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## ABSTRACT

This study examined academic success, intrinsic motivation, and student perceptions as indicators of engagement in a multi-ethnic sample of secondary school students. A particular interest was in examining differences in student perceptions across middle and high school, and another focus was examining students' perceptions of the school's concern for students of various ethnic groups. Data were collected in a southern California community with one comprehensive high school and one comprehensive middle school. Of the 318 participants, 54% defined themselves as Anglo, and 54% were girls. Sixty percent were high school students, and the rest were in middle school. Adolescents completed a 53-item questionnaire that tapped perceived educational aspirations, perceived career aspirations, perceived support from teachers, perceived equal treatment of ethnic groups, self-appraisals of academic efficacy, and self-perceptions of intrinsic motivation. Archival data were collected on attendance, disciplinary actions, and grade point average. As predicted, more positive attitudes toward self and school were significantly related to several indicators of engagement. However, several attitudinal predictors of school engagement functioned differently as a function of adolescents' grade level, gender, or ethnic identification. This paper presents only the first round of analysis, but findings to date indicate that schools must sustain a climate that promotes a positive attitude in students of all ethnicities and thus encourages student engagement in learning. (Contains 3 figures, 2 tables, and 21 references.) (SLD)

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Factors supporting school engagement and achievement among adolescents

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## Factors supporting school engagement and achievement among adolescents

All children must feel motivated to engage in and persist with schooling if they are to take full advantage of whatever educational opportunities are available to them. Even if high quality academic preparation is available, high levels of achievement will implicitly demand high levels of academic motivation and engagement on the part of students. Young children typically display an insatiable curiosity and motivation to learn more about literally everything, as parents and teachers of young children will readily attest. However, students' motivation for school tasks declines steadily from mid-elementary school through entry into high school, irrespective of the quality of the academic offerings (Anderman, & Maehr, 1994; Lepper, Sethi, Dialdin, & Drake, 1997). Factors that might mitigate this normative decline have not been extensively examined. Therefore, in this study, we sought to understand a set of factors that might influence achievement motivation and school engagement among students in middle and high schools.

Motivation is differentiated into various types; this study investigated intrinsic motivation at different ages. We define intrinsic motivation as the innate tendency to learn for the sake of personal satisfaction in increasing one's own capacities. Academic intrinsic motivation is best understood as the product of an optimal match between the individual, the task, and the learning environment (Ryan & Deci, 2000b). Any intrinsically motivated student, similar to the young child, will engage in learning for its own sake rather than an external prod (e.g., a fast food coupon), and will perceive the learning task to

be a source of enjoyment. Learning that is intrinsically motivated has been linked to higher levels of conceptual learning, better memory (Grolnick & Ryan, 1987), and cognitive flexibility (McGraw & McCullers, 1979) in students from elementary school to college. Given these findings, it should be unsurprising that the intrinsically motivated person is also much more likely to experience feelings of emotional well-being (Deci & Ryan, 1987).

We use the construct engagement to define the persistence and quality of students' involvement in learning activities. Students who are academically engaged are more likely to strive to achieve academically and to hold positive attitudes toward those efforts (Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989). Behaviorally, engagement should be accompanied by low rates of disciplinary problems (Ekstrom, Goertz, Pollack, & Rock, 1986) and absenteeism (Hudley, 1995). However, literatures on motivation and school dropout suggest that early school leaving may be the final act for adolescents who have become progressively less engaged with schooling (Newmann, Wehlage, & Lamborn, 1992). The first author's research (Graham, Taylor, & Hudley, 1998; Hudley, 1995, 1997; Hudley & Graham, 1995) also suggests that perceptions of limited opportunity and lack of teacher support are especially detrimental to the engagement and achievement of ethnic minority adolescents. Overall, low motivation and engagement, coupled with perceptions of negative school environment and limited expectation of academic and career success prompt many adolescents to leave school early (Rumberger, 1995).

Recent work has examined a variety of student perceptions as indicators of school engagement among middle school students (Murdock, 1999), including perceived teacher support, perceived peer attitudes, and beliefs about the importance of education. Other research in educational psychology has identified student beliefs and attitudes that predict or co-occur with intrinsic motivation, including perceptions of competence (Chapman, Skinner, & Baltes, 1990; Harter, 1992), and aspirations (Cordova & Lepper, 1996; Murdoch, Anderman, & Hodge, 2000). Self perceptions of both academic and behavioral competence have also been linked to intrinsic motivation in programs tailored specifically for students at-risk for school failure (Hudley, 1995; 1997). Harter (1992) has postulated a developmental cycle in which intrinsic motivation, perceptions of competence, and behavioral engagement are reciprocally related.

### *The Current Study*

The current study examines academic success, intrinsic motivation, and student perceptions as indicators of engagement among a multiethnic sample of secondary school students. Although this work is cross-sectional, we were particularly interested in examining differences in student perceptions across middle and high school, because work with high school students has not extensively assessed student self-perceptions (Finn & Rock, 1997). We were also interested specifically in students' perceptions of their school's concern for students of various ethnic groups, given recent findings that school engagement differs significantly by ethnic group (Murdock, 1999).

We anticipated that students who reported more positive attitudes and perceptions about their school and their own learning, perceived themselves to be more intrinsically motivated, and perceived more teacher support would also have higher achievement, higher college and career aspirations, and lower reported discipline problems (i.e., would be more engaged with schooling). We also hypothesized that these relationships would vary as a function of grade level, gender, and ethnicity.

## Method

### *Setting*

Data were collected in a small, coastal community in Southern California, comprising a school district with only one comprehensive middle school and one comprehensive high school. The community is economically diverse. The per capita annual income for employed residents in the community as a whole is \$17,000; however, the per capita income for Latinos is under \$9,000, half the per capita income for the community as a whole. During the 1999-2000 school year the high school enrolled 810 students and the middle school had an enrollment of 750. More affluent residents shun the public high school; thus, 33% percent of middle School students and 25% of the high school students qualify for free or reduced price meals. Both schools are also ethnically diverse, with Latinos representing approximately 53% of students at each school.

The school district is experiencing specific challenges related to the limited interest and low enrollment of all students in college preparatory

courses. Of the 181 students who graduated in the class of 1999, only 27.6% or 50 of the graduates had taken coursework making them eligible to enter either a California State University (CSU) or a University of California (UC) campus. Fewer than 20% of the total Latino graduates (10 students) were CSU or UC eligible. These proportions compare negatively with the state average of 35.6% of the total graduates for 1999 who were CSU or UC eligible. Of greater concern, only 19% or 35 of all graduates from the high school actually went on to **any** 4-year college or university. Overall, fewer students than would be anticipated by the suburban location and relative affluence of the community actually availed themselves of a 4 year college education.

### *Sample*

Participants were adolescents at the comprehensive secondary schools in this community. The students in our sample ( $N = 318$ ) defined themselves ethnically in the following proportions: 54%Anglo, 43% Latino, and 3% other (African-American, Asian, Native American, and multiethnic). High school students in grades 9-12 represented 60% Of the sample, with 40% of the sample middle school students (grades 6-7). The sample comprised slightly more girls (54%) than boys; the gender balance was similar at both schools. Overall, our sample represents approximately 20% of the secondary school population.

### *Measures and Procedures*

Adolescents completed a 53 item questionnaire that tapped perceived educational aspirations, perceived career aspirations, perceived support from

teachers, perceived equal treatment of ethnic groups, self-appraisals of academic efficacy, and self-perceptions of intrinsic motivation,. As well, we collected archival data on attendance, disciplinary actions, and GPA.

### *Results*

Given that our sample contained relatively few students in our ethnic category "other", the analyses reported here were confined to contrasts between Anglo and Latino students. To examine our hypotheses, we began with correlations (see Table 1). For middle school Latino students, only self-appraisal of academic competence related to multiple engagement variables (all  $p$ 's  $<.05$ ): GPA ( $r=.57$ ), college aspirations ( $r=.36$ ), and career aspirations ( $r=.35$ ). Perceptions of equal treatment were negatively related to absences ( $r=-.42$ ). No other measures of perceptions were significantly related to engagement variables. For middle school Anglo students, self-appraisal showed similar relationships to GPA ( $r=.55$ ), college aspirations ( $r=.33$ ), and career aspirations ( $r=.28$ ). However, perceived support from teachers also related to college aspirations ( $r=.26$ ), and career aspirations ( $r=.43$ ). As well, self-perceived intrinsic motivation was related to GPA ( $r=.42$ ), detention frequency ( $r=-.28$ ), and absences ( $r=-.28$ ).

For high school Latino students, again self-appraisal related to college aspirations ( $r=.23$ ), and career aspirations ( $r=.27$ ) but not GPA. However, for these students, self-appraisal also related to frequency of both detention ( $r=-.22$ ) and suspension ( $r=-.27$ ). As well, perceived teacher support related to frequency of detention ( $r=-.23$ ), suspension ( $r=-.24$ ), and absences ( $r=-.38$ ).

For high school Anglo students, self-appraisal related only to career aspirations ( $r=.29$ ), frequency of suspensions ( $r=-.27$ ), and absences ( $r=-.25$ ). Teacher support was related only to frequency of detention ( $r=-.24$ ), and intrinsic motivation was related only to college aspirations ( $r=.29$ ).

*Regression analyses.* Using regression models, our next set of analyses examined our full set of attitudinal variables as predictors of each of our engagement variables (achievement, college and career aspirations, discipline variables). For each model, we entered grade level, ethnicity, and gender on the first step and the four attitudinal variables (teacher support, self-appraisal of competence, intrinsic motivation, and perceptions of racial fairness) on the second step.

As shown in Table 2, our most robust predictors were self-appraisal of competence and grade level. The more positively students perceived their academic abilities, the better their GPA's, their behavior, and their aspirations for the future. The older students were overall less likely to be suspended or sent to detention, and had relatively higher aspirations for future careers. However, they also had relatively lower GPA's. Ethnicity was also a significant predictor of future aspirations.

*Examining relationships.* Finally, we conducted a series of ANOVAs to examine some group differences that emerged in the regression analyses. Students' GPA varied significantly as a function of the interaction of self-appraisal and grade level ( $F [15, 261] = 2.07, p = .01, \eta^2 = .12$ ), and the three-way interaction that included ethnicity demonstrated a definite trend ( $F [11, 261] =$

1.62,  $p = .09$ ,  $\eta^2 = .08$ ). *Post hoc* tests revealed that the effects of self-appraisal on GPA were stronger among middle school than among high school students, whose GPA's were significantly lower for all levels of self-appraisal. This decline across grade level in the relationship between self-appraisal and GPA was stronger for Latino than for Anglo students (see Figure 1).

Students' reports of aspirations for future careers ("a professional job requiring college training") varied significantly as a function of the interaction of grade level and ethnicity ( $F [6, 256] = 3.18$ ,  $p < .01$ ,  $\eta^2 = .09$ ). Latino students' aspirations become more negative with increasing grade level, but rebound in the 11<sup>th</sup> and 12<sup>th</sup> grades. In contrast, Anglo students' aspirations are particularly positive at entry into high school and remain relatively stable (see Figure 2).

Finally, students' rates of suspension differed significantly as a function of the interaction of gender and perceptions of ethnic treatment ( $F [2, 250] = 3.31$ ,  $p < .05$ ,  $\eta^2 = .07$ ). Across both ethnic groups, boys who perceived the schools to treat the ethnic groups unequally (favoring Anglo students) were suspended at a higher rate. For girls, the relationship was the opposite (see Figure 3).

### *Discussion*

This first round of analyses has revealed relationships between perceptions and engagement indicators, some but not all consistent with our hypotheses. Positive student attitudes toward their own learning and toward their school's climate were related to some but not all engagement indicators.

Further, as expected, grade level, ethnicity and gender served to moderate some of these relationships.

Our most robust predictor of engagement variables was students' own perceptions of their school abilities. Self-appraisal remained a significant predictor in the regression equations of 4 of the 6 engagement variables that we analyzed. Apparently, one important element of remaining engaged in schooling is a belief in one's efficacy to perform learning tasks. However, the connection between positive self-appraisal and achievement (GPA) declines over time, and this decline is most pronounced for Latino students. As well, GPA but not self-appraisal declines for all students. Thus, students continue to see their academic ability at about average (2.5 on a scale of 4 for the entire sample) while their grades decline. Given this finding, we are pursuing additional analyses to examine more carefully the relationship between our selected indicators of engagement and student achievement, using both GPA and teacher reports. We are extremely interested in the consequences of this progressive de-coupling of efficacy beliefs and achievement. For example, an admittedly speculative interpretation of the data may be that students who have appropriate academic grades may not pursue postsecondary education due to doubts about their ability to succeed.

Our aspiration variables also suggest a complementary possibility. Again, Latino students' aspirations decrease steadily until 11<sup>th</sup> grade, while Anglo students' aspirations increase markedly among those students entering high school. We are very interested in looking more closely at those differential

patterns; we wonder if by 11<sup>th</sup> and 12<sup>th</sup> grade, our Latino participants represent a specialized population. We do know that the district has a continuation school that enrolls approximately 80% Latino students in grades 10-12; perhaps only Latinos who are particularly persistent remain in the comprehensive high school through graduation.

Of the school climate variables, perceived teacher support is another variable that differs in ways that are potentially informative for schools interested in the success of all children. For the full sample, perceived teacher support was related specifically to behavioral engagement only (detention, suspension, attendance). However, for middle school Anglo students, teacher support was also correlated with aspirations for the future. We are planning subsequent analyses to examine this grade by ethnicity interaction to determine more clearly how different groups of students are perceiving their teachers and why that might be the case. For example, one possibility we are pursuing is a moderating effect of perceived teacher support on self-appraisals. Our analyses to date do not look at any interrelationships among attitudinal variables.

In summary, these data converge with other findings in the motivation literature to indicate that schools must sustain a climate that promotes a positive attitude in students of all ethnicities and thus encourages all students' engagement in learning. As predicted, more positive attitudes toward self and school were significantly related to several indicators of engagement. However, several attitudinal predictors of school engagement functioned differently as a

function of adolescents' grade level, gender, or ethnic identification. This paper reports only our first round of analyses; however, these findings provide some useful directions for further analyses.

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Table 1

## Relationships between attitudes and engagement

## MIDDLE SCHOOL

Latino students

<i>Variables</i>	1	2	3	4	5
1. GPA					
2. Absences					
3. College Aspirations					
4. Career Aspirations					
5. Perceptions of treatment			-.42		
6. Self Appraisal	.57		.36	.35	

Anglo students

<i>Variables</i>	1	2	3	4	5	6	7	8
1. GPA								
2. College Aspirations								
3. Career Aspirations								
4. Suspension								
5. Detention								
6. Absences								
7. Perceived Teacher Support			.26	.43				
8. Intrinsic Motivation	.42				-.28	-.28		
9. Self Appraisal	.55	.33	.28					

Note: all  $p' < .05$

Table 1 (cont'd)

HIGH SCHOOL						
<u>Latino students</u>						
<i>Variables</i>	1	2	3	4	5	6
1. GPA						
2. College Aspirations						
3. Career Aspirations						
4. Suspension						
5. Detention						
6. Absences						
7. Perceived Teacher Support				-.24	-.23	-.38
8. Self Appraisal		.23	.27	-.27	-.22	

<u>Anglo students</u>						
<u>Variables</u>	1	2	3	4	5	6
1. GPA						
2. College Aspirations						
3. Career Aspirations						
4. Suspension						
5. Detention						
6. Absences						
7. Perceived Teacher Support					-.24	
8. Intrinsic Motivation		.29				
9. Self Appraisal			.29	-.27		-.25

Note: all p's < .05

Table 2

## Summary of regression models

DV	R <sup>2</sup>	Beta	F
GPA	.163		6.61(7,245)
<u>Predictors</u>			
Grade Level		-.33*	
Self-Appraisal		.20*	
Attendance	.083		3.64(7,288)
Teacher support		.17*	
Detention	.277		15.37(7,288)
Grade level		-.47*	
Self-Appraisal		.16*	
Suspensions	.101		4.53(7,288)
Grade level		-.21*	
Gender		.17*	
Teacher support		-.12+	
Race perceptions		-.11+	
Aspirations (Educational)	.113		5.07(7,286)
Ethnicity		-.14*	
Self-Appraisal		.25*	
Aspirations (Career)	.179		8.56(7,282)
Grade level		-.17*	
Ethnicity		-.16*	
Self-Appraisal		.33*	

Note: \* $p < .05$ , + $p < .10$

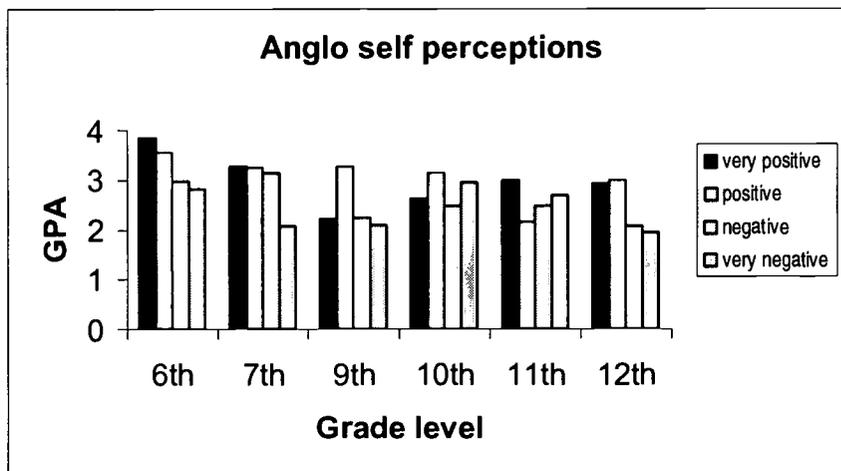
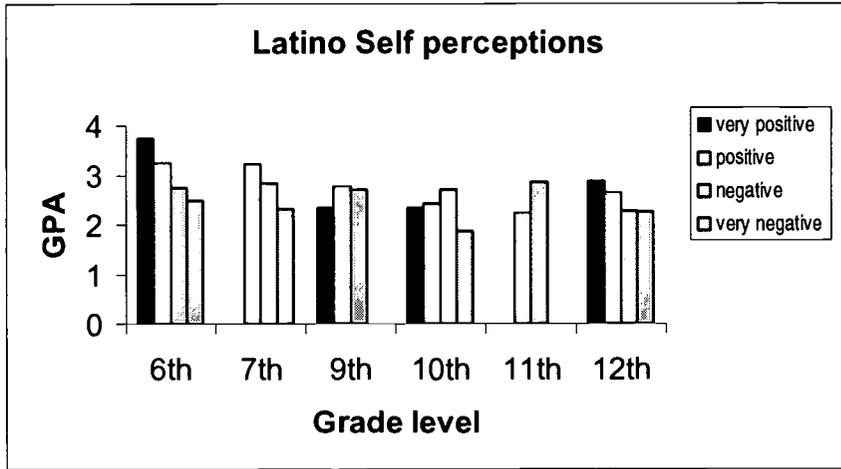


Figure 1

Self perceptions by grade level

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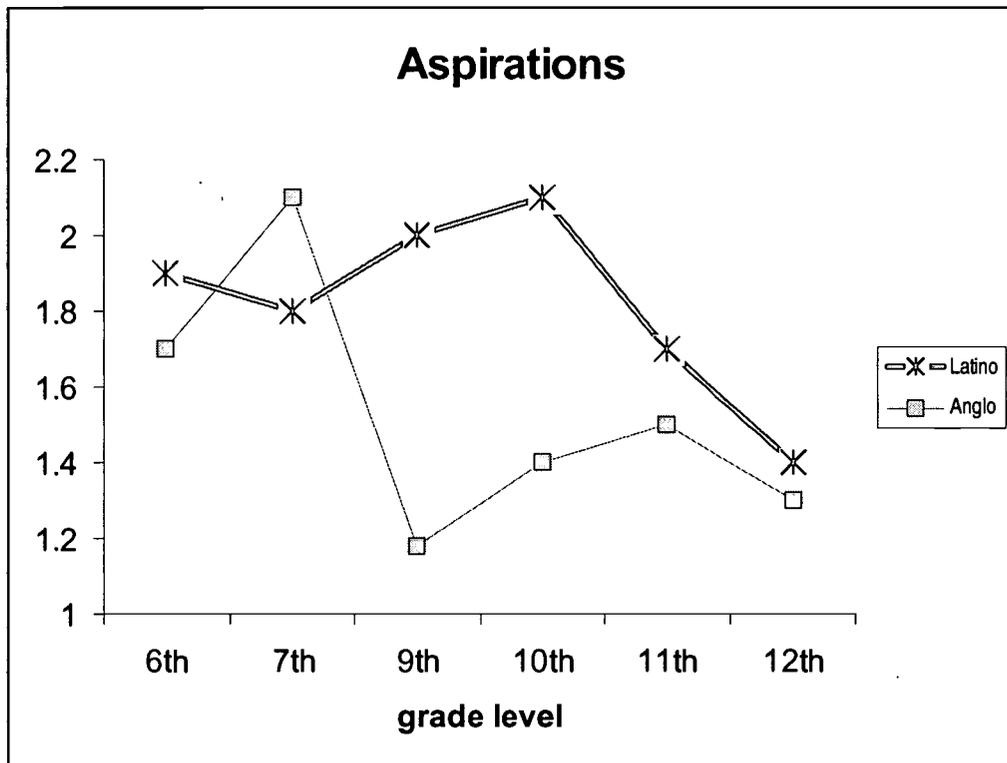


Figure 2

Student aspirations for future careers

Note. Lower numbers represent more positive responses.

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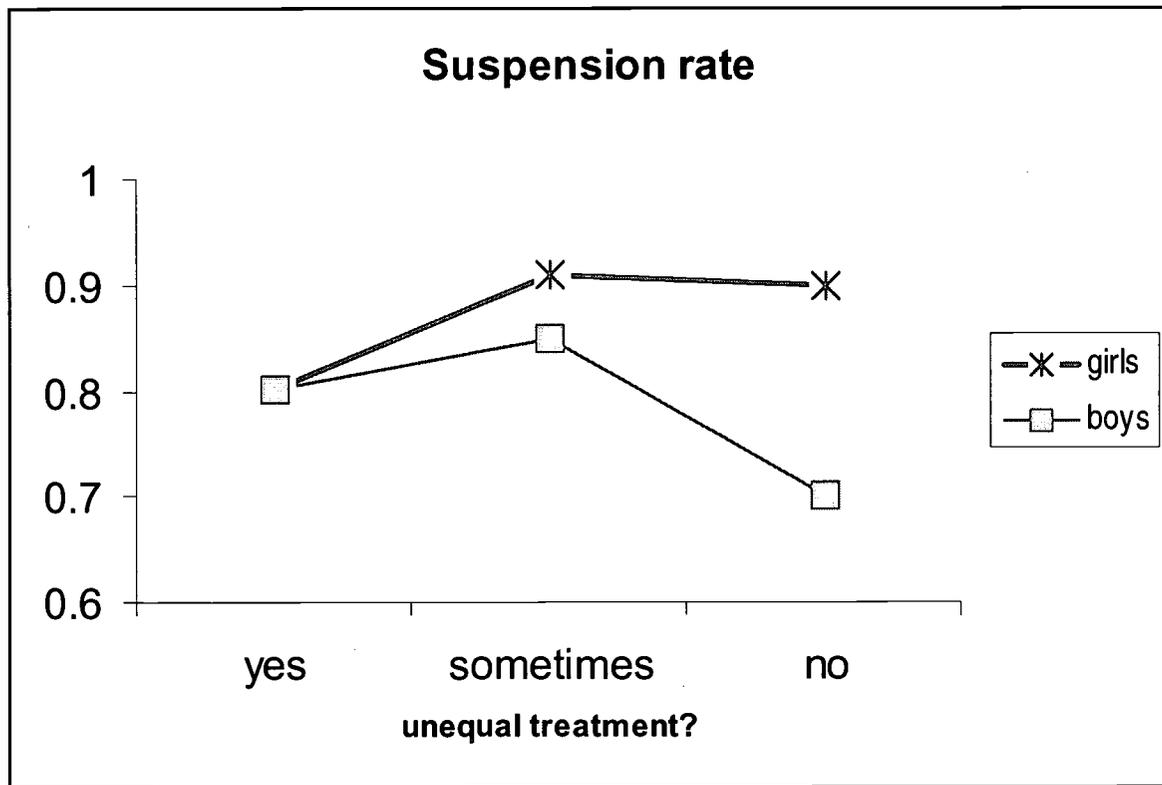


Figure 3

Suspension rate by perceived unequal treatment (Anglo preference)

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