, however, lower scores on the post posttest ATWS than on the posttest which signaled a reduction in the aforementioned gain. This was a trend evidenced in the entire group but was particularly pronounced with field independent subjects in this group. It would seem that when field independent individuals are allowed to generate attitudinal arguments without input on how this should be done, they are more likely to modify their attitudes in the direction of the advocacy. This agrees with the findings of Laird and Berglas (1975). This modification of attitudes, however, is not maintained. Once treatment is discontinued, and subjects are given time to adjust their previously held attitudes with their counterattitudinal behavior, the formerly held attitudes again persist. The field independent individual is no longer guided by current behaviors, but instead relies upon previously formulated positions.

The reason that field independence and field dependence are not more significant factors when comparing the attitudes of the control group with the two treatment groups may be the strong influence of gender on attitudes toward women. In this sample, females consistently espoused more liberal attitudes than males. Since field independence and field dependence are

also related to gender, the effect of gender may have been more of an influence than was field independence or field dependence. Possibly, if an attitude not so closely related to gender was studied, field independence and field dependence might have a greater impact.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

> The teacher's behavior is probably the most critical factor in determining whether what happens in a classroom will encourage the development of flexibility and proper sex attitudes or the retention of old stereotyping practices.
>
> Task Force for the National Project on Women in Education (1978, p. 15)

The importance that the teacher has in dispelling or perpetuating sex role stereotypes should not be underestimated. If teachers are to interact equally with male and female students, their attitudes and behaviors should not be limited. This dissertation has presented one means of confronting sexist attitudes. The final section of the dissertation draws this study to a close by summarizing the results of the experiment and drawing conclusions from these results. Finally, recommendations are made for future research.

Summary

Two hundred Iowa State University students participated in this study. Their initial attitudes toward women were measured by the fifteen item version of the Attitudes Toward Women Survey (ATWS). Subjects were then placed in one of three experimental groups. Subjects in the two treatment groups were instructed to write an essay that reflected a nonsexist position. The next week these subjects returned to write another such essay. One of the treatment groups received feedback on their previous essay before writing the second essay. All subjects then

returned on the third week. The subjects in the treatment groups again wrote essays with one group again receiving feedback. The treatment and control subjects completed the posttest ATWS on the third week and also completed the Personality Attributes Survey (PAQ) which identified sex role orientations. A month later subjects returned to complete the post posttest ATWS and the Group Embedded Figures Test (GEFT) which was designed to measure perceptual differentiation.

On the initial ATWS, subjects in this experiment reported more liberal attitudes than were reported in previous studies. The female subjects scored higher than the male subjects which indicated that less traditional sex role stereotypes were held by the females. Much of the variance in ATWS scores was accounted for by gender. The pretest ATWS revealed that members of the control groups and both treatment groups initially held very similar attitudes. The posttest and post posttest ATWS were used as indicators of attitude change. The essays that were written by treatment subjects were rated by the researcher on the basis of persuasive content. These essay ratings correlated with each other which showed that subjects who were rated highly on one essay tended to receive higher ratings on the other essays as well. When ratings on the three essays were compared, it was discovered that ratings on the first essay were consistently lower. This indicated that possibly the first scenario was not as successful in evoking nonsexist arguments as were the other two. Further analysis of these differences revealed that feedback may have helped improve the persuasive content of these essays. Male subjects who received feedback did better than males who did not receive

feedback on both the second and third essays. Female subjects receiving feedback showed higher ratings than their female counterparts who did not receive feedback on the third essay.

Psychological sex role orientation was determined from the M scale and F scale on the PAQ. While subjects in this sample were somewhat different from previous findings on this questionnaire, these differences were not excessive. As was expected, male subjects scored higher on the M scale and MF scale, and more males were labeled masculine. Similarly, females were higher on the F scale, were labeled feminine and tended to show more liberal attitudes on the initial ATWS.

The GEFT was used to assess whether subjects were field independent or field dependent. Scores on this test for this sample were similar to what had been reported in other studies. Males tended to be more field independent, and there was a slight indication that higher masculine scores were associated with field independence. More liberal attitudes toward women were linked to field dependence.

The first hypothesis assessed whether expressing a nonsexist position would influence attitudes toward women. When subjects who did not write essays were compared with subjects who wrote essays, it was found that writing essays did to some degree influence attitudes. The use of t-tests on ATWS score changes and analyses of variance on ATWS differences between groups indicated a liberalization of attitudes occurred as a result of writing the essays. This more liberal position was evident on posttest ATWS scores and post posttest ATWS scores. Females

consistently held more liberal attitudes toward women than did males on the posttest and post posttest ATWS.

The second hypothesis sought to determine the effect that feedback would have upon the attitude change process. The t-tests on changes in ATWS scores identified only one significant difference that being in the treatment group that did not receive feedback. Between the post-testing and post posttesting, this group showed a significant deterioration in their ATWS scores. When the three groups were compared with each other, the group that did not receive feedback was significantly more liberal in their attitudes toward women than was the control group on the posttest ATWS. On the post posttest ATWS, this difference continued to be maintained, but the difference between the two groups was reduced. This would also support the t-test findings of a significant reduction in scores between the posttest and post posttest for the treatment group not receiving feedback. The attitudes of the group that did not receive feedback were most influenced by expressing a nonsexist position. This group showed the most change in attitudes when compared with the other groups, and although the more liberal attitudes were reduced somewhat one month after treatment ended, this group maintained higher ATWS scores than the other groups. Female subjects held more liberal attitudes toward women regardless of the experimental group to which they were assigned. The analysis of covariance of post posttest ATWS scores on pretest scores revealed that in the treatment group that received feedback, females were significantly different than males.

The third hypothesis explored whether the different sex role orientations labeled masculine, feminine, androgynous and undifferentiated would have an impact upon the attitude change process. The three treatment groups did not show any differences between each other on the pretest ATWS. Analysis of variance and covariance on this variable for posttest and post posttest ATWS indicated that sex role orientation did not interact significantly with the type of treatment received to produce attitude change. The only interaction effect that was detected concerned gender and sex role orientation in relation to the post posttesting ATWS. Females and males with a masculine orientation were significantly different at this time. The series of t-tests that analyzed changes between testings indicated that the subjects in the treatment group with feedback realized a significant liberalization of attitudes between the pretest and posttest, and between the pretest and post posttest. Masculine subjects in the treatment without feedback evidenced some significant gains between pretest and posttest, but a significant decrease in post posttest scores when compared with posttest scores suggested that gains were not permanent. Androgynous subjects in the control group were significantly less liberal on the post posttest than they had been on the initial pretest.

The fourth hypothesis sought to discover whether perceptual differentiation was a mediating variable in attitude change. When focusing upon possible differences between groups, the analyses of variance and covariance did not reveal any significant effects associated with field

independence and field dependence. The t-tests concentrating upon changes in each group on the various testings located two cases where extreme field independence might be associated with change. Those subjects in the control group who were extremely field independent revealed an improvement in attitudes between the pretest and posttest, and between the posttest and post posttest. Extremely field independent subjects reflected higher scores on the posttest ATWS than on the pretest ATWS, but this gain was not maintained as a significant decrease was found between posttest and post posttest scores for this group.

Conclusions

The forced compliance paradigm offers a definite promise for creating a technique that could be used in education classes to reduce sex role stereotypes in the classroom. The findings in this study confirmed what other research has shown using counterattitudinal advocacy. Expressing a certain position is effective in influencing attitudes in the direction of that position. In teacher education classes assignments like this might be given as a part of a journal writing exercise or might be expanded into a role play to be presented in class. This study indicated that the effect of this attitude change technique may not be long lasting. Given the importance of attitude stabilization and personal responsibility in the forced compliance paradigm and the lifelong socialization that creates sex role attitudes, it may have been that subjects in this experiment did not fully assimilate the positions

advocated in this series of essays. Modifications for use in the classroom may need to be made to encourage the acceptance of these attitudes. Activities may need to be incorporated throughout the course rather than for just a short interval within a course. An even better alternative might be to include this sort of counterattitudinal advocacy in several courses throughout a one to two year period. This could provide a better sense of ownership for these activities.

When using this technique in class, the effect that feedback on a student's response might have upon a student's attitude should be carefully considered. Other studies on the effect of feedback did not produce consistent outcomes. The findings of this experiment suggested that feedback did not have an impact upon the attitude change process. Subjects who did not receive feedback evidenced more attitude change than did those who did. Feedback may have allowed subjects to attribute the dissonance they experienced from counterattitudinal advocacy to a source outside themselves. Feedback may also have allowed subjects to escape responsibility for the nonsexist position that was expressed. Subjects who did not receive feedback did not focus upon their attitudes in this manner and would, therefore, be more likely to experience dissonance which they sought to resolve through attitude change. For the instructor of a teacher education course who is using this technique, the results of this study would support keeping evaluative comments on counterattitudinal advocacy to a minimum.

In terms of the role that individual differences have in mediating

attitude change, no definite conclusions could really be drawn from this study. Psychological sex role orientation, for example, did not seem to have an important impact upon the changing of attitudes in this study. This sample followed many of the previous research reports with regard to this variable. Masculinity and femininity were closely associated with gender. Masculine and androgynous females did hold more liberal attitudes but were not significantly different from other males and females of other orientations. Subjects of feminine orientation did the most significant amount of change on some tests after writing the nonsexist essays and receiving feedback on this writing. Again, however, these gains were not substantial enough to stand out from other groups. Feminine subjects reflected some of the most liberal attitudes on all three testings so the change that did occur was not a case of influencing the most traditional group of individuals. While it is a good idea for teacher educators to keep in mind the four orientations and the characteristics associated with each in terms of understanding student personality, these orientations do not appear to play a part in the attitude change technique explored in this study.

The perceptual differentiations of field independence and field dependence did not intervene to explain the attitude change that did occur. As in other reports on this area, field independence was associated with male subjects and with masculine subjects. Field independent subjects and field dependent subjects did not reveal any significant differences in their reactions to writing a nonsexist essay or receiving feedback on that

essay. Extremely field independent subjects in the control group illustrated the most significant changes between the testings. This suggests that for these subjects, possibly only a slight introduction to an attitudinal position such as considering it on a questionnaire was more effective than prolonged consideration of that position. This finding, however, is not supported by previous research. As was the case with sex role orientation, teacher educators should develop an awareness of perceptual differentiation since it too can be useful in understanding individual differences. In the use of this attitude change technique, it did not, however, seem to have a unique effect.

Recommendations

The results of this study suggested several avenues of investigation, some of which would improve upon the structure of this study and others which could expand upon the findings of this experiment. One such improvement, for example, would be with regard to the scenarios used to elicit nonsexist responses. The three situations used in this study did not appear to produce similar responses. This may have occurred because the first scenario focused upon a third person while the other two focused on the writer. Scenarios more parallel in structure might be developed and tested for use in the teacher education classroom.

A second recommendation would be to essentially replicate this study with some modifications. To determine if sex role attitudes produce

reactions different from other attitudes, it would be of interest to have subjects write on other topics such as multicultural education, energy conservation or mainstreaming of the handicapped. Similar results would indicate the viability of this technique for use in teacher preparation. Changing the sampling group might be another desirable modification. If this technique could be effectively utilized with elementary and secondary students, it might be incorporated into these classrooms as well.

Field testing of this technique is also essential. Endorsement of an attitudinal position was found to produce attitude change in an experimental situation. Circumstances in an actual classroom, however, can be considerably different. Other variables may intervene to decrease or increase the amount of change this technique is capable of producing. Students in a few teacher education courses should have their initial attitudes pretested in a manner similar to the one used in this study. Schedules of treatment could then be implemented followed by post-testing at the conclusion of treatment and post posttesting at a later interval. Such a procedure would test whether the technique used in this study could actually be applied to the classroom.

A fourth recommendation would be further study of a few variables that this study failed to clarify. For example, the impact of feedback in the forced compliance situation needs further elaboration. This study tended to advocate that feedback can be detrimental to the change process. This was not, however, a strongly supported tendency. Other studies have shown the effectiveness of feedback. Perhaps feedback that is personalized to the performance of each subject would have a different effect.

Further research is also necessary on the role that individual differences might play in the forced compliance paradigm. This study failed to discern any appreciable differences between individuals of different sex role orientations or perceptual differentiations. It is naive to assume, however, that everyone will respond to counterattitudinal advocacy in the same way. More research is needed on these variables and upon other individual differences in relation to the forced compliance paradigm.

If the educational enterprise is to maximize the potential of all students regardless of gender, sexist attitudes held by teachers must be confronted. The technique of counterattitudinal advocacy as suggested by cognitive dissonance theory does present a viable means of influencing sex role stereotypes. Further refinements of this technique are now needed so that it can be fully understood and successfully implemented.

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APPENDIX A

INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH
IOWA STATE UNIVERSITY

25

(Please follow the accompanying instructions for completing this form.)

1. Title of project (please type): A STUDY TO DETERMINE THE EFFECTIVENESS OF WRITING SHORT ESSAYS THAT EXPRESS A NONSEXIST PERSPECTIVE ON THE SEXIST ATTITUDES OF COLLEGE STUDENTS.

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Ellen Hay Schiller	Jan. 14, 1982	Ellen Hay Schiller
Typed Named of Principal Investigator	Date	Signature of Principal Investigator

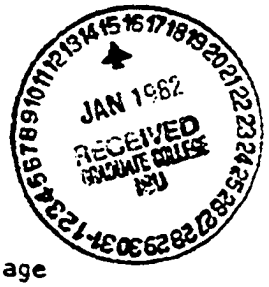
N164 Quad	294-8907
Campus Address	Campus Telephone

3. Signatures of others (If any)

	Date	Relationship to Principal Investigator
[illegible]		Major Professor, Co-chairperson
[illegible]	1/13/82	Major Professor, Co-chairperson

4. ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable.

- ☐ Medical clearance necessary before subjects can participate
- ☐ Samples (blood, tissue, etc.) from subjects
- ☐ Administration of substances (foods, drugs, etc.) to subjects
- ☐ Physical exercise or conditioning for subjects
- ☒ Deception of subjects
- ☐ Subjects under 14 years of age and(or) ☐ Subjects 14-17 years of age
- ☐ Subjects in institutions
- ☐ Research must be approved by another institution or agency



5. ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used.

- ☐ Signed informed consent will be obtained.
- ☒ Modified informed consent will be obtained.

6. Anticipated date on which subjects will be first contacted: Month 2 Day 1 Year 82

Anticipated date for last contact with subjects: Month 5 Day 1 Year 82

7. If Applicable: Anticipated date on which audio or visual tapes will be erased and(or) identifiers will be removed from completed survey instruments: Month 8 Day 31 Year 82

8. Signature of Head or Chairperson [signature] Date 1/15/82 Department or Administrative Unit Professional Studies

9. Decision of the University Committee on the Use of Human Subjects in Research:

- ☒ Project Approved
- ☐ Project not approved
- ☐ No action required

George G. Karas — Name of Committee Chairperson

1/21/82 — Date

[signature] — Signature of Committee Chairperson

APPENDIX B

I. DECEPTION

Thank you for agreeing to participate in this experiment. Actually your activities during the next few weeks will help gather information in two different areas. The first area to be investigated is in the field of attitudes. You will be completing an attitude survey on three different occasions. This will help the researcher determine how events in the news media influence or change attitudes.

The second area of concentration in this experiment involves persuasive writing. The researcher is interested in gathering examples of student writing that could be used in a booklet she is writing on persuasive communication. You will be writing three responses on a related topic. The responses that you give will be read by a panel of professors. These professors will take note of the communication techniques you use in your responses. Based upon their suggestions, examples will be chosen for publication. If some of your writing is chosen for the booklet, you will be asked to sign a release form.

You can be assured that at no time will anyone other than the researcher be aware of who has written a response. Your answers on the attitude survey and your written responses will be kept confidential. If you have any questions while participating in this experiment, feel free to ask the researcher. At any time you may withdraw from this experiment without any consequences.

II. CORRECTION OF DECEPTION

During the last few weeks you have been participating in an experiment that you assumed was about attitudes and persuasive writing. Actually the experiment had a different intention. The researcher was interested in measuring changes in your attitudes toward women. The three situations you responded to were designed to encourage expression of a non-sexist viewpoint. Your attitudes were then measured to see if they changed as a result of your writing. The other two tests that you took will be used to help explain changes that occur in attitudes.

Your written responses will not be published in any sort of booklet, Most of these responses were read only by the researcher although a few were read by outside individuals to check the accuracy of the researcher's assessments.

You can again be assured that your written responses and your test and survey scores will be kept confidential.

If you have any questions feel free to ask.

APPENDIX C

APPENDIX D

APPENDIX E