

Equity in Education:

The Relationship between the Sex-Typed Nature of the School Climate
and Sex Differences in Student Achievement

A RESEARCH PROPOSAL

by

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ABSTRACT

Previous theory and research suggest that the sex-typed definitions of school, the student role, and various subjects are important influences on sex differences in students' achievements and aspirations. Building on this work the current project will investigate how the sex-typed nature of the school, specifically the sex ratio in the professional staff and student body, affect sex differences in students' grades, achievement in various subjects, and adult aspirations. The sex-typed definitions of learning within the general culture and individual characteristics such as social class and attitudes toward school are also known to influence sex differences. Measures of these variables will then be controlled in the analysis. To provide the widest variation in the measures, data from an extensive cross-cultural study of achievement will be used. A follow-up study within the United States is planned. That study will examine how classroom interactions vary with the sex-typed nature of the school and classroom and thus affect sex differences in achievement.

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Relatively little is known about how sex inequities in the education profession relate to sex inequities in student achievement and aspirations. I am interested in studying how the sex-typed environment of schools, specifically sex segregation in the profession and sex ratios in the classroom, relate to girls' tendency to receive higher grades than boys, girls' greater achievement in verbal areas, boys' higher achievement in mathematics and science, and sex differences in students' adult aspirations. Figure One illustrates the conceptual model that underlies this study. It is recognized that both variables related to the general cultural setting and the individual (Block C) influence students' achievements and aspirations (D). It is also suggested that the sex-typed nature of the school and classroom (A) influence interactions within the school and especially the sex-typed definitions of learning transmitted within the school (B) and thus also influence students' achievements and aspirations (D).

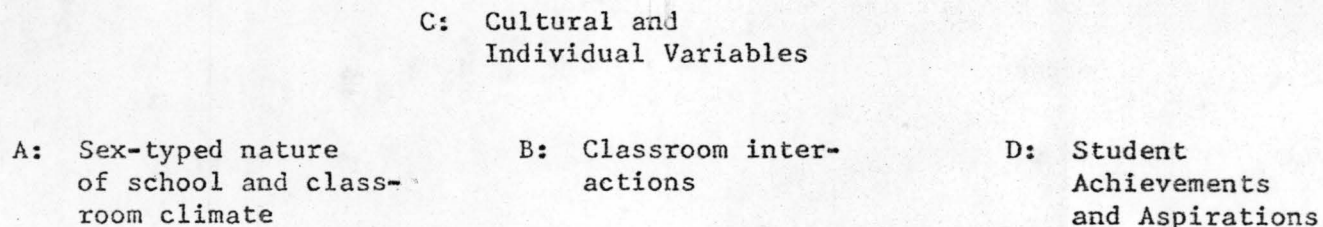


Figure One

General Conceptual Model

The project outlined below is the first part of a proposed two-stage study of this model. The first part of this study will examine the relative influence of the sex-typed nature of the school climate on student achievements and aspirations when cultural and individual variables are controlled (Blocks A, C, and D in Figure One). The second part of the study will examine how the school climate affects interactions and how these interactions affect achievement (Blocks A, B, and D). Because the second phase of the study will utilize the results of the first phase, I will develop a detailed proposal for the second phase after completing the work proposed here.

It is expected that the research will result in a better understanding of how the deployment of women and men in the education profession affects the achievement of girls and boys in various subject areas as well as their aspirations for adult life. Only with such knowledge may sound recommendations for changes in schools that promote equity in both the profession and student achievement be proposed. The study may also increase understanding of how sex ratios in the classroom influence student achievement. Because so little is known about that particular area the extensive Title IX regulations omitted any requirement of sex integration in elementary classrooms (Williams, 1980: 152-153).

This project relates to CEPM's mission concerns with the education profession, educational policy, and educational equity. It specifically concerns the relation between human resources and effective instructional programs and how the distribution of resources affects equity for professionals and students.¹ Below I review the literature related to this problem, the theoretical basis for the project, and the research plan.

Related Literature

Sex inequities in the education profession and sex differences in achievement and aspirations have been widely documented (see Schmuck, 1980; Stockard, 1980,b,c; for reviews of this literature). Below I briefly summarize this area, explore possible reasons for the sex differences in each area of student achievement and summarize this evidence to provide the basis for the present study.

Sex Inequities in the Profession -- Sex inequities in the education work force involve both the underrepresentation of women in administration and sex segregation in teaching and administration. Women are somewhat overrepresented in the teaching force, especially in the elementary schools and in certain areas in secondary schools such as languages, business education, and home economics. Men are somewhat overrepresented in secondary school teaching, especially as teachers in science, industrial arts, and social studies (Schmuck, 1980: 87-88). Men are much more often administrators than women. Yet, sex segregation is also found in administration with women administrators predominating in staff positions such as supervisors, coordinators, and directors rather than the line positions of principal and superintendent (Schmuck, 1980: 88- 91). Cross-culturally, teachers in the early grades are

1 I recognize that this proposal violates the statement on page 6 of the Center's mission statement that work at the center will not focus directly on educational outcomes. The basic model (page 6) assumes that resource allocation affects time on task which then affects educational outcomes. I believe that the area of student sex inequities does not necessarily fit this model. For instance, girls may well spend more time on task and engaged in learning than boys, but still have lower mathematics achievement and lower occupational aspirations and achievement. Boys receive more attention from teachers, yet still have lower reading achievement scores. Thus I believe that the variation from the model of CEPM is necessary for this proposal.

usually women, although the representation of men teachers in the higher grades and sex segregation in the teaching force may vary (cf. Stockard and Johnson, 1980, chapter 4).

Sex Differences in Grades -- Females in the United States appear to receive higher grades than males in all subjects from grade school through graduate school (Stockard, 1980b: 18-19), regardless of their scores on standardized achievement and intelligence tests (McCandless, et al, 1974) and apparently regardless of whether the teacher is a female or a male (Carter, 1952; Safilios-Rothschild, 1979: 67-68). The best explanation of this sex difference in grades involves the feminine sex-typing of school and the student role. Children seem to associate school objects with females (Kagan, 1964) and teachers actually reinforce both girls and boys for feminine, rather than sex-typed, behaviors (Fagot and Patterson, 1969). Because an important part of boys' developing image of themselves as males is the rejection of femininity (Stockard and Johnson, 1979, 1980), males tend to reject the role of student by not conforming. Thus their lower grades are probably a better indicator of their attitudes and behavior than their actual achievement (Stockard, 1980c: 63-64).

Sex Differences in Achievement -- Sex differences in achievement vary from one subject to another. In general girls appear to have greater verbal fluency while boys have higher mathematical achievement.

In the younger school years boys are more often found in special classes for the learning disabled and in the lower skilled reading groups (Bentzen, 1966; Cruickshank, 1977). In this country girls' higher reading scores in the early grades appear to be related to their greater readiness to read (Balow, 1963). Beginning at around age 10 or 11 and continuing through adulthood, girls score higher on tests of very specific verbal skills such as "comprehension of complex written text, quick understanding of complex logical relations expressed in verbal terms, and in some instances, verbal creativity" (Maccoby and Jacklin, 1974: 84). Cross-cultural studies show that boys are more likely than girls to be in remedial reading classes, but that there are often nonsignificant and inconsistent differences in overall reading scores in countries other than the United States (see Stockard, 1980b: 21-2 for a summary of these studies).

Sex differences in quantitative ability appear most strongly after puberty. Girls actually learn to count sooner than boys and have generally equal skills in arithmetical computation (Maccoby, 1966:26). Yet, the later differences in mathematics achievement appear to be real and occur even among students who have had the same number of math courses (Maccoby and Jacklin, 1974: 85-91). These sex differences in mathematics achievement appear cross-culturally (Husen, 1968).

A number of explanations have been offered for sex differences in achievement. First there may be a biological basis (see Stockard, 1980c: 50-52, 60-61). Boys' greater representation in remedial classes may result from their slower maturation and their greater susceptibility to developmental problems that hamper learning (Cruickshank, 1977: 25-26). Girls' greater ability with verbal skills, especially after adolescence, has been related to sex differences in the functioning of the brain hemispheres (Goleman, 1978). Boys' superiority in mathematics achievement is often linked to their superior visual-spatial ability, which occurs cross-culturally and probably has a physiological basis (cf. Sherman, 1977). Sex differences in visual-spatial ability may also account for sex differences in science achievement. A study of scores on physics achievement tests showed that "on the portions of the test calling for visual-spatial skills, the male physics students did better; on verbal test items, female physics students obtained higher scores" (Maccoby and Jacklin, 1974: 89 - 91).

There is some indication that the sex composition of the classroom can affect boys' achievement in the early years of school, although the source of the difference is not clear. A pilot program in Virginia found that boys in single-sex elementary classes had better academic progress than boys in mixed-sex classes but that there were no long range differences for the girls (Lyles, 1966). Safilios-Rothschild (1979: 70 - 72) summarized other studies and concluded that sex segregation in the early grades enhanced boys' achievement and prompted less sex stereotyped behavior among both boys and girls. Sex segregation in higher grades, and especially in grades seven and eight, did not produce any significant gains. A cross-cultural study of mathematics achievement found that the sex differences were greater in countries where sex-segregated schools were more common. This may reflect differences in curriculum available to the students, however, rather than the influence of other students (Husen, 1968).

Some studies have examined if the sex of the teacher affects achievement. Virtually all of these studies have focussed on reading achievement and have used the classroom as the unit of analysis. In general, studies in this country suggest that having a man teacher in the early grades does not improve boys' reading achievement. Whether the teacher is a man or a woman, sex differences in reading scores remain (Brophy and Good, 1973; Asher and Gootman, 1973; Safilios-Rothschild, 1979: 66- 67). In contrast, one study of algebra students, now almost thirty years old, (Carter, 1952) noted that in classes taught by women the girls had higher achievement scores and in classes taught by men the boys had higher achievement scores. While this result may result from modeling, with students emulating the teacher of the like sex, it could also result from differences in teaching styles with the teachers presenting the material in ways that reflect sex differences in visual-spatial ability thus enhancing the achievement of their same sex students (see Stockard, 1980c: 61). I could find no studies that looked at the effect of the sex composition of the total school staff (either teachers or administrators) on the achievement of children.

Explanations of sex differences in achievement that involve cultural definitions of appropriate sex roles and the sex-typing of various subjects are somewhat more sophisticated than the explanations reviewed above. Countries and cultures vary in the extent to which they define academic success as a masculine endeavor. In the United States academic success is often considered somewhat suspect and even unmanly or "sissyish." In contrast, in England, Nigeria, and Germany, countries in which boys have been found to excel in reading, men are more often found teaching in lower grades and academic success is valued for males (Johnson, 1973-1974; also Preston, 1962). As noted above, in the United States the role of student and school itself are generally seen as feminine and one reason boys have more behavior problems and lower grades than girls is that they wish to avoid conforming to the feminine role of student and the feminine nature of the school (Stockard, 1980c: 64). This explanation can apply to achievement as well.

Students' achievement in specific areas appears to be related to the sex-typed definition of those subjects. Changes in sex differences in achievement seem to parallel changes in perceptions of the sex-typed nature of the subjects as well as the perception of the usefulness of the areas in later life (Stein and Smithells, 1969; Hilton and Berglund, 1973). In a study of students in grades^m two through twelve Dwyer (1974) found that a child's perception of an academic area as appropriate for his or her own sex group was a more important influence on achievement than how much the student liked the subject or even whether the student was a female or male. The influence of the perceived sex-typed nature of the subject was more important for males than for females, supporting studies of sex role socialization that note the greater importance for males than for females of maintaining sex-typed definitions and roles (Stockard and Johnson, 1980: chapters 7 and 8).

Explanations using cultural definitions of learning can help explain why the sex of the teacher does not affect boys' reading achievement. If school itself as well as the role of student are seen as feminine, the occasional male teacher may not alter that image. In fact, given the male teacher's relative rarity in the primary grades (at least until recent years) his presence may simply make the feminine nature of the school even more obvious. In contrast, a woman teacher may enhance girls' mathematics achievement by making the subject appear more appropriate for females. For students in the early years a single sex classroom may enhance boys' achievement because the feminine definition of schooling is altered. Girls' achievement may not be affected by single sex classrooms in the early years because they are less inclined than males of that age to stress adherence to sex-typed roles.

Sex Differences in Adult Aspirations -- Males and females generally have different aspirations for adult life. Both sexes aspire to occupations that are traditionally sex-typed and girls concentrate more on their future family life while boys concentrate more on their future occupational success (see Stockard and Johnson, 1980: chapter 11). Most explanations of these sex differences in aspirations involve experiences and variables outside the school including the expectations and encouragement of the parental family, the sex-typed nature of actual opportunities in the occupational world, and even the media. There appear to be no studies that examine the impact of teachers or administrators on students' occupational and educational aspirations (Safilios-Rothschild, 1979: 79). In general, occupational aspirations reflect cultural definitions of what is appropriate for females and males as well as the definitions sanctioned by significant others. The traditional sex-typed choices of young people reflect the sex segregation of the occupational world in general. Moreover, young women are apt to choose a non-traditional occupation or to be less wary of achievement if men who are significant others, including the father and male friends, show approval (Matthews and Tiedeman, 1964; Johnson, 1963, 1975; Horner, 1973).

Summary -- Sex inequities in education involve both the professional work force and students. Among professionals women are generally over-represented in the teaching force and men are overrepresented as administrators. In addition there is sex segregation in both teaching and administration. Men and women teach different subjects; men and women are administrators in different types of positions. Among students the sex inequities sometimes work to males' advantage and sometimes work to females' advantage. For instance, girls have higher grades than boys at all levels in schooling, girls score better on tests of verbal achievement, boys generally score better on tests of mathematical achievement, and boys and girls both have sex-typed aspirations for their adult lives.

Explanations of the inequities students face involve both variables outside the school setting and those within schools. Some sex differences in achievement may be related to differences in biological capacity, adult roles open to females and males, and cultural definitions of appropriate behaviors for members of each sex group. Individuals also differ in the extent to which they accept cultural definitions of appropriate roles and these individual differences are often related to parental family attitudes and social status (cf. Stockard, 1980a). Finally, some literature documents the impact of school related variables including the sex of the classroom teacher, the sex of the other students, and sex-typed definitions of the student role and various subjects. It appears that of these school-related factors the most important involve definitions of the sex-typed nature of the student role, school itself, and various subject areas.

While only minimal support has been found for the idea that the sex of an individual teacher influences the aspirations and achievement of students, these studies have not examined how the sex-typed nature of the school environment affects achievement. In other words, it may be possible that while a lone teacher of an atypical sex may have little effect on achievement, altering the sex ratio in the professional work force may affect the sex-typed definitions of schooling and thus achievement. Studies of work groups (e.g. Finigan, 1979) indicate that varying the sex ratio of a small group influences the interaction climate making traits and characteristics of the numerically dominant sex more acceptable. Thus it is not unreasonable to expect that varying the sex ratio in the professional work force and student body of schools may affect the sex typing of schools and subjects and thus influence patterns of sex differences in students' aspirations and achievements. This project will examine that relationship. The sections below expand the theoretical basis for the project and explain the methods to be used.

Theoretical Concerns

As noted in Figure One (Blocks A, C, and D), influences on sex differences in student achievement and aspirations can be seen as involving several different spheres.² Definitions within the general culture of the sex-typed nature of learning, the student role, school and various subjects influence the extent to which individuals pursue different areas of achievement. The individual's own definition of learning and achievement, especially as influenced by the parental family, as well as characteristics with a possible physiological base, also affect achievement. Finally, the school and classroom environment may influence sex differences in achievement. It is here that the sex ratio in the professional work force and in the student body as well as school wide and classroom definitions of learning and the student role have a place.

The variables in these spheres differ in the extent to which they may be manipulated in attempts to attain greater equity. While the cultural and individual spheres can change with general changes in the cultural climate, they are probably difficult to manipulate with social policies. In contrast, the school and classroom variables may be directly affected by administrative decisions related to staffing and distribution of students. If the sex ratio of staff and students can affect the sex-typed definitions of school, learning, and achievement within that setting, then it is conceivable that variations in sex inequities in aspirations and achievement can also be affected within that school and classroom. The purpose of this project is to explore the influence of the sex-typed nature of the school and classroom climate on sex differences in student achievement and aspirations while controlling for the influence of variables within the individual and cultural spheres.

2 Phase two of this project will include the variables in Block B of Figure One in the analysis.

Although all the conceptual definitions and hypotheses involved in this project will be completely formulated at the beginning of the project, it is important to note here briefly some of the difficulties inherent in studying sex inequities in student achievement and aspirations. As noted earlier, sex inequities vary from those in favor of boys (e.g. math achievement and adult aspirations) to those in favor of girls (grades and verbal achievement). What then does greater equity for students involve? Does it mean lowering boys' achievement in some areas and lowering girls' achievement in others? Is a situation where members of both sexes have mediocre but equal achievement preferable to one where members of at least one sex group have high achievement? Will the arrangement of the school and classroom climate that maximizes boys' achievement also maximize girls' achievement? Obviously attempts to study equity, let alone attain it, have both theoretical and political difficulties and I cannot thoroughly explore those issues here. At this time, however, I propose to take this issue into account by using two different definitions of equity in students' achievement: 1) a definition of equity as the situation where there is no difference between males' and females' achievement and aspirations (operationally this translates into studying variations in the difference between males' and females' achievement); and 2) a definition of equity as the situation where both the achievement of females and males is maximized (operationally this will involve studying the situation where females achieve highly and where males achieve highly). In other words, I propose to examine what conditions of the school and classroom environment minimize sex differences and also what conditions maximize the achievements and aspirations of each sex group. It is entirely feasible that the conditions that will maximize the achievement of boys (e.g. a predominately male classroom and a culture with greater respect given to scholarly activities by males) are different from those that will maximize the achievement of girls (e.g. female teachers, the valuation of female scholars) and are different still from those that will minimize sex differences overall (e.g. an equal sex ratio in school staffs). It is also possible that different conditions will influence variations in each of the various areas of achievement and aspirations. In this project I will try to clarify the situations within the school and classroom that contribute to each of these situations. I will also try to delineate the various theoretical, practical, and political issues that are implied by the results.

Methodology

Below I discuss the sample, measures, and analysis procedures that will be used in this project.

Sample -- Data for this study come from the Six Subject study of the International Association for the Evaluation of Educational Achievement (IEA) with data gathered in 1970 and 1971 in a wide variety of countries. These data are available from the Inter-University Consortium for Political and Social Research. Because the University of Oregon has a contractual arrangement with the Consortium, there will be no problem in obtaining the data.

This study will use data gathered from students aged ten and fourteen years of age at the time of testing, from teachers in the schools from which the subjects were selected, and from the schools themselves. In most cases students were tested whether or not they were taking or had taken the subjects in question. For the students in the ten year old sample all teachers with students 10 years of age or younger were included. For the fourteen year old sample teachers in the school who were teaching one or more of the subjects surveyed were sampled. Achievement in six subjects was studied: reading comprehension, literature, civic education, science, and English and French as foreign languages. Achievement in only the first four subjects will be studied here.³ Achievement scores for literature and civics are generally available only for the fourteen year olds. The study is limited to countries with data for at least two subjects for both the ten and fourteen year olds. Table One lists the countries to be studied with the approximate number of students, teachers, and schools in each part of the sample.⁴

The recommended sampling procedure for each country was a two-stage stratified probability sample with schools as the primary sampling unit and students as the secondary factor. The stratification frame for schools was to involve factors relevant for each nation such as size, type of school, and region with an aim of one hundred or more schools for each nation. Generally schools and classrooms of physically and mentally handicapped children were excluded; private schools were included. Because the sample is a probability one, procedures are available for extrapolating the findings to give valid estimates of the results for the relevant populations. Although the sampling procedure was carefully designed, the complexity of a vast international study meant that the design was not always perfectly realized. Thus the IEA suggests that various demographic data in each of the files be compared to demographic data for the country as a whole to determine cases where discrepancies occur. Such a procedure will be employed in this study.

3 It is unfortunate that achievement in mathematics was not measured. Science achievement, however, is to some extent a proxy for math for sex differences also appear there (Stockard, 1980: 21) and as noted above may have at least some of the same basis as sex differences in math achievement.

4 Sample size is only approximate because the files vary to some extent in how missing data are reported. The various means used are apparently clearly shown in the codebooks.

Countries Sampled and Size of Sample

Country	10 Year Old Sample			14 Year Old Sample		
	Schools ¹	Teachers	Students	Schools ¹	Teachers	Students
Belgium (Flemish)	32	222	721	31	237	699
Belgium (French)	33	158	778	32	131	570
Chile	83	355	1510	151	602	1355
England	162	1301	3680	148	1524	3284
Finland	97	350	1311	77	496	2326
Hungary	153	846	4891	211	1520	7039
India	183	267	2731	161	338	2985
Iran	55	47	1708	42	42	1436
Italy	294	378	4561	343	1351	7538
Netherlands	64	166	1644	51	267	1254
Scotland	107	1129	2183	70	819	2011
Sweden	99	665	2041	96	1157	2490
United States	272	1632	5550	161	992	7065

1 Figures for schools include only those schools that returned questionnaires regarding the schools. In some cases data was returned for teachers and students, but not for the schools.

Measures --⁵ Because only a summary description of the data is available at this writing,⁵ the discussion of measures is necessarily limited and changes may need to be made at a later date. Below I describe my preliminary plan for the measures that will be used. Both individual students and schools will be used as the unit of analysis. The results will tell what type of school climate maximizes individual males' and females' achievement and what kind of school and classroom climate produces a student body with the greatest sex equity.

The dependent measures of student achievement and aspirations will come from standardized achievement tests, student reports of their aspirations for the future, and the schools' reports of their grades and evaluations. The data on achievement are very extensive and come from carefully constructed standardized tests given to the students in all the countries.

In line with the theoretical discussion above, these measures of achievement and aspirations will be treated in two different ways. The first measure of sex inequity is the absolute value of the difference between the mean scores of female and male students in a school on the measures of achievement and aspirations:

$$\left| \bar{X}_f - \bar{X}_m \right|. \quad (1)$$

This score will be zero when males and females in a school score equally well; that is, a score of zero will indicate equity. An increasingly higher score will indicate greater sex differences in achievement, and aspirations. This measure can only be used when the school is the unit of analysis. The second measure will be used to examine the conditions that maximize the achievement or aspirations of females and males and can be used when either the school or the individual student is the unit of analysis. For individuals the measure is the difference between the score of each student and the grand mean for the total sample:

$$x - \bar{X}. \quad (2)$$

When the unit of analysis is the school the measure is the difference between the mean score of students in each sex group in each school and the grand mean for the total sample:

$$\bar{X}_{fi} - \bar{X}_{..} \quad \text{and} \quad (3)$$

$$\bar{X}_{mi} - \bar{X}_{..} \quad (4)$$

where i varies over all schools. This measure will indicate the extent

⁵ The codebooks are so extensive they are only available on the computer tapes that must be ordered from the consortium.

to which each student or the extent to which male and female students in each school vary from the grand average in achievement. A higher score indicates greater achievement than average and a lower score indicates lower than average achievement or aspirations.

The independent variables in the study concern the classroom and school climate and specifically the sex ratio in the classroom and professional staff. Here the proportion of the school staff and of the classroom that are male will be the measures used. Whether the teacher is a male or female will also be noted as well as the proportion of all students in the school who are male.⁶ In this case a higher figure will indicate a more masculine climate; a lower figure will indicate a less masculine and more feminine climate.⁷

The control variables to be used in the analysis involve both the general cultural setting and the characteristics of the individual. With regard to the culture I am concerned with the extent to which learning, school, the student role, and various subjects are sex-typed as feminine. Measures of this variable will be obtained from United Nations data on the literacy rate, educational attainment, and enrollment in various subject areas of females and males in each of the countries studied. In line with the measures of the independent variables, the proportion of males who are literate and enrolled in various courses of study such as science, literature, and the social sciences will be used. The difference in the average years of educational attainment for males and females will also be used with a high value indicating that men have proportionally greater educational attainment than women.

The individual characteristics that generally influence educational achievement and adult aspirations relate to the parents' socio-economic status and both the child's and parents' attitudes. Apparently no information is available in the surveys on the sex-role related attitudes of the students in the sample. However, data on their socio-economic background, including the education and occupation of both the mothers and fathers; their general level or track of school program; the parents' and child's attitudes toward school are available.

6 While I hope to also include the sex of the administrators in the school as a variable, it is unclear from the information available at this time if that item is on the data files.

7 Care will be taken to eliminate colinear variables. For instance, if all male classrooms only occur in all male schools, the measures of sex ratios in the two settings (schools and classrooms) must be combined.

Analysis -- Before beginning the data analysis further consideration will be given to several aspects of the project. Additional reading will be done in the area of classroom and teacher effects on achievement and in the area of sociology of the classroom. Because several levels of analysis are involved in the project, methodological works concerned with the problem will also be consulted. The demographic data available in each data file will be carefully compared with other statistics, as recommended by the IEA, to determine the extent of any possible biases in the measures. The final form of the conceptual definitions, hypotheses, and measures will also be developed and working tapes of the data will be recorded for both the individual and school level analyses.

To answer the basic research question of how the sex-typed nature of the school climate affects sex differences in achievement and aspirations a multiple regression type of analysis will be employed with each of the dependent measures outlined above regressed on 1) the independent variables and 2) both the independent and control variables. F tests will be used to find the difference between the variation explained in each of the dependent variables with the two sets of variables, thus indicating the extent to which school climate has an independent effect on sex inequities. The regression coefficients will also be examined to determine which variables are of greatest importance. The results obtained with each form of the dependent variable will be compared as will the results with the measures of the individual and school level of analysis dependent variables.

Use of the Outcomes and Dissemination

As noted earlier, I envision that the work outlined above is the first part of a two stage study of the influence of the sex-typing of the school environment on sex inequities in achievement and aspirations. Thus the work completed with this proposal is intended to inform the development of a second stage of work designed to examine how the sex-typed nature of the school climate affects classroom interactions and thus affects achievement. In other words, if it is found that the sex-typed climate of the school and classroom affects learning independently of the influence of the general cultural environment and the characteristics of individuals, it is important to understand more about how this occurs. Data involving extensive observations of classrooms and teachers in the United States will be used in this part of the study. The proposal for this work will be developed at the end of the current project with work planned for 1982-83.

8 In this analysis I plan to use data from the Beginning Teacher Evaluation Study conducted from 1972 through 1978 by the California Commission for Teacher Preparation and Licensing through contracts with ETS and the Far West Lab. These data are available from the consortium.

9 I hope to be on sabbatical leave during the academic year, 1981-82.

The results of the project should be useful for the expansion of theoretical knowledge about influences on sex equity in achievement and aspirations as well as have very practical implications for school personnel trying to implement legislation regarding sex equity for both professionals and students. Thus, even though further work is planned, the results of the current project will be prepared for publication and presentation at meetings. Papers may be submitted to the annual meetings of organizations such as the Pacific Sociological Association, the American Sociological Association, and the American Educational Research Association. Articles may be submitted to journals such as Sociology of Education, for a more scholarly audience, and to Phi Delta Kappan, for a practitioner audience.

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Work and Staffing Plan

The following outline describes the work to be completed on the project and the people involved at each stage. I have included tasks for a graduate research assistant, primarily needed for help with the computer work; a secretary/typist; and library assistance. The proposed time for the project is from January through August 15, 1981.

DATE	TASK	PEOPLE RESPONSIBLE
Jan. 1-Jan. 30	Library Search - literature on achievement/aspirations relevant methodology sociology of the classroom	PI CEPM librarian (2 days)
	Finalize conceptual definitions, hypotheses, methodology, and measures	PI
	Get computer files ready compare demographic data create measures develop work files	GRA
Feb. 1 - Mar. 15	Analyze individual level of analysis file	GRA and PI
Mar. 15 - May 1	Analyze school level of analysis file	GRA and PI
May 1 - June 15	First draft of results and complete further computer work	PI GRA Secretary (5 days)
June 15 - July 15	Final draft of results	PI & sec. (7 days)
July 15 - Aug. 15	Write proposal for part 2 of study	PI & sec. (5 days)

Budget

Salaries and Wages

Principal Investigator		
Jan. 1 - June 15 .30 FTE ¹		\$9779.
June 15 - Aug. 15 1.0 FTE		4112
Graduate Research Assistant		
Jan. 1 - June 15 .30 FTE		9779
Secretary and librarian		
19 days		950
Other payroll expenses		
PI and clerical help		1366.74
GRA		<u>977.90</u>
Total		\$26,964.64
Total		

Services and supplies

Computer tapes		\$50.00
Materials and supplies		\$200.00
Postage, telephone, freight		\$100.00
Printing and Reproduction		\$300.00
Data Processing		
library searches		\$75.00
data reduction ²		<u>\$700.00</u>
Total		\$1425.00

Total Direct Costs		\$28,389.64
Indirect Costs (48.8% of TDC)		\$13,854.14
GRA tuition		<u>\$1600.00</u>
Total Costs		<u>\$43,843.78</u>

1 This figure is an estimate of the cost of a graduate assistant to teach one of my courses each term. I have not yet consulted with my department head about this procedure, but will need to do so before finalizing any agreement.

2 These costs could be considerably lower if the new computers at the University are significantly more efficient than our older machines.

