

TRANSITION TO JUNIOR HIGH SCHOOL AND GENDER INTENSIFICATION

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Transition to Junior High School and Gender Intensification

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Several lines of research suggest that gender-role intensification may precipitate a change in students' academic motivation as they move into junior and senior high school. First, if gender-role socialization intensifies at puberty, then, for example, girls may come under increasing internal and external pressure to invest time in social activities and heterosexual relationships at the expense of school work at precisely the time when most of them move into junior high school. In support of this suggestion, a recent time use study has found that older girls spend more time socializing with friends than younger girls and older boys spend more time playing organized sports than younger boys (Timmer, Eccles, & O'Brien, 1985).

Second, boys' and girls' attitudes toward various sex-typed subjects such as math and English appear to diverge at this same age. In particular, girls become increasingly negative toward math, especially in comparison with English, during the junior high school years (Eccles, 1985).

Third, Simmons and her colleagues have shown that the negative effects of the transition into junior high school on students'

self-esteem and achievement motivation are most marked for pubertal girls interested in dating. Similarly, Roberts has found an intriguing interaction between the valuing of popularity, gender and grade changes over the junior high school years. Grades in language, literature, and social studies decline from seventh to eighth grade for girls who value popularity. In contrast, grades in these subjects increase for boys who value popularity. Furthermore, while there was a positive relationship between school achievement and various measures of self-esteem and positive mental health for boys, these relationships were either non-significant or curvilinear for girls, with high achieving and low achieving girls looking the worst (Roberts, 1986).

This paper will explore these issues. First, I will present data documenting the change in girls' and boys' attitudes and behaviors during the early adolescent period. Second, I will discuss changes that may be occurring in the social environments at school and at home that may contribute to these changes.

Over the last 10 years, my colleagues and I have been gathering data on the early and middle adolescent period. These studies include information on the achievement-related behaviors, beliefs and attitudes of students, teachers and parents. In particular, we have gathered information on the students' confidence in their abilities in math, English, athletics, and social encounters. We have also gathered information on the value they attach to

competence in each of these domains and on their interest in participating in each domain. I will use these data to document the emergence of sex-typed interest patterns and self-perceptions during this period of development.

We have also gathered information from these students' parents and math teachers. The teacher information includes low inference assessments of teacher-student interaction patterns and high inference measures of teacher beliefs and teacher behavior. The parent information includes measures of parents' ratings of their children's competencies in each of these domains as well as measures of the importance the parents attach to their child's involvement and competency in each of these domains. We will use these data to describe systematic changes in the social environments of early adolescents that may contribute to the emergence of gender-typed preferences in the students.

Finally, the parent data set also includes an indicator of their child's pubertal status. We will use this indicator as a filter to explore whether gender intensification effects depend on the pubertal status of the child.

Results:

Age-related changes in adolescents' self perceptions and interests

Figure 1 illustrates the findings from our first study. This study involved approximately 250 5-12th grade students. The bulk of these students, however, were in junior high school. This

figure depicts the change in students' confidence in their math and English abilities. Clearly, the girls in this study are becoming more sex-typed with age; that is, their math self concept declines while their English self-concept remains high. Consequently, the differential between the two subjects increases as these girls move through junior high and high school.

Figure 2 illustrates the same change in the value these students' attach to math and English. A similar sex-typed effect emerges, with girls' coming to value English more than math during the junior high years.

We have documented a comparable effect for both variables in a second study of approximately 500 students in grades 5-11. In this sample, the sex-typed effects on the confidence measures were most marked in grades eight, nine, and ten for girls and in grades five to seven for boys. The sex-typed effects on the interest and importance measures were most marked in grades eight and nine for girls and in grades 10 and 11 for the boys.

It is important to note that we have no evidence in either of these studies of any sex differences in performance in math in terms of either grades or standardized test scores. Furthermore, while the girls do perform better in English than the boys, they don't perform substantially better in English than in math during these years.

We have just completed our third study. This study involves

over 2500 students making the transition from a sixth grade, elementary school environment to a seventh grade, junior high school environment. It also includes their math teachers, and a sizeable^a proportion of their parents. It includes items assessing the athletic and social domains as well as the math and English domains. Although we are still processing these data, we have completed some initial analyses of the data from the first 3 waves. These waves were collected in October and April of the students' sixth grade year and again in October of their seventh grade year.

We found less evidence of gender-role intensification in the attitudes and behavior of these transitional students than we expected and what evidence we found is limited, for the most part, to the non-academic domains. For example, girls' ratings of the utility value of athletics and boys' ratings of the value of being popular declined over the junior high school transition. Similarly, according to parent reports, the interference of social interests with academic achievement increased for girls from Wave 1 to Wave 3.

Additional evidence of gender-role intensification comes from the parent reports; although these effects depend on the child's pubertal status, they are consistent with gender intensification theory in that they reflect increasing involvement in sex-typed activities for early maturing girls and boys during this transitional period. For example, gender intensification effects

emerged on the parents' ratings of the amount of time the adolescents spent on various activities. Early maturing girls in the sixth grade spend more time in music/art/dance classes than less well developed girls. Similarly (as you can see on Figure 3), in the seventh grade more developed boys spent more time in athletics than less well developed boys; as one would expect if pubertal status leads post transitional girls to avoid male sex-typed activities, the opposite pattern for sports participation occurs for seventh grade girls. Similarly (as you can see on Figures 4 and 6), at Wave 3, early maturing girls, in comparison with on-time or late maturing girls, were seen as more interested in the opposite sex. (As you can see on Figure 5), more developed girls and boys were also rated as spending more time socializing with the opposite sex than their less developed peers. Finally, (as you can see on Figure 7) early maturing girls were rated by their fathers as finding math more difficult in seventh grade than in the sixth grade while late maturing girls were rated as having found math easier in the seventh grade than in the sixth grade.

In addition to these gender-role intensification effects, we found a general decline in both boys' and girls' confidence in their English, athletic, and social abilities; these effects were especially marked for social abilities between Waves 2 and 3. (As you can see in Figure 9) a similar decline characterized the students' ratings of the utility value of math, English and athletics. In addition, boys' ratings of the importance of popularity declines as they move into junior high school while the girls' ratings remain stable

Results:

Parental Influences

What could account for these changes? Socialization theory suggests that parents' goals and aspirations for their children may become more sex-typed as their children enter into puberty or move into junior high school. We used data from all three studies to assess this possibility. Basically, we found little evidence for such shifts. When we compared the confidence that the parents in studies 1 and 2 had their children's math abilities across grade levels, we found a consistent pattern of sex differences that varied little by grade levels, we found a consistent pattern of sex differences that varied little by grade level from grades 6 to 12. Parents think math is harder and less important for girls than for boys throughout this age range. The only major developmental trends in these data are as follows: the sex of child differences were not common among fifth graders, and the most marked sex differences occurred for children in the sixth and eighth grades.

Despite its large sample size, Study 3 yielded similarly weak support for developmental change during this period. Instead, Study 3 replicated the sex differences we had already found. For example, by sixth grade these parents think that their daughters have more ability in English than in math and that their daughters have more ability in English than in math and that their sons have more ability in math than in English. They also believe that their daughters

have to try less in English than in math and that the opposite is true for sons; and that their sons are more interested in math than in English and that math is more important than English for sons. Finally, they have higher expectations for their daughters in English than in math and higher expectations for their sons in math than in English. Clearly, sex-typing in academic domain is already in place in the home by sixth grade.

These parents also did not appear to become more sex-typed in their perceptions of their children's abilities or in their values for their children's activities as the children moved into junior high school. Instead, like the children, the parents simply got more negative as their children moved into junior high school. The importance the parents placed on competence in math, English, athletics, and social interactions all decreased from Wave 1 to Wave 3. Why this might be true is not apparent in our data.

Thus, although we have little evidence of parents becoming more sex-typed in their attitudes as their children move into junior high school, we have clear evidence that parents have sex-typed beliefs regarding their boys' and girls' math and English competence and regarding the importance of math and English for their child (Eccles, Jacobs, Flanagan, Goldsmith, Barber, Yee, Carlson, 1986). Perhaps these differences set the stage for sex-typing effects to emerge as a consequence of school experiences. It is quite possible, for example that math

instructions in the seventh grade differs from math instruction in elementary school in such a way as to undermine girls' interest in math and girls' confidence in their math abilities. The remainder of my talk focuses on this issue.

Results:

Math Classrooms

Study 3 was specifically designed to assess classroom differences between sixth and seventh grades. In this study we used high inference rating procedures to collect information about the classroom from students, teachers, and observers. Initial analyses indicate that seventh grade junior high school math classrooms differ from sixth grade upper elementary school math lessons in systematic ways. In comparison to sixth grade classrooms, the seventh grade classrooms are characterized by less opportunity for involvement in decision making, more whole class instruction, and less individualized instruction and learning (Feldlaufer, Midgley & Eccles, 1986; Midgley & Feldlaufer, 1986). In comparison to sixth grade teachers, the seventh grade teachers are less likely to trust the students, are more concerned with maintaining strict control, and are more likely to use explicit, public criticism, and are less likely to provide intrinsic reasons for studying math (Feldlaufer, Midgley, Eccles, 1986; Midgley, Feldlaufer, & Eccles 1986). These effects are illustrated in Figures 10 and 11 and on Tables 1 and 2. Other studies also suggest that grading practices get more harsh in

Junior high school.

We have argued elsewhere (Eccles, Midgley & Adler, 1984) that such differences in the classroom experience of seventh graders could undermine the students' motivation to study math. They certainly could be contributing to the general decline we found in this study in the students' attitudes toward math and English (see Figures 8 and 9). I'd like to argue now that such practices may have an especially debilitating impact on girls' motivation to study math. Several investigators have argued that certain characteristics of classrooms may be especially negative for girls (Brush, 1980; Casserly & Rock, 1985; Kahle, 1984; Peterson & Fennema, 1985). In a previous study, we have shown that girls have more positive attitudes toward math in classrooms that have relatively high levels of individualized work rather than whole class, drill instruction; [they also have more positive attitudes in classrooms with] relatively little criticism and praise (Eccles & Blumenfeld, 1985; Parsons, Kaczala & Meece, 1982). In an analysis of this data set that we are presenting on Saturday, we have found that girls have more favorable attitudes toward math in classrooms in which the students' believe that the teacher is fair and warm, in which there is relatively little competition among students, and in which the teachers stress the value and importance of studying math (Eccles, MacIver & Lange, 1986). Seventh grade math classrooms don't exemplify these characteristics. In fact, if anything, we have found a decrease

in these characteristics as the students move from elementary school into junior high school.

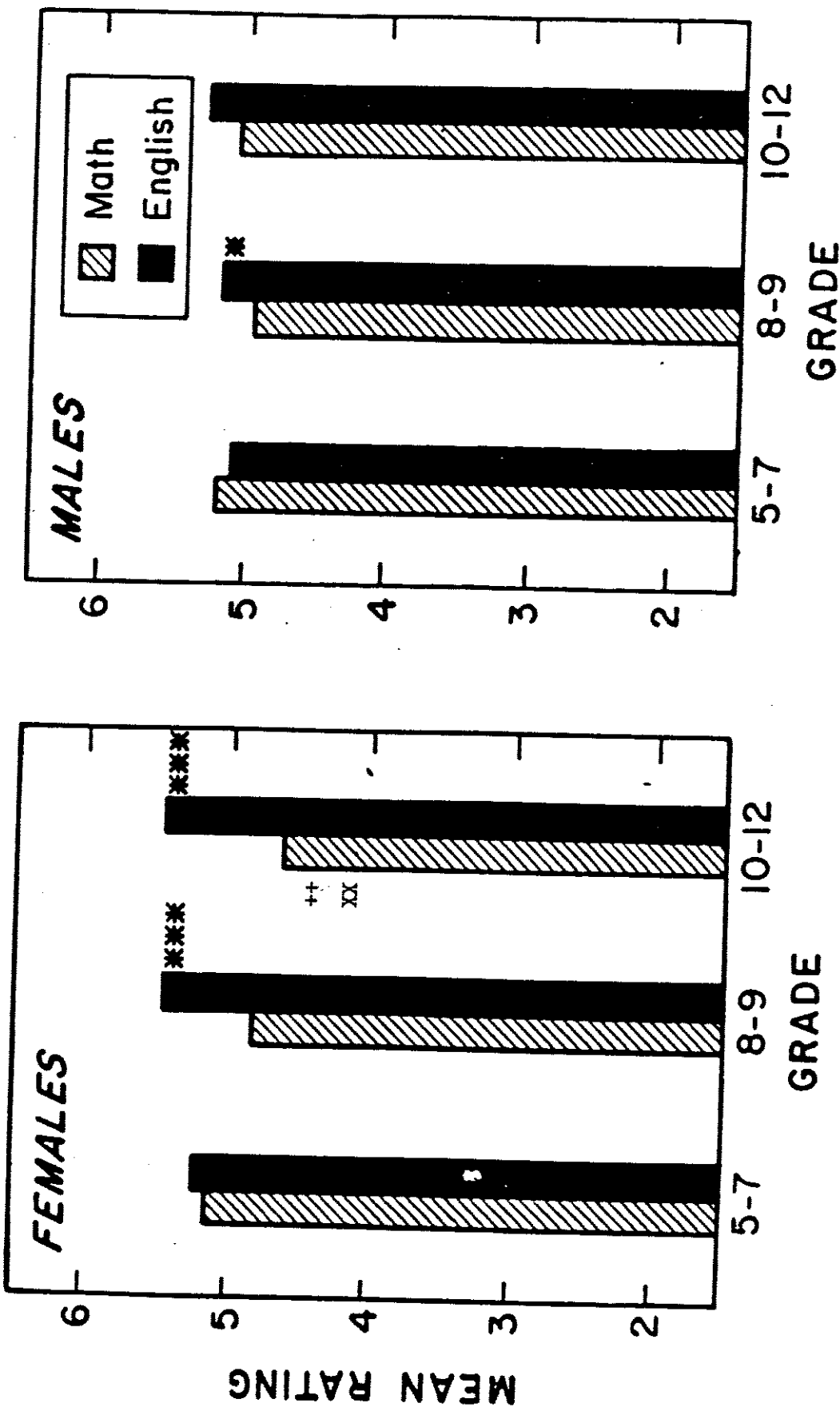
Girls can also be expected to fair worse in classrooms with harsh grading practices. Several people have demonstrated that girls are less likely to attribute their math successes to ability and more likely to attribute them to effort (Eccles-Parsons, Meece, Adler, & Kaczala, 1982; Wolleat, Pedro, Becker, & Fennema, 1980). They also enter the seventh grade with somewhat less confidence in their math abilities (Eccles, Adler, & Meece, 1984). It seems likely that they will wonder what has happened when they start getting lower math grades than they did in the sixth grade. Given that American children view math as a rather stable ability and believe that math gets increasingly more difficult with each year, it seems likely that girls might conclude, especially given their initially lower estimates of their math ability, that math has gotten too difficult for them to master without excessively high levels of effort. Such a belief could lead girls to lower the value they attach to math over the junior high school years or could lead to an increase in their level of anxiety; either of which could undermine their motivation to study math in secondary school. This dynamic could be further exacerbated by the tendency for girls to set higher standards for their performance. Some evidence suggests that girls consider a B, for example, to be a subjectively worse grade than boys and as an indicator of lower ability than do boys.

Thus if we couple the shifts outlined above in classroom climate with the increasingly harsh grading practices that other investigators have documented occurring in junior high school, we can see the design of the archtypical

"girl-unfriendly math classroom. To the extent that such practices are more characteristic of math classrooms than English classrooms as Brush (1982) has suggested then we have a possible explanation for why girls' attitudes toward math decline relative to their attitudes toward English during the junior high school years.

Figure 1

ABILITY



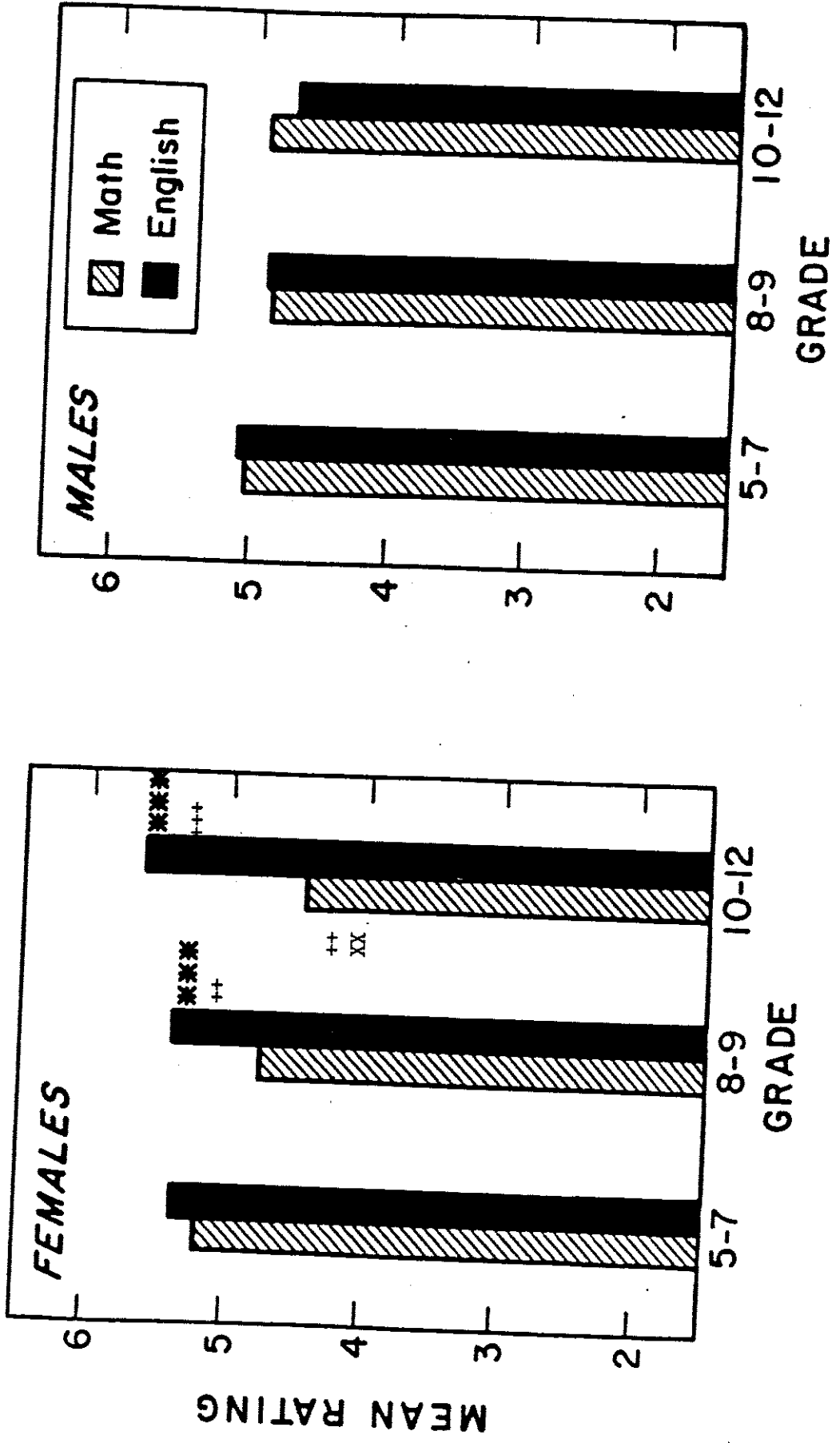
*** Subject Domain Comparisons Significant

++ Sex Comparison within Age Group and Subject Domain Significant

XX Age Comparison within Sex and Subject Domain Significant

Figure 2

SUBJECTIVE TASK VALUE



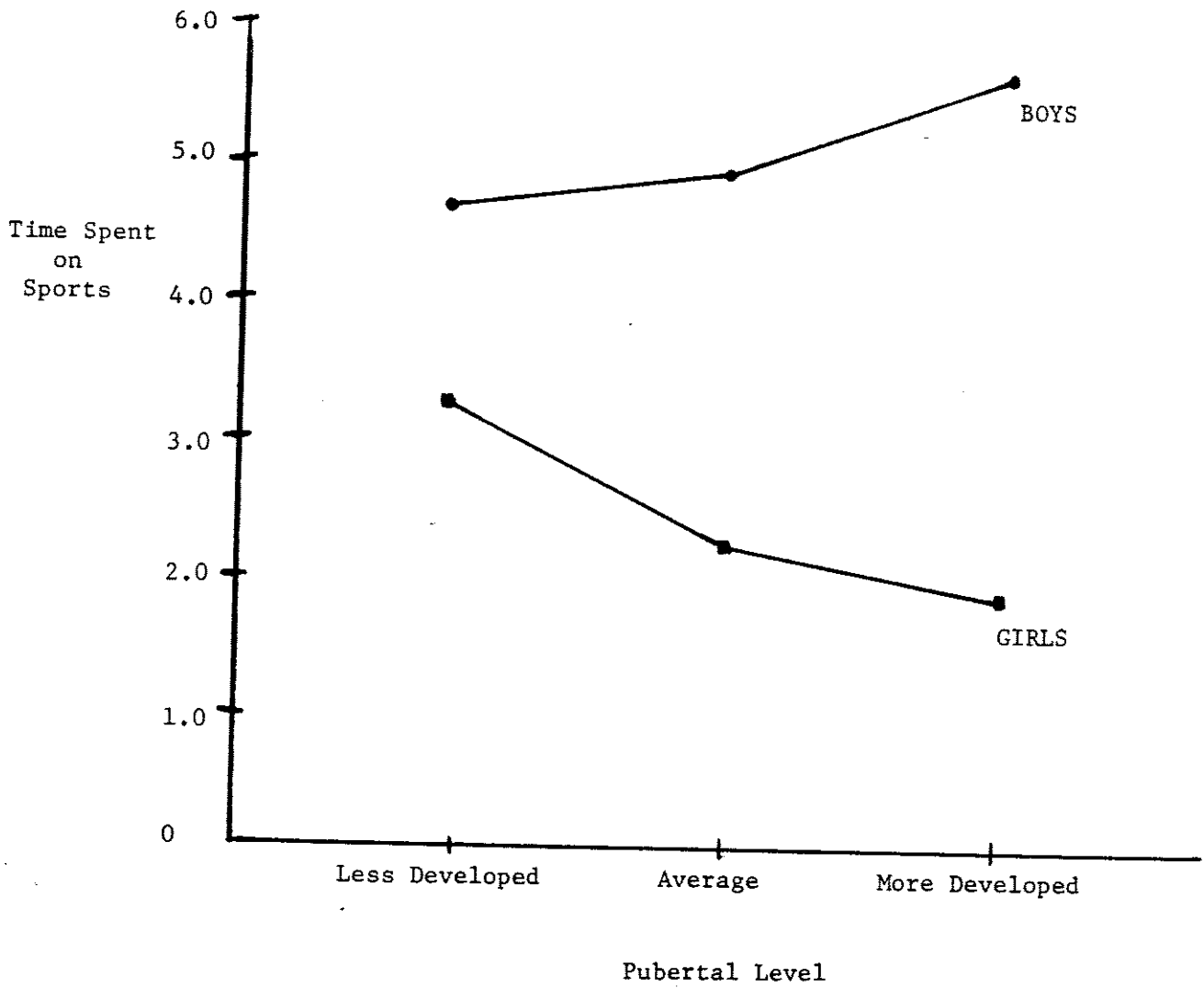


Figure 3. Pubertal Level and Father Report of Time Spent on Sports in the Seventh Grade

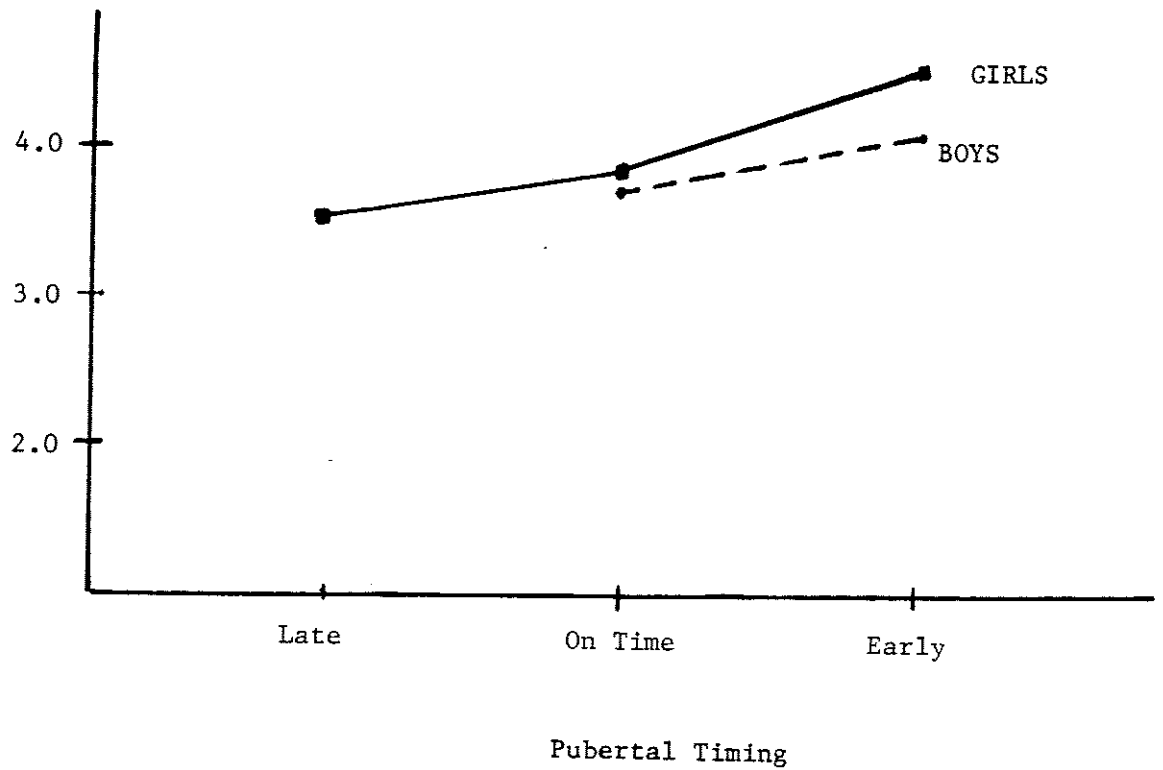


Figure 4. Pubertal Timing and Mother Report of Socializing More with the Opposite Sex now that the Child is in Junior High School

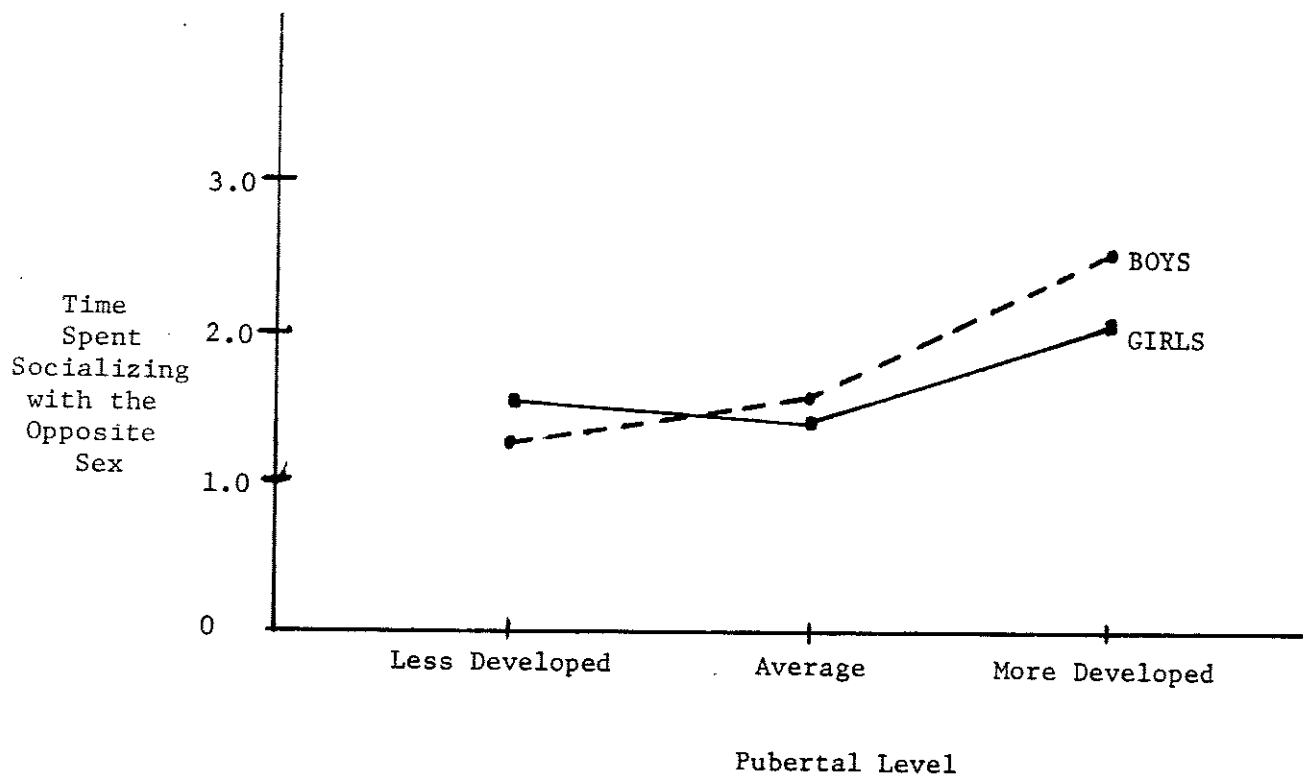


Figure 5. Pubertal Level and Mother Report of Time Spent Socializing with the Opposite Sex in Seventh Grade

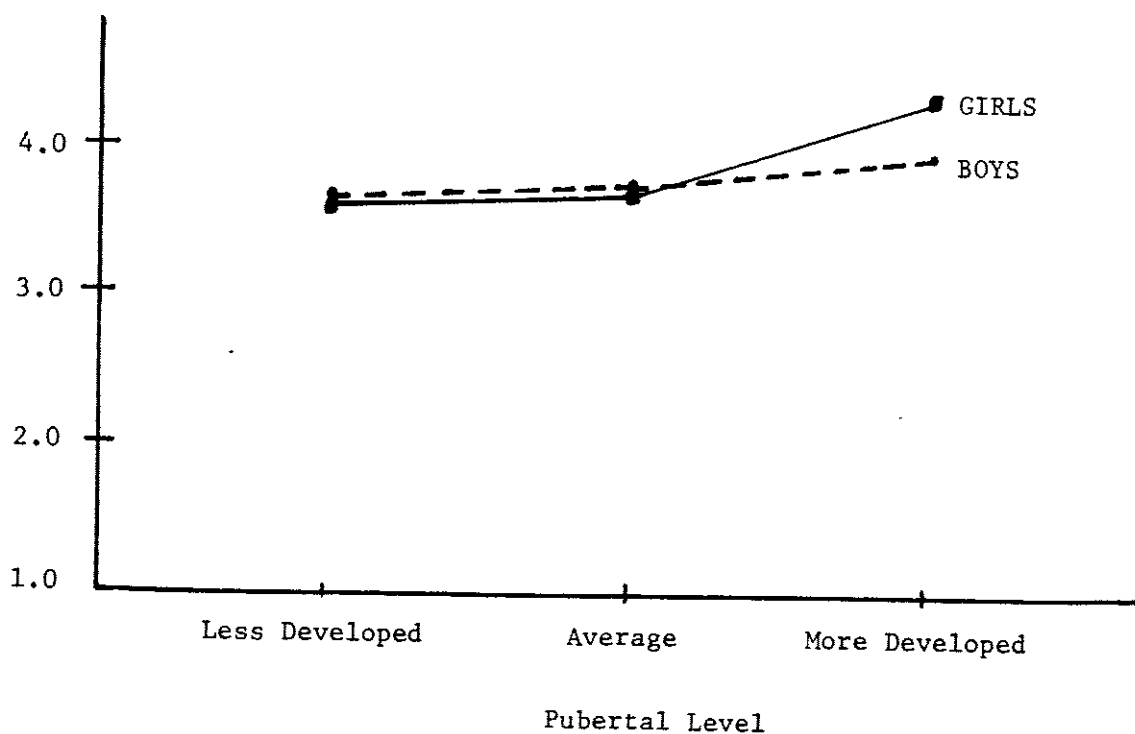


Figure 6. Pubertal Level and Mother Report of Socializing More with the Opposite Sex now that the Child is in Junior High School

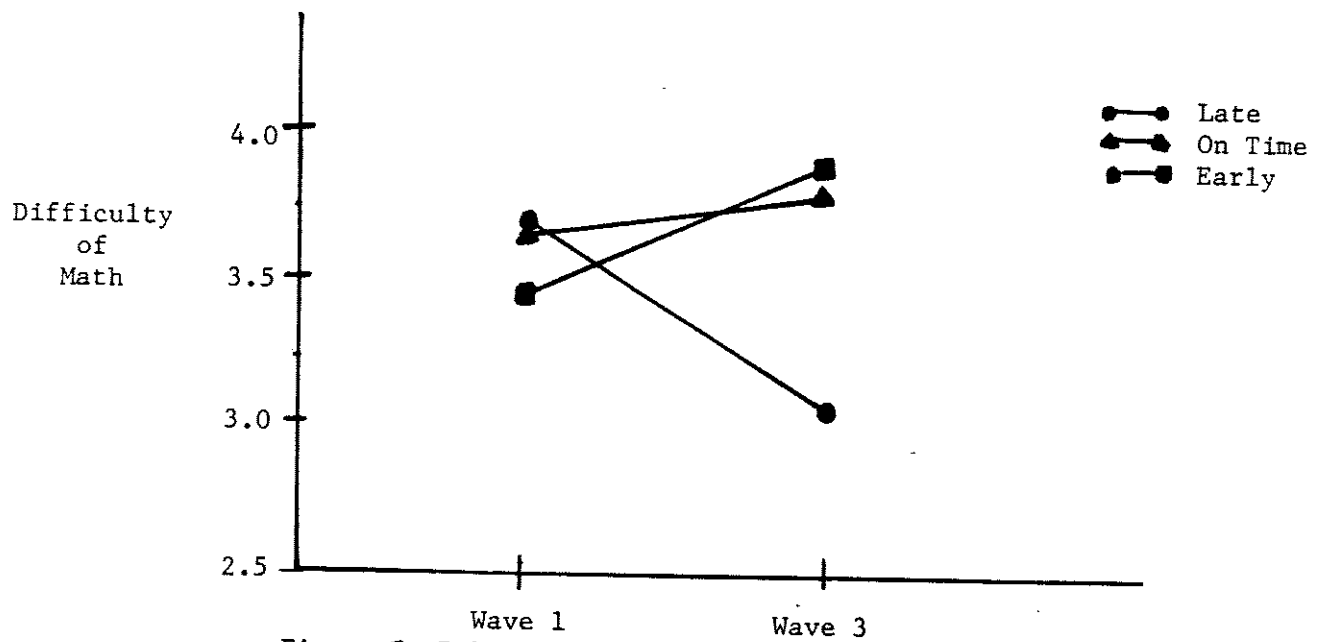
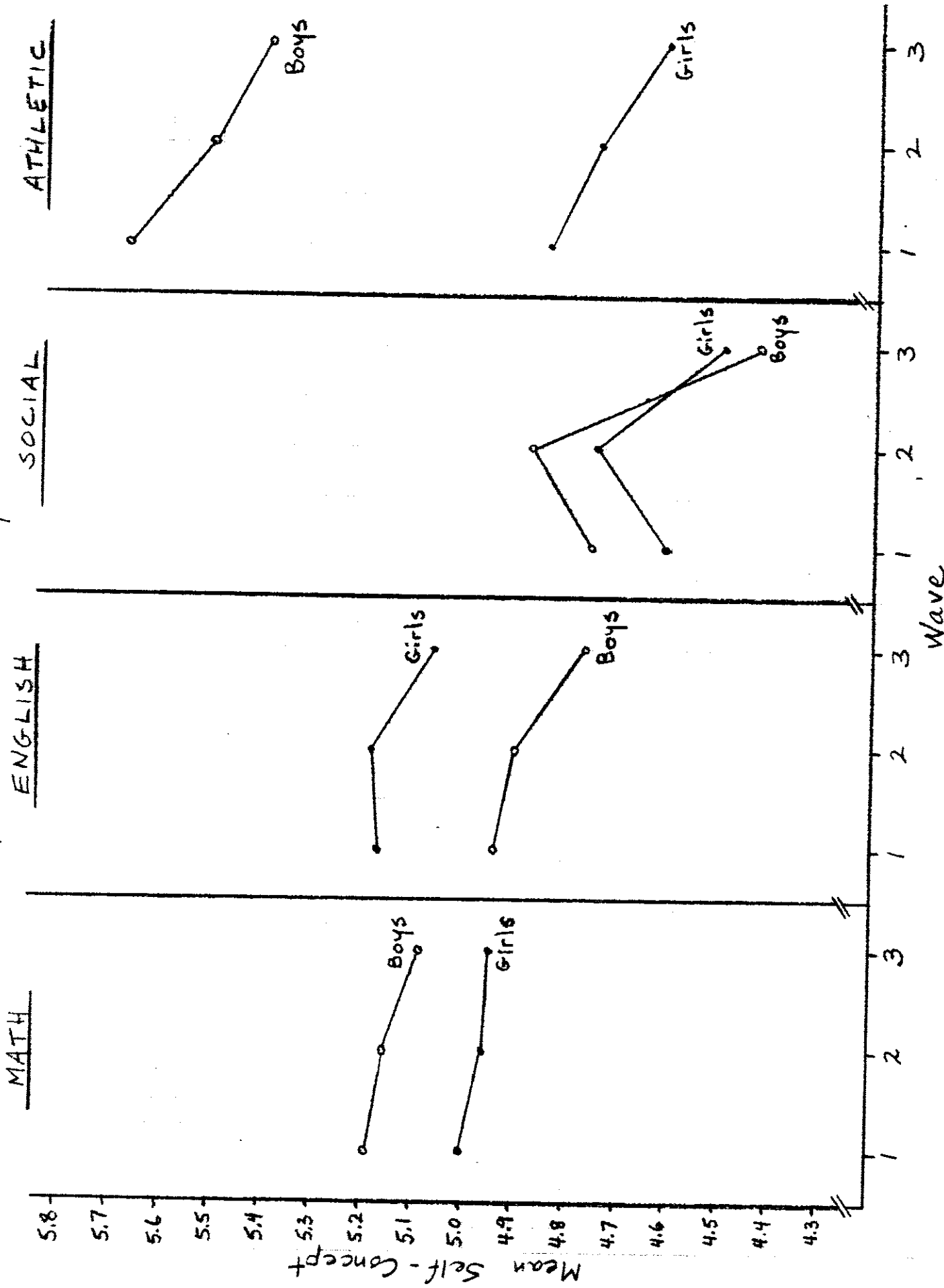


Figure 7. Pubertal Timing of Girls and Father Report of the Difficulty of Math Before and After the Transition to Junior High School

Figure 8
Self-concept in Four Activity Domains



Perceived Utility Value in Four Activity Domains

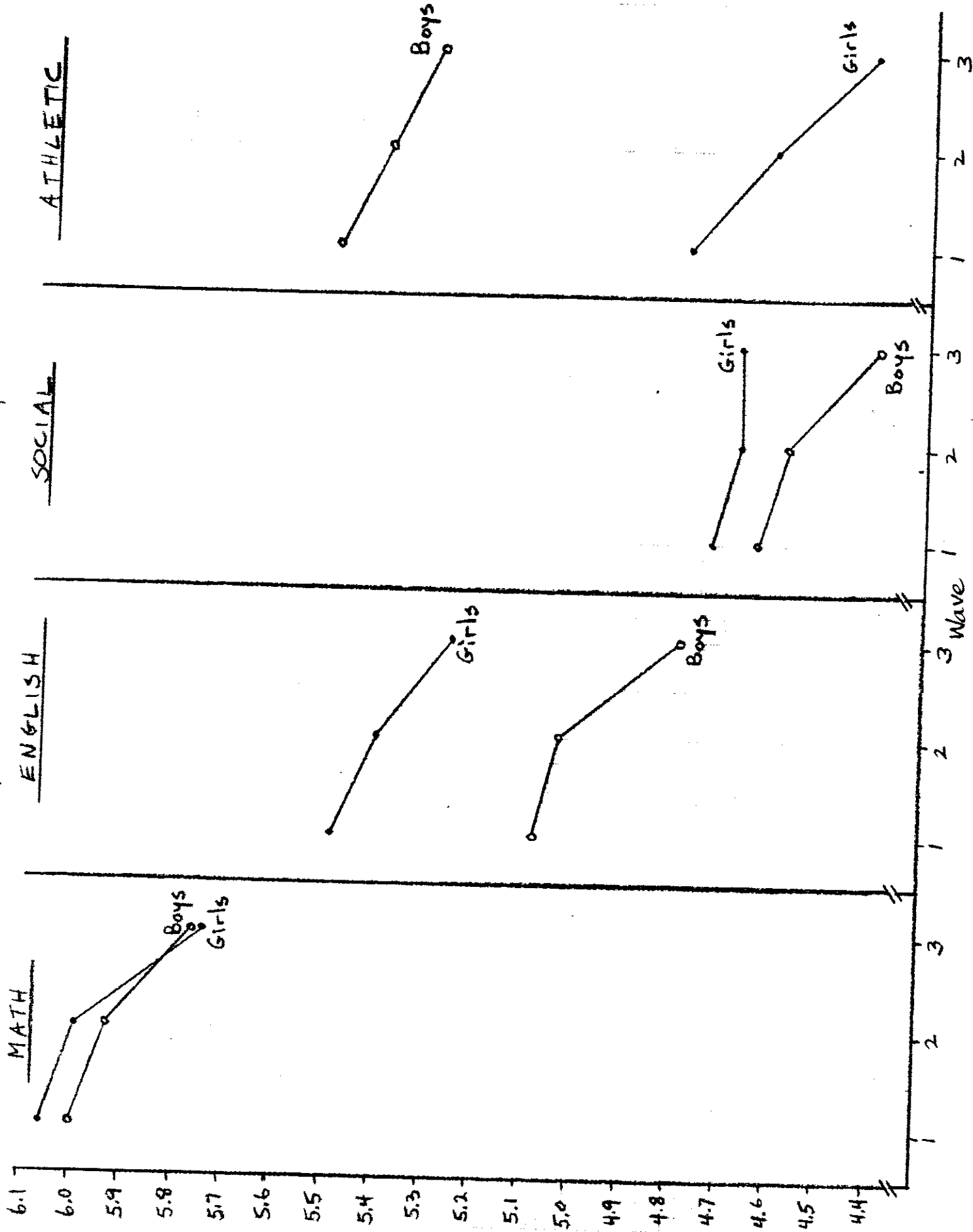
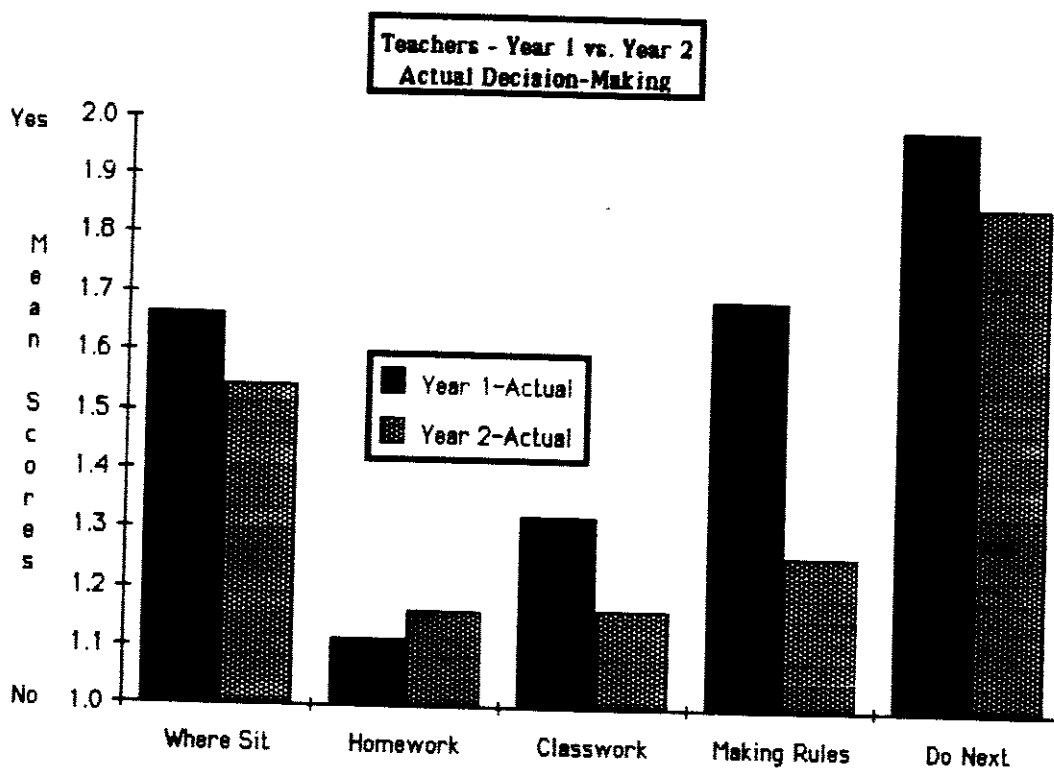
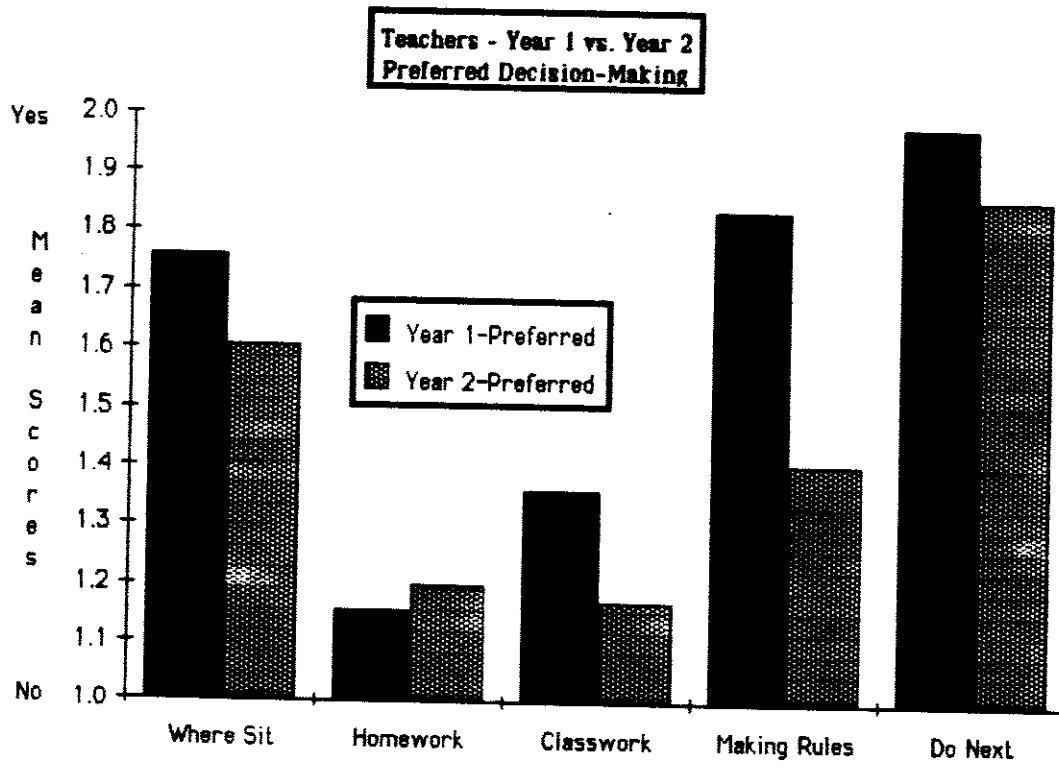


Figure 10



Note. Year one N = 117; Year two N = 137;
N's vary due to missing data on some items.

Figure //



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N's vary due to missing data on some items.

TABLE 1

COMPARISON OF PRE- AND POST-TRANSITION TEACHERS' BELIEFS

Composite	Pre-mean	Post-mean	F-ratio	df
Trust	12.88	9.24	72.32*	1,167
Control	16.30	19.54	22.53*	1,165
Efficacy	20.09	17.57	30.12*	1,166
Fixed Ability	9.06	9.56	2.27	1,168

* $p < .001$.

COMPARISON OF PRE- AND POST TRANSITION CLASSROOMS
USING OBSERVER'S PERCEPTIONS

ITEMS IN COMPOSITE	Pre Mean	Pre Std	Post Mean	Post Std	F-ratio	Eta ²
Factor 1. CRITICAL	1.25	.28	1.40	.30	11.42***	.08
Students are criticized for turning math work in late or failing to turn in assignments.	1.34	.47	1.52	.50	7.14**	.03
The teacher says to some students or the class as a whole that they may get a bad grade or report card in math.	1.11	.32	1.31	.46	12.47***	.06
The teacher is warm and supportive.	1.08	.27	1.38	.49	30.82***	.14
The teacher seems pessimistic about the ability of students to be self-disciplining and responsible for their own behavior.	1.28	.45	1.44	.50	5.78**	.03
The teacher seems to expect some students to do shoddy work or make stupid mistakes in math.	1.29	.46	1.38	.49	1.57	.00
The teacher uses sarcasm.	1.42	.55	1.43	.50	.34	.00
The teacher threatens to give more work, math tests, or to lower grades to control student behavior.	1.24	.49	1.35	.55	1.96	.01
Factor 2. INPUT	1.09	.32	1.02	.87	3.79*	.02
Students suggest projects or topics to study in math.	1.09	.34	1.01	.11	3.56*	.02
Students help choose the instructional materials they use in math.	1.08	.33	1.02	.15	1.87	.00
Students decide the <u>order</u> in which they do their math work.	1.12	.36	1.04	.19	3.47	.01
Factor 3. TASK ORGANIZATION	2.51	.40	2.63	.14	7.86**	.04
Most students do the same math homework.	1.92	.27	2.00	.00	6.96**	.04
Students work on the same math lesson at the same time.	2.74	.58	2.96	.19	11.28***	.05
Students use the same math textbooks and materials as other students in this class.	2.60	.55	2.95	.27	5.23*	.03