DOCUMENT RESUME

ED 126 583 95 EA 008 525

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TITLE Diagnosing Sex-Role Stereotyping in SEA.
INSTITUTION Minneapolis Public Schools, Minn. Southeast Alternatives Program.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
REPORT NO PW4-11
PUB DATE 76
NOTE 42p.; For related documents, see ED 115 683 and EA 008 526-529

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Alternative Schools; Educational Alternatives; Elementary Secondary Education; *Evaluation Methods; Factor Analysis; Formative Evaluation; Multiple Regression Analysis; School Surveys; *Sex Discrimination; *Sex Stereotypes; *Statistical Analysis; Statistical Data; *Teacher Attitudes
IDENTIFIERS Minneapolis Minnesota Public Schools; *Southeast Alternatives

ABSTRACT

In response to a request from the Southeast Council, the Southeast Alternatives (SEA) Internal Evaluation Team undertook a study to provide information about sex-role stereotyping in Southeast Alternatives schools. The questionnaire had ten questions that asked such things as if stereotyping occurred, where it occurred, what would be the best means of handling it, how important was the issue, what were the most important influences of stereotyping, and what school activities should be divided according to sex. The report is in three sections. Section 1 reports the results; section 2 analyzes the instrument; and section 3 presents an analysis of the data. The results indicate that the great majority of the staff of the SEA do not think that the school has as much influence over the development of children's sex-role identity as the home. The most likely place to find sex-role stereotyping in the schools is in instructional materials. Workshops and the purchase of new materials headed the list of ways for dealing with sex-role stereotyping. With the exception of two areas--physical activities and sexual matters--the staffs clearly believed that classes and activities should not be divided according to sex. (Author/IRT)

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Diagnosing Sex-Role Stereotyping in SEA

January 29, 1976 (Section I)
May 14, 1976 (Sections II and III)

Written by: Katherine Gray-Feiss

PW4-11

This is a SEA Level I formative evaluation report, prepared as part of the Project-Wide evaluation effort. Ideas expressed in the report do not necessarily reflect the official position of the Minneapolis Public School Administration nor the Minneapolis School Board.

BACKGROUND INFORMATION ON SOUTHEAST ALTERNATIVES

November, 1975

The Experimental Schools Program (ESP) is designed to test comprehensive change in education with the intent to facilitate the transition from research and experimentation to practice. Southeast Alternatives, one component of ESP, is dedicated to the following goals:

I. "(The project will provide) a curriculum which helps children master basic skills. . ."

II. "The project will test four alternative school styles (K-6) and selected options in schooling programs for grades 7-12 articulated upon the elementary alternatives."

III. "The project will test decentralized governance with some transfer of decision making power from both the Minneapolis Board of Education and the central administration of the Minneapolis Public Schools."

IV. "The project will test comprehensive change over a five year period from 6/1/71 - 6/30/76 combining promising school practices in a mutually reinforcing design. Curriculum staff training, administration, teaching methods, internal research, and governance in SEA make up the main mutually reinforcing parts."

ESP was initiated in 1971 by the United States Office of Education and is now directed by the National Institute of Education (NIE). In May, 1971 three school districts, Minneapolis Public Schools, Berkeley Unified School District of Berkeley, California and Franklin Pierce School District of Tacoma, Washington, were selected as experimental school sites. Presently, there are five large experimental school sites and 13 smaller ones.

Southeast Alternatives, the name given to the Minneapolis Public Schools' Experimental School Project, was funded for five years. On June 1, 1971, a 27-month operation grant of $3,580,877 was made to the school district. A final 33-month contract for $3,036,722 was approved by the National Institute of Education (NIE) on May 22, 1974.

The approximately 2200 K-12 students in the project include a racially and economically diverse urban population. Southeast Minneapolis, bounded

by factories, flour mills, freeways, multiple dwellings, residential neighborhoods, shopping areas and railroads, also houses the main campus of the University of Minnesota, Minneapolis. Stately old homes, low income apartments and expensive condominiums are all located in the area. This mixture of ages, occupations, interests, and life styles supports a diversity of views about the nature of public education which the five SEA alternative schools established by parent choice reflect.

At the elementary level students may choose to attend any one of four major alternative programs:

The Contemporary School at Tuttle utilizes the graded, primarily self-contained classroom structure. The basic skills of mathematics and language are developed through an individualized multi-test, multi-media approach. Students move between their homerooms and a variety of centers to participate in learning activities throughout the entire school day.

The Continuous Progress School in the Pratt building allows children to advance at their own speeds without regard to grade level. Children are placed in homeroom groupings according to their reading placement. Part of the day is structured with language arts, math, social studies, science, music and other curricular areas. The rest of the student's time is spent in interest groups and interest areas which are staffed by students, faculty, parents, aides and volunteers.

The Open School at Marcy offers its students an opportunity to influence their eduation. An integrated curriculum which emphasizes learning basic skills through experience and the process approach, that of children learning how to learn, to make independent judgments and to discover and pursue their interests, is offered. Children are grouped in multi-aged "families" and a flexible daily schedule allows times for activities at various resource centers. Through the Other People Other Places Center students learn how to arrange for their own resources and

extended trips into the city or wilderness to expand their educational experience.

The Free School (K-12) offers a flexible curriculum which allows students to pursue the areas they wish to develop and experience with emphasis on making the curriculum relevant to present day issues and enhancing students' skills, knowledge and inner autonomy for acting as free people in an environment of change. The Free School is particularly committed to recognize and oppose racism, sexism and class oppression in today's world. Students are grouped into primary, middle and secondary categories with some cross-age teaching across groups. Although basic skills are stressed, and graduation requirements are set, a flexible approach is used in achieving goals.

The middle school program at Marshall-University High School has been designed to meet the needs of the diverse groups of students coming from the various SEA elementary programs. An Open and Continuous Progress program is available for students in 6th-9th grades. Students 11 and 12 years of age may choose to remain in their elementary school until grade 7 or enter either of the other two transitional programs. Graded classrooms are available to 7th and 8th graders. A.L.E., the adjusted learning environment for students with special needs, and a special reading center are also offered to Junior High students. Teachers work in teams to offer a coordinated program.

A flexible array of courses and activities are available at the 9-12 Senior High School level. Each Marshall-U student, with parental consent, designs his or her own educational program within a trimester system of twelve week courses. In addition to single discipline courses there are inter-disciplinary courses, independent study opportunities, and a variety of off-campus learning programs in the community: a 9-12 open classroom for 60 students now makes possible K-12 open education in SEA.

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Advisory/governing councils consisting of parents, faculty, staff, and sometimes students have been established at all five SEA schools. An SEA Management Team of principals and managers of K-12 service programs has merged with the Southeast Council which is composed of parent and staff representatives from each school and other community representatives. The council serves as a strong advisory to the SEA director.

A Teacher Center has been established to provide staff and parents with an opportunity to receive substantial in-service training as well as to provide an avenue for preservice experiences. An In-service Committee made up of teachers from the SEA schools and three community people receive proposals and act on them, thus providing a direct role for staff and parents in the staff development activities. The University of Minnesota and Minneapolis Public Schools jointly operate the Teacher Center which was first initiated with federal SEA funds.

Two evaluation teams are directly involved with the SEA project. Level I (Internal) evaluators work for the Minneapolis Public Schools and are administratively responsible to the SEA director. The Level I team conducts formative evaluation activities as requested by project participants such as parents, students, faculty, administrators and the Board of Education. The purpose of this type of formative evaluation is to provide information that will be useful in developing effective educational programs and improving the project.

The Level II Evaluation Team is organized by Educational Services Group. This external team is known as the Minneapolis Evaluation Team (MET) and is accountable directly to the NIE. The purpose of external evaluation is to independently collect information of a summative nature about SEA which will be of use to practicing educators who are in the process of designing, implementing or operating programs to improve education.

Preface

Compared to other research in the area of sex bias, this study was unusual in that it attempted to determine the specifics of the sex-role stereotyping problem and how people viewed various solutions to it. Most other attempts to assess sex-role stereotyping have surveyed the attitudes of school staff toward the roles of men and women. The findings have been used to show a need for change, on the assumption that school practices reflect staff attitudes. We took a more straightforward approach and asked the questions directly, for example, "Are boys and girls treated differently in your school?" We dealt with such topics as where stereotyping occurs, how important the issue is to those who will have to deal with it, and what ways staff would prefer to handle the problem.

The following report is based on the data provided by the 60% of the 1974-75 SEA staff members who returned their questionnaires. We feel this was a good return rate, considering that topic was sensitive and that preserving the respondents' anonymity prevented extensive followup.

I am grateful to Launa Ellison and Ellen Meier for their valuable assistance in developing the questionnaire, and to the Level I evaluators who provided help. Another important contribution was made by the staff members who completed and returned their questionnaire and we sincerely thank them.

Susie Demet, Lois Caswell, and Liz Pilman, and Diane Amussen helped produce the manuscript and did a very nice job - thank you.

Katherine Gray-Feiss

Table of Contents

Introduction

In response to a request from the Southeast Council, the SEA Internal Evaluation Team undertook a study to provide information about sex-role stereotyping in Southeast Alternatives. In an attempt to provide some focus for the study the literature on the topic was reviewed and meetings were held with interested parties both within and outside of SEA.

Several draft plans for the study were written and, after much deliberation, it was decided that the study should primarily assess the staff's thoughts about sex-role stereotyping and possible actions that could be taken to alleviate sex discrimination in the schools. The instrument did not try to investigate any one aspect of sex-role stereotyping, rather it was designed as an exploratory questionnaire covering the entire subject area.

The questionnaire had 10 questions. They asked such things as, if stereotyping occurred, where it occurred, what would be the best means of handling it, how important was the issue, what were the most important influences of stereotyping, and what school activities should be divided according to sex. The responses were to be rank ordered and provisions were made on most questions for additional comments.

This report is broken down as follows:

Section I - Results of the questionnaire.

Section II - Analysis of the instrument. (The instrument's strengths, limitations, and some possible improvements are delineated.)

Section III - Analysis of the data. (The purpose of this analysis is to determine if there were differences in the various schools that may not have shown up in the cross-tabulation procedure used for analysis in Section I.)

Section I

Questionnaire Results

The questionnaire on sex-role stereotyping was distributed in January, 1975, to all SEA staff. This included teachers, aides, support staff, clerks and engineers. No attempt was made to code the questionnaire for follow-up purposes, rather it was completely anonymous in order to encourage staff to respond honestly about what could be a sensitive topic. However, to allow data analysis according to various demographic characteristics, the instrument contained questions about the sex, age, position, and work location (e.g. particular school buildings or offices) of the respondent.

Over a three week period three reminders were sent to all the staff who received the original questionnaire. To some degree this was wasteful, but it was necessary since we had no record of who had returned their questionnaires and who had not.

The data was tabulated for frequency of response in each response category as well as analyzed for differences by respondent's sex, age, position, or work location. A Chi Square Test of Significance with level of significance set at $p \leq .05$ was utilized to determine significance or non-significance of the differences. If a significant difference was indicated, this means that such a large difference between the groups would occur due to error only 5% or less of the time. The chosen significance level is purely arbitrary. It is simply a way of stating a certain amount of confidence that the difference observed in the data are real differences and not statistical artifacts.

Table 1 shows the breakdown of the surveys returned.

Table 1. Characteristics of Respondents*

Sex	Males N=56 35%	Females N=101 63%	No Response N=4 2%	Total N=161 100%		
Position	Teacher N=83 52%	Aide N=27 17%	Support Staff N=36 22%	Clerk/Engineer N=11 7%	No Response N=4 2%	Total N=161 100%
Age	Below 20 N=3 2%	20 - 29 N=43 27%	30 - 39 N=49 30%	40+ N=64 40%	No Response N=2 1%	Total N=161 100%
Building	Pratt N=26 16%	Marcy N=23 14%	Free School N=14 9%	MUHS Middle N=17 11%	MUHS Senior N=36 22%	Tuttle N=23 14%
	Others N=22 14%	No Response N=0	Total N=161 100%			

*270 Surveys were sent out. There was a 60% rate of return

The directions on the questionnaire requested that the respondents mark the response or responses they felt best answered the questions. If more than one response was selected, the responses were to be ranked. Some of the respondents did not follow these directions, therefore several arbitrary rules were constructed to assist in coding these maverick questionnaires.

The first rule concerned responses with duplicate arabic numeral ranks. These responses were considered tied ranks and the mean average rank was used to represent all of them. An illustration will show what I mean. If a staff member thought Home and Peers were the most important influences on a child's sex-role stereotyping, he/she would assign each of them a "1". In coding this, we would assign the number "1.5" to both Home and Peers. There would be no "1" or "2" assigned for this question. Also let us say this staff member indicated School as the second most important influence by assigning it a "2". By our coding system this "2" would be changed to a "3" and so on for his/her other responses.

The second rule dealt with unranked multiple responses. These responses were usually indicated by check marks or X's instead of ordered numerals. We treated such responses as tied rankings. For example,

two checks were assigned "1.5", three were each "2", and so on. Luckily, there were no cases in which a question had both marks and numbers.

A third rule concerned no response or blanks. Blanks were treated as missing data. This was handled easily on the questions, but presented more of a problem when the descriptive information was left blank.

In general every response to a questionnaire was included, but sometimes it was necessary to exclude part or all of a questionnaire from our analysis because the descriptive data (such as age, sex, or work location) was missing. For example, if a respondent left his/her work location blank then in an analysis of difference in attitudes among the schools/offices we could not use that data because we did not know to which building to attribute that particular questionnaire. On the other hand, that person may have marked his or her age and the questionnaire could be used in an analysis of age differences.

The first question on the survey asked respondents to identify what they felt was the most important influence on the development of a child's sex-role identity. Responses to this question are shown in Table 2. The data seems to indicate that SEA staff as a whole believe that the Home is the most important influence on the development of a child's sex-role identity. The three influences Media, School, and Peers were also believed by SEA staff to have moderate influence in the development of sex-roles and Religion was generally believed to have little influence. Several other possible influences were suggested by a small proportion of the SEA staff under the category Other.

Question 1. Table 2. I believe the Strongest Influence(s) On the Development of a Child's Sex-Role Identity Come(s) From:								
	Rank of 1 or 1.5	Rank of 2 or 2.5	Rank of 3 or 3.5	Rank of 4 or 4.5	Rank of 5 or 5.5	Rank of 6	No Response	Total
Home	N=123 (83.6%)	N=21 (13.3%)	N=3 (1.9%)	N=0 (0%)	N=0 (0%)	N=0 (0%)	N=0 (0%)	N=101 (100%)
Media	N= 14 (12.6%)	N=35 (31.5)	N=35 (31.5)	N=20 (18)	N=7 (6.3)	N=0 (0)	N=50 (31.1)	N=161 (100)
School	N= 5 (4.5%)	N=41 (36.6)	N=35 (31.3)	N=28 (25)	N=3 (2.7)	N=0 (0)	N=49 (30.4)	N=161 (100)
Religion	N= 5 (8.1%)	N= 6 (9.7)	N= 9 (14.5)	N= 7 (11.3)	N=32 (51.6)	N=3 (4.8)	N=99 (61.5)	N=161 (100)
Peers	N= 9 (8.9%)	N=39 (38.3)	N=27 (26.5)	N=20 (19.6)	N= 6 (5.9)	N=1 (1)	N=59 (36.6)	N=161 (100)
Other	N= 2 (5.9%)	N= 3 (17.7)	N= 4 (23.5)	N= 2 (11.8)	N= 2 (11.8)	N=4 (23.5)	N=144 (89.4)	N=161 (100)

By rather simple cross-tabulation procedures, it was found that the emphasis on Home was equal for both sexes, all four age groups, the four "positions" of Teacher, Support Staff, Aide, and Clerk/Engineer and all work locations. However, the difference for the variable "position" approached significance as Clerks/Engineers and Aides rated the influence of Home as lower than either Teachers or Support Staff. The influences School, Religion, Peers, and Other were also similar for the two sexes, four age categories, the four positions, and the various locations. Media was ranked similarly according to all independent variables except "age". When age was cross-tabulated by the rankings of Media's influences there was a significant difference with the oldest group (40+) rating Media influence significantly lower than the other age groups. The category 20-29 years rated the influence of Media the highest of the four age groups.

Question two asked where sex-role stereotyping most often occurs. Commercial instructional material was believed by the SEA staff to be the most prevalent place where this occurs while Staff attitudes were rated the second most important source of stereotyping (Table 3). According

to SEA staff another important contributor to sex-role bias is specific Courses designed more for girls or boys. Finally, about 14% of the staff members responding felt that stereotyping does not occur in their school.

Question 2. Table 3. If Sex-Role Stereotyping Exists Within Your School, It Occurs Mostly In:

	Rank of 1 or 1.5	Rank of 2 or 2.5	Rank of 3 or 3.5	Rank of 4 or 4.5	Rank of 5 or 5.5	Rank of 6	No Response	Total
Courses designed for one or the other sex	N=31 (52.6%)	N=15 (25.4%)	N=10 (17%)	N=3 (5.1%)	N=0 (0%)	N=0 (0%)	N=102 (63.4%)	N=161 (100%)
Counseling practices	N= 3 (10.7%)	N= 9 (32.1)	N= 9 (32.1)	N=5 (17.9)	N=2 (17.1)	N=0 (0)	N=133 (82.6)	N=161 (100)
Commercial instructional material	N=36 (59.7%)	N=25 (25.8)	N=11 (11.3)	N=2 (2.1)	N=1 (1)	N=0 (0)	N= 64 (39.8)	N=161 (100)
Teacher-made instructional material	N= 4 (22.2%)	N= 3 (16.7)	N= 4 (22.2)	N=5 (27.8)	N=2 (11.1)	N=0 (0)	N=143 (88.8)	N=161 (100)
Staff attitudes	N=44 (45.7%)	N=25 (31.6)	N= 8 (10.2)	N=1 (1.3)	N=1 (1.3)	N=0 (0)	N= 82 (50.9)	N=161 (100)
Other	N= 6 (27.6%)	N= 5 (22.3)	N= 3 (13.5)	N=1 (6.3)	N=0 (0)	N=1 (6.3)	N=145) (90.1)	N=161 (100)
It does not occur	N=17 (40.35)	N= 2 (9.1)	N= 1 (4.5)	N=0 (0)	N=0 (0)	N=0 (0)	N=139 (86.3)	N=161 (100)

Some differences were evident when the rankings were cross-tabulated according to age, sex, position and work location. One difference which was not significant ($p > .05$), but was interesting nonetheless, was that male staff members were more likely than female staff members to believe sex-role stereotyping occurs in Courses designed more for boys than for girls. It is not clear what this means, but men seemed to believe more strongly than women that the course structure was the most important place where stereotyping occurs.

A difference which was significant ($p < .05$) was that MUHS (both Middle and Senior) staff marked more often than the other locations that Courses and Counseling practices were places where sex-role stereotyping occurs. Perhaps this is because courses are more explicit at the secondary level thus causing a greater expectation of who should take them. Career counseling (in a formal sense) also occurs in greater frequency at the

secondary level. Another response that showed a significant difference was the occurrence of sex-role stereotyping in staff attitudes. Men felt that staff attitudes had a much greater influence on sex-role stereotyping than did women.

Question 3. Table 4. Most Helpful Resource For Dealing With Sex-Role Stereotyping

	1 or 1.5	2 or 2.5	3 or 3.5	4 or 4.5	5 or 5.5	6	No Response	Total
Curriculum Changes	N=11 (7%)	N=19 (12%)	N=12 (7%)	N=3 (2%)	N=1 (1%)	N=0 (0%)	N=109 (67.7%)	N=161 (100%)
Group Discussions	N=23 (14%)	N=30 (19%)	N= 5 (3%)	N=6 (4%)	N=3 (2%)	N=0 (0%)	N= 94 (58.4%)	N=161 (100%)
Workshops	N=45 (28%)	N=20 (12%)	N=11 (7%)	N=3 (2%)	N=2 (1%)	N=0 (0%)	N= 80 (49.7%)	N=161 (100%)
New Commercial instructional materials	N=37 (23%)	N=18 (11%)	N=16 (10%)	N=6 (4%)	N=2 (1%)	N=0 (0%)	N= 82 (50.9%)	N=161 (100%)
Resource catalogue	N=28 (17%)	N=19 (12%)	N 11 (7%)	N=5 (3%)	N=4 (2%)	N=0 (0%)	N= 94 (58.4%)	N=161 (100%)
Other	N= 6 (4%)	N= 2 (1%)	N= 3 (2%)	N=0 (0%)	N=0 (0%)	N=0 (0%)	N=150 (93.2%)	N=161 (100%)

Only about half of the total number of respondents replied to Question 3 which asked them what kind of resources they felt would be most helpful in dealing with sex-bias in the schools. The most favored method of addressing sex-role stereotyping was indicated to be through Workshops where people from alternative lifestyles or occupations would share their experiences (Table 4). Another method of handling sex-role stereotyping that was suggested frequently was the purchase of New commercial instructional materials. Two other methods, Resource catalogues and Group discussions (with other staff members) were also seen by SEA staff as very helpful ways of dealing with sex-role stereotyping, but less than the two mentioned above.

There was a significant difference ($p < .001$), however, in the men's and women's responses to the importance of Group discussions with women viewing Group discussions much more positively than men. Two of the age categories (20-29 and 40+) viewed Group discussions in a significantly more positive way ($p < .05$) than the other two age categories. Two cate-

gories, Teachers and Support staff also favored Group discussions more than aides and clerks/engineers though the difference was not significant at $p \leq .05$.

Workshops showed a similar trend with women and teachers rating them higher than any of the other corresponding independent variable categories though again the differences were not significant.

Women and the younger staff members (under 20 yrs. and 20-29 yrs.) favored the use of New commercial instructional material significantly more than men ($p \leq .001$) and the two older groups of staff members. Men, on the other hand, favored the use of a Resource catalogue as a means of dealing with sex-role stereotyping significantly more than women did. Also, the second age group (20-29) significantly favored the Catalogue more than the other three age groups.

Significantly more respondents from Marcy than from the other locations in SEA specified additional Other resources for dealing with sex-role stereotyping.

Question 4. Table 5. Equal Treatment of Males and Females is Most Important In:

	1 or 1.5	2 or 2.5	3 or 3.5	4 or 4.5	5 or 5.5	6	No Response	Total
Athletics	N=23 (14%)	N=28 (17%)	N=49 (30%)	N= 8 (5%)	N=6 (4%)	N=2 (1%)	N=45 (28%)	N=161 (100%)
Personnel decisions	N=34 (40%)	N=14 (9%)	N=35 (22%)	N= 4 (2%)	N=2 (1%)	N=3 (2%)	N=39 (24.2%)	N=161 (100%)
Extra curricular activities	N=10 (6%)	N=16 (10%)	N=38 (24%)	N=13 (8%)	N=8 (5%)	N=5 (3%)	N=71 (44.1%)	N=161 (100%)
Vocational guidance	N=25 (16%)	N=31 (19%)	N=37 (23%)	N= 9 (6%)	N=4 (2%)	N=2 (1%)	N=53 (32.9%)	N=161 (100%)
Commercial instructional material	N=12 (7%)	N=21 (13%)	N=46 (29%)	N= 9 (6%)	N=6 (4%)	N=7	N=67 (41.6%)	N=161 (100%)
Teacher-made instructional materials	N= 9 (6%)	N= 4 (2%)	N=38 (24%)	N= 7 (4%)	N=4 (2%)	N=10	N=89 (55.3%)	N=161 (100%)

Question 4 on the survey dealt with the issue of equal treatment (see Table 5). The response Personnel decisions was most frequently designated as the area in which males and females should be treated equally. Vocational guidance and athletics were considered to be the

next two most important areas where males and females should be treated equally, but the importance of these or other categories did not even closely approximate the high response given for Personnel decisions. The other three categories--Extra curricular activities, Commercial and Teacher-made instructional materials--were mentioned equally as moderately low priority areas.

Although there was no significant difference ($p > .05$), the cross-tabulation procedures showed the rankings from the various positions approximated significance ($p = .08$). The trend showed teachers rated equal treatment in Personnel decisions as more important than people in other positions rated it.

Equal treatment in Personnel decisions was also viewed as more important by personnel from K-12 Services, MUHS Middle school, Tuttle and the Free School than by staff from other locations. Finally, equal treatment of males and females in Commercial instructional materials was considered important by more women than men, although the difference between responses from men and women was not significant ($p > .05$).

Question 5. Table 5. Compared To the Other Matters You Have To Deal With In Your School Life, How Would You Rate Your Concern About Sex Discrimination?

High	Moderate	Low	None	No Response	Total
N=36	N=69	N=45	N=9	N=2	N=161
(22.6%)	(43.4%)	(28.3%)	(5.7%)	(1.2%)	(100%)

The next question (Question 5) showed that, in general, the staff was moderately concerned about sex discrimination when compared to the other matters in their school lives (see Table 6). There were significant differences ($p \leq .05$) in the concern expressed by staff in the various positions with Teachers expressing a lower degree of concern than those in other staff positions. It could be hypothesized that teachers have other priorities that demand their concern or perhaps they feel that

others are dealing with this problem and therefore they are not too concerned. Ranking on concern for sex discrimination compared to other matters in school was also cross-tabulated by sex, age and building and no significant differenc were found.

There was quite a difference in the response to Question 6, "To reduce sex-role stereotyping in my classroom, I have:". Clearly, the biggest changes have occurred (according to the staff) in the Reduction of activities that treat boys and girls differently (see Table 7).

Question 6. Table 7. To Reduce Sex-Role Stereotyping In My Classroom, I Have:

	YES	NO	No Response	Total
Developed non-sexist materials	N=43 (27%)	N=26 (16%)	N=92 (57.1%)	N=161 (100%)
Call attention to sex-bias in instructional materials	N=70 (43%)	N=13 (8%)	N=70 (48.4%)	N=161 (100%)
Encouraged students to critically evaluate stereotypes	N=74 (46%)	N=15 (15%)	N=72 (44.7%)	N=161 (100%)
Reduced or eliminated activities which treat boys and girls differently	N=97 (60%)	N= 6 (4%)	N=58 (36%)	N=161 (100%)

Additionally, "Calling attention" and "Encouraging students" were reported as having been done by about half of the respondents. The least amount of progress has taken place in the development of self-made non-sexist materials for the classroom.

Teachers and Aides reported significantly more frequently than support staff that they had Developed non-sexist materials, Called attention to bias, Encouraged critical evaluation, and Reduced or eliminated differential activities. This could be due, in part, to the wording of the question; it dealt with specific classroom activities that mainly a teacher or aide would do. If the question were made more general and more choices given for responses, perhaps the support staff would show the same effort but in different activities than teachers and aides.

From the survey it also seemed that the two middle age groups (20-29 and 30-39) Called attention to sex bias in instructional materials

significantly more frequently than the youngest or oldest groups did. Younger staff members (below 20 and 20-29) were also significantly more likely to report that they had Reduced or eliminated activities which treat boys and girls differently than the older staff members (30-39 and 40+). Therefore, it appears that to some extent age may play a role in the likelihood of a staff member trying to do something which would reduce sex-role stereotyping in schools.

Question 7. Table 8. If Women Achieve Full Equality With Men, My Feelings About the Effect On Our Society Could Be Labeled As:

Alarm	Worry	Indifference	Hopefulness	Enthusiasm	No Response	Total
N=2 (1%)	N=6 (4%)	N=15 (9%)	N=54 (34%)	N=70 (43%)	N=14 (8.7%)	N=161 (100%)

Question 7 which asked about the effect on society if women achieve full equality with men, generated an Enthusiastic or Hopeful response from the SEA staff as a whole (see Table 8). Further analysis of the data revealed a significant difference ($p \leq .05$) between the responses of men and women. Female staff members showed a significantly more positive response than did male staff members. Although there were no significant differences on analyses by other independent variables there was some tendency for younger staff to show a more positive response than did older staff.

Question 8. Table 9. I Believe That Adults In My School Treat Boys and Girls Differently In the Following Instances:

	YES	NO	No Response	Total
Rewards by Teachers	N=37 (23%)	N=80 (50%)	N=44 (27.3%)	N=161 (100%)
Classroom Discipline	N=68 (42%)	N=63 (39%)	N=30 (18.6%)	N=161 (100%)
Administrative Discipline	N=35 (22%)	N=79 (49%)	N=47 (29.2%)	N=161 (100%)
Vocational Guidance	N=34 (21%)	N=62 (39%)	N=65 (40.4%)	N=161 (100%)
Athletics (games, physical activities)	N=70 (43%)	N=63 (39%)	N=28 (17.4%)	N=161 (100%)
Duties (e.g. running projector, cleaning-up)	N=59 (37%)	N=63 (39%)	N=39 (24.2%)	N=161 (100%)

Of those who responded that they felt boys and girls were treated differently in their school (Question 8) the majority stated that this occurred most frequently in the areas of Athletics, Classroom discipline and Duties. The rest of the staff indicated either that differential treatment did not occur or they made no response at all.

Other analyses of the data from Question 8 showed that:

(1) The schools where staff most frequently indicated that Teacher rewards were handled differently for boys and girls were MUHS, Pratt, and Tuttle.

(2) No significant differences were found across sexes, positions, ages, or locations in the results for Classroom discipline.

(3) There was a significant difference in the way staff responded about Discipline by the administration being handled differently for boys and girls. All locations except Marcy and Tuttle showed a belief that there was some difference in treatment.

(4) The category of Vocational guidance also revealed significantly different responses with Marcy, Free School and Tuttle staff stating that little or no differential treatment for boys and girls occurred. Staff from the other buildings responded that there were some differences occurring in Vocational guidance.

(5) The area of Athletics showed a significant difference among the buildings, too. In general Tuttle staff responded that differences did not occur with regard to Athletics; Free School and Marcy were also in agreement that differences did not occur but less so than Tuttle. Pratt and MUHS very frequently responded that differences occurred in Athletics at their building.

(6) Differential treatment in Duties also showed a significant difference among the buildings with Free School and Marcy staffs feeling that little or no distinction was made between boys and girls. However, Pratt, Tuttle and MUHS showed significantly more "Yes" responses from the staff to the question of differential treatment among boys and girls in Duties given to the children in their school.

Question 9. Table 10. I Believe That Boys and Girls In My School Are Different In the Following Respects:				
	YES	NO	No Response	Total
Motivation to learn	N=33 (20%)	N=95 (59%)	N=33 (20.5%)	N=161 (100%)
Activity Level	N=43 (27%)	N=81 (50%)	N=37 (23.0%)	N=161 (100%)
Interests	N=78 (48%)	N=53 (33%)	N=30 (18.6%)	N=161 (100%)
Hobbies	N=80 (50%)	N=44 (27%)	N=37 (23.0%)	N=161 (100%)

About one-fifth of the respondents did not respond to Question 9. However, it is clear from the results of those who responded that they believe boys and girls show different Interests and Hobbies, but that the differences show up less frequently in Motivation to Learn or Activity Level.

There was also one significant difference in the cross-tabulation of the results from Question 9. Significantly more men than women believed that there is a difference between boys' and girls' Interests. The other analyses for age, sex, positions, and locations approached significance, but were not significant at the $p \leq .05$ level. For example, more men than women believed there was a difference in boys' and girls' Motivation to Learn, and the 20-29 and 40+ age groups more frequently believed that there was a difference in the Interests of boys and girls. It is again reiterated that neither of these findings was significant.

On Question 10, forty-six responses were given by SEA staff to 10a which asked what classroom activities they felt should be divided on the basis of sex. Obviously very few staff members (46 out of 161) felt that any divisions should be made according to sex. Those who did, listed the following categories as activities that should be divided.

Physical Activities and Sports	Discussion about Sex (sexuality and sex-roles)	Bathroom	Other
25	10	8	3

About one-third of the respondents who replied to Question 10b stated that all other classroom activities left out of Question 10a should not be

divided on the basis of sex. Another 18 people (15%) stated that no classroom activities should be divided on the basis of sex. The remaining responses could be categorized in the following manner:

Courses (such as home ec.)	Duties	Physical Activities and Sports	Other
45	9	13	11

Table 11.

Question 10a. Classroom activities that SHOULD be divided on the basis of sex are:

- None - 52
- physical education - 6
- bathroom - 6
- women's studies - 1
- men's studies - 1
- physical strength activities - 3
- use of tools (girls) - 1
- sewing (boys) - 1
- advanced contact sports - 4
- sexual & feminist awareness discussions - 3
- the assignment of athletic equipment - 1
- some traditionally boys or girls only, as a temporary tactic - 1
- lifting of heavy objects - 3
- showers - 3
- athletics - 4
- general activities - 1
- health - 1
- wrestling - 1
- karate - 1
- consciousness raising - 3
- discussions on some areas of sexuality - 1

Question 10b. Classroom activities that SHOULD NOT be divided on the basis of sex are:

- None - 13
- moving in lines down hallways - 1
- general activities - 3
- shop - 10
- cooking - 3
- craft classes - 4
- sex education - 1
- health class - 3
- physical education - 4
- sewing class - 4
- art - 4
- tasks such as building - 1
- music - 6
- academic areas - 1
- reading - 3
- math - 1
- bathroom time - 1
- basic areas - 1
- clean-up - 3
- cooking - 3
- cooking - 3
- athletics - 4
- commercial courses - 1
- any kind of learning - 1
- home economics - 4
- skill groups - 1
- pottery - 1
- science - 1
- carrying boxes, books, etc. - 1
- babysitting - 1
- reading to class - 1
- rewards & discipline - 3
- duties - 3
- offices - 1
- lessons - 1
- role playing (careers) - 1

From the information in these two tables (Questions 10a and 10b) it appears that the SEA staff thinks that very few things should be divided on the basis of sex and, particularly, that courses should not be designed or divided on the basis of sex. Of the classroom activities that should be divided on the basis of sex, two areas seem important--physical activities and sexual matters. None of the information provided by Question 10 was compared by sex, age, position or location of the respondent.

Summary

With a return rate of 60%, the SEA staff showed their interest in sex-role stereotyping. The results indicated that the great majority of them do not think that the school has much influence over the development of children's sex-role identity. Instead they felt the most important influence came from the Home. When faced with the sex-role stereotyping in the school, the staff suggested that Instructional materials were the most likely place to find bias. Workshops among staff and the Purchase of new material headed the list of suggestions of ways for dealing with sex-role stereotyping in the schools.

When asked about areas in which equal treatment of males and females was most important, staff indicated that Personnel decisions was the area of most concern. This could reflect the staff's concern about their own jobs and promotions. Staff rated concern over equal treatment in Vocational guidance next in importance to Personnel decisions which again points to a great concern with jobs. The third highest area of concern was Athletics. Commercial instructional material received a much lower expression of concern, although it had previously been mentioned most frequently as the place where stereotyping occurred.

Question 5 showed that the staff was moderately concerned about sex discrimination when compared to the other matters in their school lives. Teachers were significantly lower in their concern than staff members in other positions. However, Question 6 suggested that teachers may have contributed a great deal to try to reduce sex-role stereotyping.

Most of the staff indicated a very positive outlook on women achieving full equality with men and the effect that would have on society.

Only a relatively small percentage (less than 50%) of the respondents suggested, that boys and girls were treated differently in any area. Those who felt differential treatment did occur indicated that it was most often in the areas of Athletics and Classroom Discipline.

There was also some indication from the data that the staff believed that boys and girls have different Interests and Hobbies but these sex differences are less pronounced in children's Motivation to Learn and Activity Level.

The last question on the survey asked about the activities that should and should not be divided according to sex. Two areas seem important--physical activities (for examples, sports) and sexual matters (including such things as personal hygiene and reproduction.) These areas showed the most conflict about whether classes or activities dealing with them should be divided or not. The other areas listed by the staff were clearly not to be divided according to sex.

Section II

Introduction

The results reported in Section I are only as useful as the instrument is valid and reliable. This section will address the strengths and weaknesses of the instrument itself. First, a qualitative analysis is discussed; second, a factor analysis useful in determining the underlying patterns in the data. Exploration of the data through factor analysis contributed numerical information about the strength and stability of the items on the survey.

Qualitative Analysis

Limitations. There were several problems with the data collected on the sex-role stereotyping survey. First, the directions should have been repeated at the beginning of each question or at the top of each page. The respondents answered the questions on the first page of the survey in compliance with the directions, but failed to do so on the following pages. If the directions had been repeated, the likelihood of mistakes would have been reduced.

Second, the directions were too complicated. The respondents were asked to rank their answers. Many of them, however, did not rank the answers or they ranked all of them 1. It was very difficult to interpret how they felt about the issues from their responses. To prevent this situation, it seems that the respondent should have been asked to mark only one response for each question.

Third, the response rate could have been increased if the survey had been coded for follow-up purposes. It is extremely difficult to know if those who responded differed significantly from those who did not return their questionnaire. If a follow-up had been done, the response rate probably would have increased.

Fourth, it might have been more helpful if the questionnaire had been longer. This would have made the survey more reliable and would have provided more information. As stated earlier, the questionnaire focused on the entire topic of sex-role stereotyping; it was limited, however, because it did not deal in depth with any one topic.

Finally, the questionnaire should have been pretested on a few staff members. This could have alleviated some of the problems discussed above.

Strengths. Several points can also be made with regard to the strengths of the survey. First, the survey did not start with the assumption that sex-role stereotyping was a problem in the schools. This seemed helpful in establishing credibility with the respondents; that is, the respondents seemed to feel the survey was based on a true interest in finding out the nature of the situation rather than a desire to prove a preconceived idea about it.

Second, the diversity of questions provided a very wide range of information on the attitudes and opinions of staff members. This was particularly useful in an exploratory study like this one. Decision makers now have data from which to base many policy decisions. If the questionnaire were more homogeneous, it probably would have dealt with only one or two aspects of sex-role stereotyping.

Lastly, it was particularly useful to provide a space for comments. Only a few respondents used the space, but it allowed for greater explanation if a respondent felt a need to explain an answer. It is probably important to provide at least one comment space, but it was very helpful to have several.

Factor Analysis

The single most distinctive characteristic of factor analysis is its data-reduction capability. Given an array of correlation coefficients for

a set of variables, factor analysis enables the researcher to see whether some underlying pattern of relationships exists such that the data may be "rearranged" or "reduced" to a smaller set of factors or components that may explain the variance in the data. In this case, the diversity of questions indicated that some quantitative index was needed to determine if the survey was actually dealing with one subject, albeit broad, or if it was dealing with bits and pieces of information. In either case the information that was gathered could be useful, but in the former situation the information would be more useful because there would be evidence that responses vary in consistent patterns and each respondent carries internally consistent opinions about sex-role stereotypes.

There are three customary steps in factor analysis: (1) the preparation of the correlation matrix (2) the extraction of initial factors - the exploration of possible data reduction, and (3) the rotation to a terminal solution - the search for simple and interpretable factors. There are options at each of these points. The options chosen at each point will be described in the following discussion of results.

An R-type correlation matrix was used for an initial principal-component factor analysis. First items were factored without rotation. Seven factors showed substantially meaningful patterns among the variables and accounted for about 69% of the total variance (see Table 12). Then these seven factors were rotated orthogonally (to be uncorrelated with each other). The two factors from these seven that seemed most interesting were Factor 1 and Factor 3. The other factors seemed to reflect very intricate patterns in the responses. Table 13 gives the factor loadings for the first three factors.

TABLE 12. Factors resulting from first principal components factor analysis.

Factor	Eigenvalue	Percent of Variance	Cumulative Percent
1	6.15305	15.7	15.7
2	4.65069	11.9	27.6
3	4.10026	10.5	38.1
4	3.98770	10.2	48.3
5	3.05655	7.8	56.2
6	2.68771	6.9	63.0
7	2.25441	5.8	68.8

Factor 1 seemed to indicate strong feelings that sex-role stereotyping occurs in the schools. Such questions as the one asking where boys and girls are treated differently loaded very heavily on this factor (.63 and over). Factor 1 also had high negative loadings on the response that sex-role stereotyping does not occur. This supports the notion that respondents felt strongly that stereotyping occurs in the schools. This factor (F_1) might be labeled "Problem Awareness." It is the strongest factor and accounts for 16% of the variance.

The third factor (F_3) is, in some ways, the antithesis of F_1. For example it has very low loadings on the statements about sex-role stereotyping taking place in the schools ($r = .2$ and below). On the other hand, F_3 also relates to some positive activities taken by staff to correct sex-role stereotyping. For example, the positive responses to reducing sex-role stereotyping by means of calling attention to bias in instructional materials loaded very heavily on F_3. F_3 also loads heavily on age and position; this indicates that respondents who are older and in positions such as support staff were more likely to be correlated with this factor. Taking all the loadings together it would appear, however, F_3 is a rather conservative reflection of responses to the sex-role stereotyping survey.

A word about the second factor (F_2) is also in order. F_2 is very weak because it has such low loadings on most responses. It does, however, load

TABLE 13. Factor loading for first three factors using varimax rotated factor matrix after rotation with Kaiser normalizations.

	FACTOR 1	FACTOR 2	FACTOR 3
Sex	.05936	-.02703	-.01796
Age	.03690	-.18164	.43378
Position	-.13561	.03896	.37479
Building	-.22361	-.16001	.29408
Home	-.11235	.12895	-.10388
Media	.07620	.01649	.17996
School	.06675	-.16243	-.18452
Religion	.18592	.08040	-.13716
Peers	.06875	.24289	.05637
Other (one)	-.11397	-.14389	.13201
Courses	.00087	.01524	-.09342
Counseling	-.04022	.09609	.15678
Commercial Instructional Material	-.35322	.04098	.14898
Teacher-made Instructional Material	-.39081	.09994	.49837
Staff Attitudes	-.01944	.10033	.06824
Other (Two)	-.35668	.49145	.49257
It does not occur	-.49441	-.00425	-.11824
Curriculum Changes	.21133	.25166	-.00266
Group Discussions	.04541	-.00140	-.14738
Workshops	-.09998	.87679	-.10386
New Commerical Instructional Material	.05093	-.11746	-.06861
Resource Catalogue	-.37646	-.28343	-.30759
Other (Six)	.10655	.80105	.12181
Athletics	.08103	.01632	.01854
Personnel Decisions	.13706	.39316	-.01364
Extra-curricular Activities	-.15535	.14266	.05353
Vocational Guidance	.15214	-.01631	.04844
Commercial Instructional Material	.17019	-.21132	.02225
Teacher-made Instructional Material	.11024	.09214	.00933
Concern	.28164	-.05860	.32405
Developed Non-sexist Materials	.28130	-.00968	.14388
Call Attention to Sex-Bias Instructional Material	.09194	.05596	.83918
Encouraged Students to Evaluate Stereotypes	.09193	.11175	.35927
Reduced/Eliminated Activities treat boys/girls differently	.02174	-.00797	-.01486
Feelings	-.05011	-.09546	.41043
Rewards by Teachers	.73146	.12154	.12838
Classroom Discipline	.76190	-.02233	.07184
Administrative Discipline	.67789	-.21077	.00437
Vocational Guidance	.76994	-.09412	-.18950
Athletics	.63430	.05493	.05016
Duties	.73487	.00084	-.06301
Motivation to Learn	.12366	.01141	.07002
Activity Level	.10472	-.14691	.05329
Interests	.12218	-.00588	.04021
Hobbies	.09476	-.04950	.00281

Total variance accounted for by $F_1 + F_2 + F_3 = 38.1\%$

very highly on the response that favors workshops as being the best way to reduce sex-role stereotyping. F_2 is also moderately correlated with the responses that favor equal treatment in personnel decisions as being the most important place for equal treatment of males and females in schools.

The information from the factor analysis suggests that the survey is probably made up of several components because the responses do not show a strong unifactor pattern structure. It was promising, however, that the strongest factor was one that loaded heavily on the responses which showed an awareness of a sex-role stereotyping problem. In the future this instrument might be used as an assessment device to determine if staff members feel there is a problem which they would like to work on.

In conclusion, the factor analysis showed that the survey was composed of more than one factor of sex-role stereotyping. For a more homogeneous survey some additional work should be done on the wording of questions and the selection of topics to be covered. These multifactor results, however, do not detract from the value of the survey. The questionnaire was designed as a multi-faceted and exploratory survey and the results indicate that it achieved those purposes.

Section III

Introduction

Multiple regression is a general statistical technique through which one can analyze the relationship between a dependent or criterion variable and a set of independent or predictor variables. It may be used as a descriptive tool or an inferential tool. In this case the descriptive use will be to control for other confounding factors in order to evaluate the contribution of a specific variable or a set of variables. The inferential use will be to see whether the results differ from those found in the general population.

It is important to look at a few of the responses to the sex-role stereotyping survey by means of a multivariate approach because the relationships among the independent variables - sex, age, position and building - may covary in such a way as to confound the simple relationships between each dependent and independent variable. In other words, simple analyses such as the Chi Square are not capable of describing complex relationships among data. This section (Section III) is similar to Section I, but it involves more complex analysis of some of the data. The results will be compared to the results in Section I where it is appropriate. In particular, this section is an attempt to discover reversals or different interpretations as a result of these additional analyses.

Before the discussion of these additional analyses, several terms should be clarified. First, the independent variables are:

(a) Sex, referring to sex of the respondent;

(b) Age, referring to age of the respondent in one of three categories: (1) younger than 30 years, (2) 31-40 years, (3) 40 or more years. Compared to earlier analyses, the first age category is a consolidation of two categories, namely 20 and below and 21-30 years. The reason for this was

that only a small number of respondents were in the youngest category.

(c) Position, referring to the position of the respondent. It could be Teacher, Aide, Support Staff or Clerk/Engineer.

(d) Building, referring to the school or office where a respondent works most of the time.

The dependent variables are:

(a) Concern, referring to responses to Question 5 on the survey, "Compared to other matters you have to deal with in your school life, how would you rate your concern about sex discrimination?"

(b) Feelings, referring to responses to Question 7, "If women achieve full equality with men, my feeling about the effect on our society could be labeled as:". The variable was recoded as that "1" represents "Alarm" and "5" represents "Enthusiasm."

(c) Actions, referring to the responses to Question 6, "To reduce sex-role stereotyping in my classroom, I have: (1) developed my own non-sexist instructional material (2) called attention to sex bias (3) encouraged any student to critically evaluate stereotypes and (4) reduced activities which treat boys and girls differently." It is a composite variable formed from adding the number of "Yes" answers to each part of the question. A "4" means that a respondent had answered, "Yes, I have taken all four steps to reduce sex-role stereotyping."

Lastly, the term "dummy variable" should be explained. In conventional multiple regression analysis either a interval or a ratio scale of numbers must be used. In this study, most of the numbers are neither interval nor ratio. Since the numbers assigned to categories of a nominal scale (such as sex = females and males) are not assumed to have an order and unit of measurement, they cannot be treated as "scores" as they would be in conventional regression analysis. Dummy variables are used by researchers to insert nominal scale variables into a regression equation.

Dummy variables are created by treating each category of a nominal variable as a separate variable and assigning arbitrary scores for all cases, depending upon their presence or absence in each of the categories. For example, the nominal variable Sex, with male and female categories, may be conceived of as two separate dichotomous variables. All respondents in a sample can be assigned arbitrary scores of 1 or 0 on both categories - male and female. If 1s and 0s are used as scores, a female would be scored 1 on the dummy variable standing for female, and 0 on the other. A male would be assigned a 1 for the dummy variable standing for male and 0 for the other. The newly created dichotomous variables are called dummy variables because their scores have no meaning other than representing or standing for a particular category in the original variable.

Since dummy variables have arbitrary metric values of 0 and 1, they may be treated as interval variables and used in a regression equation. However, if all dummies created from a given nominal variable were entered into the equation, the equation would be unsolvable. It is therefore necessary to exclude one of the dummies from the equation. The excluded category is referred to as the reference category. The reference category is used as a sort of reference point by which the effects of the other dummies are judged and interpreted. In some instances the selection of this reference category is arbitrary and in other instances it is based on knowledge of the situation.

In order to study the effects of age, sex, building and position on sex-role stereotyping attitudes, the following dummies were used:

Age	40 years or more = 1
	Less than 40 = 0
Sex	Female = 1
	Not female = 0

Position (Each compared with "Teacher")	Aide = P_2 = 1 Not aide = 0
	Support Staff = P_3 = 1 Not Support Staff = 0
	Clerk Engineer = P_4 = 1 Not clerk/engineer = 0
Building (Each compared with Tuttle)	Pratt = D_1 = 1 Not Pratt = 0
	Marcy = D_2 = 1 Not Marcy = 0
	Free School = D_3 = 1 Not Free School = 0
	MUHS Middle = D_4 = 1 Not MUHS Middle = 0
	MUHS Senior = D_5 = 1 Not MUHS Senior = 0
	Other = D_6 = 1 Not other = 0

Also in some analyses:

Free* = 1
Not Free = 0

*D_3 and Free are the same for some purposes

Concern

Table 14 shows the results from the Concern regression analyses. Equation 2 and 3 in the table show that there is evidence that Concern is negatively related to age at the 5% level of significance. These analyses were done with age collapsed into two categories. One category was made up of respondents who were 40 years and over and one category was made up of respondents who were under 40 years of age. This was done because the category 40 years and over was the only significant factor in the dependent variable Age.

TABLE 14. Regressions With Concern
(Coefficients with significance in parentheses)

Variable	Equations (1)	(2)	(3)
AGE	-.217	-.290	-.278
	(.108)	(.037)	(.049)
SEX	.367	.409	.352
	(.007)	(.003)	(.018)
FREE	.626	.605	
	(.006)	(.008)	
P_2		-.129	-.144
		(.466)	(.431)
P_3		-.084	-.037
		(.598	(.820)
P_4(c/e)		.528	.552
		(.047)	(.044)
D_1			.312
			(.148)
D_2			.192
			(.372)
D_3			.764
			(.003)
D_4			.031
			(.902)
D_5			.111
			(.583)
D_6			.592
			(.044)
R^2	.122	.157	.188
N	143	143	146

As might be expected, women expressed higher levels of Concern than men as shown by all three equations. Each shows that the effect of the sex of respondent added significantly to the predictability of the response.

There are several ways to analyze whether location of the respondent is related to Concern. One method is an F-test of significance. It is formed from the residual sum of squares from two regressions in the following way:

$$F = \frac{(SS_R - SS_u)/R}{SS_D/DOF}$$

Where: SS_R = Sum of squares from a "restricted" regression without the building dummies D_1 to D_6.

SS_u = Sum of squares from an "unrestricted" regression which includes building dummies D_1 to D_6.

R = Number of restrictions (in this case 6)

DOF = Degrees of freedom for entering and F-test table

When this test was done it indicated a significance close to the 5% level. This means that if building has no effect, then it is fairly unlikely that the sum of squares would have been reduced as much as it was by introducing the dummies.

However, from additional tests it was discovered that the dummy for Free School was the main factor among the variable buildings. There is evidence that being at Free School has a significant effect at the 1% level of significance. When a final check was run, the addition of the data on the other five buildings did not change the F-test significantly. Therefore, for most of the following work, only one building dummy (Free School) was used. What this means is that when the factor "Building" is added to the equation, it significantly improves the ability to predict a person's response. In reality however, the same improvement is made if one knows only one thing - whether or not the respondent was at the Free School. It is not necessary to know which other building a person works in to improve predictability. In a larger sense this can be interpreted to mean to the opinions of Free School personnel were the only opinions related to a group of respondents where the factor building made a significant contribution.

A similar F-test was conducted to see if holding a position other than "Teacher" has a differential effect. The result (below) indicates that there was not a significant effect at the 5% level.

$$Ho: \quad P_2 = P_3 = P_4 = 0$$

$$F\ (3,134) = 1.87$$

For 5% significance F (3,134) = 2.68

However, it does appear that those holding the Clerk/Engineer position are more concerned than Teachers (see Equations 2 and 3 in Table 14).

The multiple regression analyses on Concern yield different results from the results in Section I, reported on page 9 of this document. It was reported there that Teachers expressed less concern than those in other positions. From a multivariate approach this contention is not supported. Section I also reports no significant differences in Concern related to Age, Sex or Building. Here we find evidence of all three. The exact reason for these discrepancies can only be guessed at. It probably means that there are tendencies for age and sex to be related to position. For example, aides tend to be younger than teachers. In fact age may be more important to know than the position of a respondent.

Let's look at one difference closely. Support Staff seem to have less concern than the other positions. They also appear to be older, male and are generally not located at the more concerned Free School. The multivariate analysis allows this more complex interpretations of the data. In both analyses, however, the direction of the effect found by simple correlation is not altered.

Feelings

A similar series of regression equations were done for the variable Feelings. Again there were significant effects when Sex, Age, and the dummy Free School were added to the equation (see Table 15). However, when all the buildings were added, the effect was not quite significant at the 5% level.

Ho: $D_1 = D_2 = D_3 = D_4 = D_5 = D_6 = 0$

$F\ (6,134) = 2.12$

For 5% $F\ (6,134) = 2.17$

The variable position also showed no effect when added to the equation.

Ho: $P_2 = P_3 = P_4 = 0$

$F\ (3,134) = .166$

For 5% $F(3,134) = 2.68$

The results differ somewhat from those discussed in Section I, p. 11 of this report. For example there were no significant differences by Age or Building, and there are for Age and the building Free School in the multiple regression analysis. However, most of the results vary roughly the same way they did when analyzed by the Chi Square technique.

TABLE 15. Regressions With Feelings
(Coefficients with significance in parentheses)

Variable	Equations		
	(1)	(2)	(3)
AGE	-.458	-.440	-.444
	(.001)	(.003)	(.004)
SEX	.522	.518	.419
	(.000)	(.000)	(.009)
FREE	.575	.578	
	(.017)	(.017)	
P_2		-.134	-.107
		(.479)	(.587)
P_3		-.103	-.051
		(.544)	(.769)
P_4		-.232	-.154
		(.411)	(.598)
D_1			.251
			(.276)
D_2			.294
			(.205)
D_3			.598
			(.012)
D_4			.229
			(.392)
D_5			-.132
			(.541)
D_6			.394
			(.210)
R^2	.199	.206	.233
N	143	143	146

Actions

The regressions for the dependent variable Actions are reported in Table 16 (where nonresponses are included) and Table 17 (where nonresponses are omitted)*. Since the two tables yield similar conclusions, only Table 16 will be reported.

*If the sample of nonresponses are not correlated with any variable not included in the regression which should be included but is not, then the estimates of the regression coefficients are unbiased. However, if the nonresponses are mostly from one end of an independent variables range, then the variance of the predictor is greater in the range where there are few observations. (For a further explanation see: E. Suchman, "An Analysis of 'Bias' in Survey Research." Public Opinion Quarterly, Vol. 26, 1967, Spring, 102-111.)

TABLE 16. Regression With Actions
(Coefficients with significance in parentheses)

Variable	Equations		
	(1)	(2)	(3)
AGE	-.543	-.420	-.469
	(.035)	(.061)	(.047)
SEX	-.015	-.013	.034
	(.954)	(.950)	(.888)
FREE	.507	.519	
	(.241)	(.155)	
P_2		-1.402	-1.365
		(.000)	(.000)
P_3		-1.683	-1.621
		(.000)	(.000)
P_4		-1.682	-1.618
		(.000)	(.000)
D_1			.138
			(.703)
D_2			-.091
			(.800)
D_3			.596
			(.157)
D_4			.276
			(.501)
D_5			.168
			(.611)
D_6			.027
			(.954)
R^2	.047	.338	.342
N	143	143	143

TABLE 17. Regressions With Actions
(Coefficients with significance in parentheses)

Variable	Equations		
	(1)	(2)	(3)
ACE	-.779	-.575	-.738
	(.003)	(.033)	(.015)
SEX	-.378	-.264	-.210
	(.140)	(.295)	(.450)
FREE	-.408	-.155	
	(.220)	(.634)	
P_2		-.774	-.669
		(.033)	(.104)
P_3		-.504	-.359
		(.155)	(.379)
P_4		-1.066	-1.208
		(.041)	(.029)
D_1			.556
			(.215)
D_2			-.182
			(.656)
D_3			.070
			(.872)
D_4			.485
			(.262)
D_5			.385
			(.315)
D_6			.153
			(.875)
R^2	.179	.314	.385
N	53	53	53

In Equation 2 of Table 16 Age contributes significantly at the 6% level while sex and building location do not make a significant difference (10% level). Similarly Equation 3 also yields an F-test on building dummies which does not support their having any effect.

Ho: $D_1 = D_2 = D_3 = D_4 = D_5 = D_6 = 0$

$F\ (6,131) = .490$

For 5% $F\ (6,131) = 2.17$

There does seem to be a very strong effect of position on Actions. This confirms the results as reported in Section I, p. 10. The effect of position on Actions is significant at or below the 1% level (see Equation 2 and 3).

Ho: $P_2 = P_3 = P_4 = 0$

$F\ (3,131) = 16.303$

For 1% $F(3,131) = 3.93$

Conclusions

A comparison of the regression analyses on the three dependent variables yields a few conclusions. First, it does seem that women are significantly more concerned about and have stronger positive feelings about changing sex-role stereotypes. However, women do not seem to be more active than men in trying to change these stereotypes.

Second, younger persons are much more positive toward changing sex-role stereotypes and are more active in changing them. This certainly leads to some interesting speculation about the current trends in age distribution in elementary and secondary school staffs. With a decline in the employment of younger staff members due to declining enrollments, the effect of changing sex-role stereotypes may be slowed considerably. On the other hand, a policy to hire younger teachers could have a significant positive effect on the sex-roles of the next generation of young women.

Third, position generally was not a significant explanatory variable except on the dependent variable Actions. Apparently teachers are in the best position to take an active role in changing sex-role stereotypes.

Finally, there is some evidence that attitudes of staff members are different at the Free School. It may be that self-selection is the best explanation of this relationship, but it should be noted that when other variables are controlled, attitudes of the Free School staff still differ from the attitudes of staff at all other buildings. On the other hand, Free School teachers are no more likely than other teachers to take an active part in changing sex-role stereotypes, or at least not significantly more likely when Age, Sex, and Position are controlled for.