JSGE
The Journal of Secondary Gifted Education
Vol. XVI, No. 2/3, Winter/Spring 2005, pp. 74–86.

A Study of Academically Talented Students' Participation in Extracurricular Activities

Leah B. Bucknavage
Pennsylvania State University

Frank C. Worrell
University of California, Berkeley

In this study, we surveyed the participation rates of academically talented students across 9 areas: dance, solo instrument, choral music, band, athletics, student government, academic clubs, ethnic/cultural clubs, and an "other activities" category. Participants consisted of 2 independent cohorts (Cohort 1, $N = 842$; Cohort 2, $N = 290$) attending a summer program. Results indicated that athletics was the activity in which males and females reported greatest participation across cohorts. Significant differences in rates were found for participation in athletics, choral music, and dance in the direction of gender-stereotypical expectations. Differences were also found among ethnic groups and across grade levels in certain activities. We concluded that the results contradict the nonathletic stereotype sometimes associated with students who are academically talented.

School-sanctioned extracurricular activities play an important role in the lives of students, parents, and school personnel, and a great deal of time and money are devoted to these activities. Over the years, the costs and benefits of extracurricular activities have generated many studies and numerous debates. Especially in times of tightening budgets, the benefits of extracurricular activities need to be determined. In addition to looking at students' rates of participation, several researchers have examined the relationship of extracurricular activities to student outcome variables such as personal and social development, academic achievement, self-concept, locus of control, delinquency, and problem behaviors. However, the majority of published studies on extracurricular activities have focused on athletes and sporting activities in both college and high school populations.

While there are a few studies on other populations, one group that has been largely ignored in this area of research is the gifted and talented. Currently, there is only one study that has examined gifted students' participation in extracurricular activities (Olszewski-Kubilius & Lee, 2004), and that study's sample came from the Midwest. In this paper, we examined extracurricular participation rates in a sample of academically talented students from a western state. Before proceeding further, we present a brief review of the extant literature on this topic.

Extracurricular Activities in College

Hood, Craig, and Ferguson (1992) examined the effect of nonacademic activities such as work, watching television, and socializing on the academic achievement of freshman athletes and nonathletes at the University of Iowa. In this study, each athlete was matched with a nonathlete who was similar on variables such as gender, ethnicity, SAT/ACT scores, and resident/nonresident status. The researchers also compared the matched groups to

a group of randomly selected students from the university, for a total sample size of 2,856. They found that athletes achieved similar grades to nonathletes with similar backgrounds and abilities, with the athletes and nonathletes performing at a level slightly below that of the random sample of university students.

In 1996, Terenzini, Pascarella, and Blimling reviewed the literature examining the effects of college students' out-of-class experiences on academic, intellectual, and cognitive outcomes. They found that student athletes achieved at about the same level as nonathletes when precollege achievement and aptitude were taken into account. They also found that level of participation in athletics had a negative relationship to scores obtained on standardized graduate admissions tests. In looking at extracurricular activity involvement more generally, Terenzini et al. found "little consistent evidence suggesting that extracurricular involvement per se has a direct impact on students' academic or intellectual development" (p. 155).

The studies by Hood et al. (1992) and Terenzini et al. (1996) suggest that, overall, extracurricular activities do not have major positive or negative effects on student achievement at the college level.

Extracurricular Activities in Middle and High School

Athletics

By far, high school students represent the largest group whose extracurricular activities are studied intensively, and this research has tended to focus on athletic participation. Holland and Andre (1987) reported on a comprehensive review of the literature examining the relationship between participation in extracurricular activities and academic achievement. They found male athletes had slightly higher GPAs than nonathletes in some studies, but not in others. In studies using standardized achievement test scores (e.g., SAT) as outcomes, males whose only extracurricular involvement was in sports were found to have lower scores than nonathletes. However, no significant differences were found between female athletes and nonathletes.

In a more recent study, Silliker and Quirk (1997) looked at high school students' extracurricular involvement and academic performance. Specifically, they studied 123 high school students who participated in interscholastic soccer during the first quarter of the school year and were not involved in any other major extracurricular activity during the second quarter. The results indicated that, during the soccer season (the first quarter), soccer players had higher GPAs than out of season (the second quarter). Attendance was also better in season, but this latter finding was not statistically significant.

Broh (2002) also looked at the relationships between athletics and student outcomes. She analyzed data on students from the National Educational Longitudinal Study of 1988 (NELS-88), including the first and second follow-ups (see Haggerty, Dugoni, Reed, Cederlund, & Taylor, 1996). Results of her analysis showed that participating in interscholastic sports was related to improved mathematics grades, English grades, and mathematics test scores, even after controlling for the selection of higher performing students. Participation in interscholastic sports was also related to increased self-esteem, a more internalized locus of control, spending more time on homework, and increased contact among parents, students, and teachers. However, participation in *intramural* sports, as opposed to *interscholastic* sports, was negatively related to math and English grades and test scores.

Other Activities

Some researchers have looked beyond athletics to other extracurricular activities. Marsh (1992) conducted one of the first large-scale studies on extracurricular activities using the High School and Beyond database, including the first and second follow-up (National Center for Educational Statistics, 1986). He examined the relationship between total number of extracurricular activities (TEAP) and a variety of outcome variables in a weighted sample of more than 4,000 students. Controlling for background variables and sophomore outcomes, Marsh reported that, in senior year, TEAP was positively associated with "social self-concept, academic self-concept, taking advanced courses, time spent on homework, postsecondary education aspirations, GPA, parental involvement, [and lower] absenteeism" (p. 557) for students across a variety of backgrounds. Marsh noted that the only meaningful effect sizes were for the relationships with academic and social self-concept, but argued that participation in extracurricular activities was important because it can lead to "increased commitment to school and school values, which leads indirectly to increased academic success" (p. 560).

Eccles and Barber (1999) looked at the risks and benefits of five different types of activities: prosocial activities, team sports, school involvement, performing arts, and academic clubs. They analyzed data on 1,259 students who participated in the Michigan Study of Adolescent Life Transitions from 1983, when they were in the sixth grade, through 1997. Academic achievement was measured using

10th- and 12th-grade GPA and subscale scores from the Differential Aptitude Test. The results of the longitudinal regression analysis showed that participation in any of the five types of activities studied resulted in a better-than-predicted 12th-grade GPA. They also found that students who participated in sports, performing arts, and school involvement activities reported liking school more over the years studied, which is consistent with Marsh's (1992) hypothesis about the effect of extracurricular activities on students' commitment to school.

Broh (2002) also reported that the differential effects of extracurricular activities were not limited to interscholastic and intramural sports. She found that participation in music groups was positively related to both math and English grades and math test scores; participation on student council was positively related to both sets of grades; and participation in yearbook was positively related to English grades alone. However, cheerleading was not related to either grades or test scores, and participation in vocational clubs had a small, but significant negative relationship to math and English grades and reading test scores.

Gender and Extracurricular Activities

Research has found consistent gender differences in preferences for and participation in extracurricular activities (e.g., Fejgin, 1994). Evans, Schweingruber, and Stevenson (2002) examined students' interests in large samples of 11th graders in the United States (N = 1,052), Taiwan (N = 1,475), and Japan (N = 1,119). They found that boys preferred sports and girls preferred music and art, preferences that may well be related to differences in the competence beliefs in those areas that students have from as early as first grade (Fredricks & Eccles, 2002). Similarly, in a study using telephone interviews with 194 low-income White and African American students in grades 3–5, Posner and Vandell (1999) found that females participated in academic activities and socialized at higher rates than males, whereas males participated in coached sports at a rate seven times greater than females. Males' higher participation rates in sports have also been found after controlling for variables like socioeconomic status and ethnicity (McNeal, 1998).

In a study of a representative sample of 6th, 8th, and 10th graders in Iceland (N = 3,270), Vilhjalmsson and Kristjansdottir (2003) found that the gender difference in athletics was related to males' higher rates of participation in organized sports clubs. Worrell and Bucknavage (2004) reported similar findings in a study of 1,300 students attending *prestige* secondary schools in Trinidad. They found that males participated at greater levels in all of the major sporting activities in school, with significant differences in soccer, cricket, and table tennis. In the Worrell and Bucknavage study, females reported significantly higher participation rates in music, dance, drama/acting, and debate.

Grade Level and Extracurricular Activities

Although the research in this area is sparse, it appears that there are differences in participation in extracurricular activities related to the grade level of the student. For example, Posner and Vandell (1999) pointed out that how students spend their time after school changes as grade level increases. Specifically, they found that the amount of time spent in unstructured activities decreased by one half from third to fifth grade.

Research has also shown that participation rates depend not only on grade level, but also on the structure of the school the students attend. For example, participation rates for students in the same grade are higher when those students are *not* the youngest students in the school (Blyth, Simmons, & Bush, 1978; Gifford & Dean, 1990). In other words, sixth graders in a K–6 school are likely to have higher extracurricular participation rates than sixth graders in a middle school (6–8) where they are the youngest students (Blyth et al.); this pattern also applies to ninth graders (Gifford & Dean).

Ethnicity and Extracurricular Activities

Several studies have examined ethnic minority students' participation in extracurricular activities. In one study, Lisella and Serwatka (1996) looked at the relationship between extracurricular participation and academic achievement in minority students attending urban schools. Participants consisted of 766 eighth-grade students of African American, Hispanic, or American Indian descent attending poor inner-city schools who had been included in NELS-88. The pattern of extracurricular involvement for minorities was similar to that of the general student body and was also similar to the pattern for their White peers attending the same inner-city schools. Lisella and Serwatka did find that male minority students who participated in extracurricular activities had significantly lower academic achievement than nonparticipating males, but this pattern did not apply to minority female students.

Other researchers have also used the NELS-88 data to examine extracurricular participation and academic

achievement in minority students. Schreiber and Chambers (2002) looked at data from a stratified sample of 8,305 8th- and 10th-grade minority students included in NELS-88. Extracurricular activities were categorized as (a) in-school/academic/organized, (b) in-school/nonacademic/organized, (c) out-of-school/nonacademic/organized, (d) out-of-school/nonacademic/nonorganized, and (e) out of-school/academic/nonorganized. Results indicated that, in general, in-school, academic, and organized activities predicted academic achievement, but the effects were different across school years, academic content areas, and ethnic groups. For example, in eighth grade, in-school/academic/organized activities were positively related to mathematics and science achievement for Asian/Pacific Islanders; to mathematics, reading, science, and geography/history for White students; and to geography/history for Latinos, but were not related to any subject area for African Americans. Also, in eighth grade, out-of-school/academic/nonorganized activities were related to mathematics and reading achievement for African Americans; mathematics, reading, and science for Asian Americans; and all four subject areas for Caucasians and Latinos.

In a third study using NELS-88 data, Gerber (1996) looked at eighth-grade African American and White students who were attending public schools and reported a positive association between participation and academic achievement; however, the relationship was stronger for White than for African American students. More relevant to the present study, Gerber compared the participation rates of the African American and White students and found that, in general, African American students reported greater participation than White students. However, there were differences when individual activities were examined. White students reported higher participation in band/orchestra, dance, and religious organizations, whereas African American students reported higher participation in yearbook and computer clubs. McNeal (1998) also used the NELS-88 data, but statistically controlled for socioeconomic status and gender when looking at the participation rates of ethnic minorities. The results of this analysis were consistent with Gerber's and showed that differences in extracurricular participation rates favored racial and ethnic minority students.

In another recent study, Brown and Evans (2002) compared the participation rates of 1,739 students in grades 7–12. Students from several ethnic groups, including African American (17%), Asian American (15%), European American (22%), Hispanic American (18%), and mixed ethnicity (22%), were asked if they participated in sports activities, fine arts activities, in-school activities, or out-of-school activities. The results highlighted significant differences among ethnic groups for all activities except sports. For example, African Americans and European Americans reported significantly higher participation than Hispanic Americans in fine arts, and Asian Americans were less involved in out-of-school activities than European Americans.

In sum, studies on the extracurricular participation rates of different ethnic groups yield a complex pattern of findings with no clear trends. The studies suggest that rates of participation and the relationship of extracurricular activities to academic achievement in ethnic minority groups differ by gender, age, and ethnicity, and are as complicated as the patterns reported for participation in sports activities in other studies (e.g., Broh, 2002).

Gifted and Talented Students and Extracurricular Activities

As indicated previously, there is very little literature on gifted and talented youth in the area of extracurricular activity participation. In fact, a recent search of the ERIC and PsycINFO databases using the terms "academically talented" and "extracurricular activities" yielded 10 studies, none of which examined participation rates. Searches using the terms "gifted" and "extracurricular activities" resulted in a substantially greater number of hits, but extracurricular activities were ancillary to all of the studies.

In a very recent study, Olszewski-Kubilius and Lee (2004) examined extracurricular participation in gifted students. Participants were 230 gifted students in grades 4–12, who represented 16% of the students participating in a 3-week summer program in the Midwestern U.S. They completed 61 questionnaire items in the areas of computer science, language arts, mathematics, science, and outside-of-school activities. The highest rates of participation were in sports (72%), band/orchestra/jazz group (67%), and academic clubs (56%), whereas political organizations (10%), photography (7%), and cheerleading/pep club (4.5%) had the lowest rates of participation. Consistent with other studies, males in this study reported participating in community-based sports at significantly higher rates than females, and males also participated at significantly higher rates in computer games. However, in contrast to Posner and Vandell's (1999) findings with an elementary school sample, males in this study reported participating in academic clubs at a higher rate than females. Gifted females reported higher participation rates in dance, drama/theater, cheerleading/pep club, and writing for pleasure. Olszewski-Kubilius and Lee also found a

grade-level difference: High school students participated in academic clubs, debating teams, and political activities at higher rates than their middle school counterparts.

While the research with gifted and talented populations is extremely limited, some research conducted with groups of high- and low-achieving students indicate that high achievement is associated with higher rates of participation in extracurricular activities, as well as participation in a greater number of activities (e.g., Haensly, Lupkowski & Edlind, 1986; Marsh, 1992). Conversely, Dauber and Benbow (1990) compared participation in group activities and the self-perceptions of modestly and extremely talented adolescents. Results of this study showed that there was no difference in the activities of these two groups; nonetheless, the extremely talented students perceived themselves as less athletic and less socially active than the modestly talented students.

The Present Study

The findings in the research literature on participation in extracurricular activities are complex. Studies of college athletes suggest that there is no meaningful relationship between participation in sports and achievement (Hood et al., 1992; Terenzini et al., 1996), but studies of high school athletes have yielded mixed results, with the preponderance of evidence suggesting that effects are different across different types of sporting activities (Broh, 2002; Holland & Andre, 1987; Silliker & Quirk, 1997). The effects of athletics may also be more positive on teacher-assigned grades than on standardized achievement test scores (Holland & Andre).

Studies on extracurricular activities other than athletics have provided more consistent results, suggesting a positive association between participation in the activities and academic achievement and psychosocial measures (Camp, 1990; Eccles & Barber, 1999; Marsh, 1992). The research literature also indicates that the rates and effects of extracurricular activities vary across grade level (Blyth et al., 1978; Gifford & Dean, 1990; Posner & Vandell, 1999), ethnicity (Brown & Evans, 2002; Gerber, 1996; Schreiber & Chambers, 2002), and gender (Evans et al., 2002; Fejgin, 1994; Vilhjalmsson & Kristjansdottir, 2003; Worrell & Bucknavage, 2004). The single study on gifted students (Olszewski-Kubilius & Lee, 2004) yielded gender and grade-level patterns that were similar to those reported in other samples. One consistent finding is that rates of participation in extracurricular activities are high.

The differences across the groups in the studies reviewed highlight the importance of studying participation in extracurricular activities in specific populations. In the current study, we examined a sample of academically talented middle and high school adolescents' participation in extracurricular activities. Previous studies have examined extracurricular activities by category (e.g., community-based, school-sponsored, organized). However, such categorizations can result in an underestimate of student participation rates. For example, a person taking private music lessons may not report this activity under either community-based or school-sponsored, as it can be argued that these lessons are neither, nor may they report it under the organized or nonorganized categories. In the current study, we were interested in global participation rates across broadly defined categories of extracurricular activities for the purpose of establishing general baselines in a population on which there is little literature. Thus, the important information was the students' report of participation in the categories of activities.

In addition to assessing mean numbers of activities and rates of participation, we examined gender, grade level, and ethnic group differences. Based on previous research, we hypothesized that global rates of participation would be high. We also anticipated finding differences along gender stereotypical lines, with males participating at greater rates in sports and athletic activities and females at greater rates in the arts. Although we expected grade-level and ethnic group differences, it was not clear what these would be, other than a difference in favor of minority groups in culturally based activities.

We also considered several competing stereotypes of academically talented students that related to their participation in extracurricular activities. One could argue that academically talented students are often involved in a variety of pursuits outside the classroom, suggesting that they could have high rates of participation in many areas. On the other hand, one could also argue that academically talented students would be more interested in activities such as academic clubs and school leadership and that their rate of participation in nonacademic activities would be low. However, the latter hypothesis was not supported in Olszewski-Kubilius and Lee's (2004) study, which indicated that sports was the number one activity for gifted students. This study provided another opportunity to examine these competing hypotheses.

Method

Participants

Participants consisted of two independent cohorts of academically talented students attending a summer pro-

gram at a major research university in the western U.S. Cohort 1 consisted of 842 middle and high school students (45% male) with a mean age of 14.6 (*SD* = 1.4), representing 84% of the students attending the program in 1999. The mean GPA of this cohort was 3.8 (*SD* = .35, skew = -1.5, kurtosis = 5.2). Chinese American (29.1%) and White American (25.2%) students made up the majority of the sample, with other groups consisting of smaller numbers. About 40% of the cohort were middle school students: grade 6 (1.5%), grade 7 (19.8%), grade 8 (18.8%), grade 9 (24.3%), grade 10 (23%), grade 11 (11.8%), and not reported (.7%).

Cohort 2 consisted of 290 participants and made up 49% of the students who attended the program for the first time in 2000. Forty two percent of Cohort 2 was male. As students can attend the program for multiple years, all students who had attended the program in 1999 were excluded from Cohort 2 to maintain the independence of cohorts, hence the substantially smaller number of participants. Chinese American (25.9%) and White American (22.4%) students made up the majority of the sample, with other groups consisting of smaller numbers. About 45% of Cohort 2 were from middle schools, and grade-level representation was as follows: grade 6 (.3%), grade 7 (29%), grade 8 (15.9%), grade 9 (20.7%), grade 10 (19.7%), grade 11 (12%), and not reported (2.0%). Cohort 2 was used to examine the extracurricular participation rates in an independent sample of students from the same general population, thus providing an immediate replication of the study.

The summer program offers 6-week enrichment and acceleration classes in six areas: Computer Science, Languages, Mathematics, Natural Sciences, Social Sciences, and Writing and Literature. Students are selected to participate on the basis of GPA, achievement test scores, teacher recommendations, and an academic product. Students do not have to be identified as gifted and talented at their home schools to be admitted to the program. Eighty percent of the students report coming from middle- or upper-middle-class homes, with less than 15% coming from working class or poor homes. The larger percentages of Asian and Caucasian American participants and the income levels of participants in this study are typical in studies of university-based talent-development programs (e.g., Olszewski-Kubilius & Lee, 2004).

Measure and Procedures

On the program evaluation questionnaire administered to all students in the penultimate week of the program, eight items on global extracurricular activity participation were included. Each item asked students to indicate if they currently participated or received instruction (*yes* or *no*) in one of the following activities: Dance, Music–Solo Instrument, Music–Choral, Music–Band, Student Government, Academic Clubs, Athletic Teams, and Ethnic or Cultural Clubs. A ninth item labeled "Other Activities" was also included to get an estimation of how many students participated in activities other than the eight specifically listed. Questionnaires were completed anonymously and returned to a student-controlled envelope in class and subsequently to the program office.

Results

Students in Cohort 1 reported participating in an average of 2.58 (*SD* = 1.5) of the eight named activities, and the mean increased to 3.07 (*SD* = 1.7) activities when the Other Activities category was included. The numbers for Cohort 2 were similar for the eight named activities (*M* = 2.23, *SD* = 1.6), and the eight plus Other Activities group (*M* = 2.73, *SD* = 1.7). Correlations between total number of activities and GPA were small in both Cohorts 1 (r = .12) and 2 (r = .18).

Rates of participation were very high overall, with 93.3% of students in Cohort 1 participating in at least one of the eight named activities, and another 1.9% indicating Other Activities. As with average number of activities, the Cohort 2 rates were similar, but slightly lower, with figures of 87.6% and 90%, respectively. Rates of participation in individual activities are presented in Table 1 for both cohorts. The highest participation rates were in Athletic Teams, Music–Solo Instruments, and Other Activities, with rates for these activities in the 50% and higher range. The lowest rates of participation were in Dance, Music–Choral, School Government, and Ethnic or Cultural Clubs, and the pattern of participation across activities was consistent across both cohorts.

Gender Differences

Mean differences. In Cohort 1, females (*M* = 3.32, *SD* = 1.63) reported participating in significantly more activities than males (*M* = 2.75, *SD* = 1.64), t (840) = 5.03, p < .001. However, the effect size (Cohen's d = .35) was in the small to medium range. In Cohort 2, females (*M* = 2.92, *SD* = 1.74) also reported participating in more activities than males (*M* = 2.48, *SD* = 1.61), t (288) = 2.21, p < .05, but the effect size was very small (Cohen's d = .03).

Participation rates. Gender differences in participation rates were examined using 2 x 2 crosstabulations (gen-

Table 1

Participation Rates (%) by Gender

	1999 (n = 842)			2000 (n = 290)		
Activity	Male	Female	Total	Male	Female	Total
Dance	6.3	26.6*	17.5	2.4	18.6*	11.7
Music (Solo Instrument)	49.3	56.8	53.4	50.4	42.5	45.9
Music (Choral)	9.0	21.4*	15.8	8.1	17.4	13.4
Music (Band)	29.3	26.3	27.7	23.6	23.4	23.4
School Government	17.9	20.7	19.5	15.4	19.8	17.9
Academic Clubs	37.7	44.3	41.3	30.1	44.9	38.6
Athletic Teams	69.1*	58.1	63.1	59.3	53.3	55.9
Ethnic/Cultural Clubs	15.3	23.1*	19.6	12.2	19.8	16.6
Other Activities	40.9	55.1*	48.7	46.3	52.7	50.0

Note. Flagged rates (*) indicate significantly higher participation than the other gender in the same cohort.
*p < .006

der by participation/nonparticipation). Since there were nine extracurricular activity categories, the critical alpha was set at .006 to maintain a family-wise error rate of .05. In Cohort 1, females reported participating in Dance, χ^2 (1, 842) = 59.21, p < .001, Music–Choral, χ^2 (1, 842) = 24.14, p < .001, Ethnic or Cultural Clubs, χ^2 (1, 842) = 8.06, p < .005, and Other Activities, χ^2 (1, 842) = 16.77, p < .001, at significantly higher rates than did males, whereas male students reported participating in Athletic Teams, χ^2 (1, 842) = 10.89, p < .001, at higher rates than females (see Table 1).

The results for participants from Cohort 2 were quite similar to Cohort 1. However, in this group, the only significant gender difference was in Dance, χ^2 (1, 290) = 17.79, p < .001, with females reporting significantly greater participation than males. The size of the gender differences in Music–Choral suggests that the smaller sample size may be the reason for fewer significant differences.

Grade-Level Differences

Mean differences. As sixth-grade participants constituted less than 2% of each cohort, they were excluded from the grade-level analyses. Although correlations between number of activities and grade level using the student as the unit of analysis indicated no meaningful relationship in either Cohort 1, r(822) = .13, p < .001, or Cohort 2, r(282) = .11, p < .05, correlations using grade as the unit of analysis indicated that there was a relationship: Cohort 1, r(4) = .97, p < .01, or Cohort 2, r(4) = .89, p < .05. Grade level means are reported in Table 2. As

Table 2

Number of Extracurricular Activities by Grade Level

	1999			2000		
Grade	N	M	SD	N	M	SD
7	157	2.79[a]	1.5	84	2.61	1.8
8	168	2.81	1.7	46	2.59	1.6
9	205	3.07	1.6	60	2.63	1.7
10	194	3.27	1.8	57	2.96	1.7
11	99	3.39[a]	1.5	36	3.14	1.4

Note. Means with the same superscript differ significantly from each other.

can be seen, the increases from the middle to high school grades were modest, despite the substantial correlations found. Analysis of variance (ANOVA) indicated no significant differences by grade in Cohort 2, F(4, 278) = 1.01, p > .05, but the Cohort 1 ANOVA was significant, F(4, 818) = 3.85, p < .004. The only significant difference found in post-hoc analyses was between grade 7 and grade 11, and the differences between these two means indicated an effect size (Cohen's d = .40) that approached the medium range.

Participation rates. Correlations between grade level and grade-level participation rate in the eight named activities ranged from |.54| to |.98| in 1999 and |.33| to |.96| in 2000. However, visual inspection of the data indicated

Table 3

Middle and High School Participation Rates (%)

Activity	1999 (n = 823)			2000 (n = 283)		
	MS	HS	Total	MS	HS	Total
Dance	14.8	19.1	17.4	13.1	10.5	11.7
Music (Solo Instrument)	61.8*	47.2	53.0	52.3	41.8	46.6
Music (Choral)	14.2	16.5	15.6	14.6	13.1	13.8
Music (Band)	36.0*	22.1	27.6	26.2	19.6	22.6
School Government	19.7	18.7	19.1	18.5	17.6	18.0
Academic Clubs	24.6	52.4*	41.4	26.9	49.7*	39.2
Athletic Teams	63.1	62.2	62.6	54.6	56.2	55.5
Ethnic/Cultural Clubs	11.1	25.1*	19.6	13.1	20.3	17.0
Other Activities	34.8	58.0*	48.8	40.8	58.8*	50.5

Note. MS = Middle school students; HS = High school students. Flagged rates (*) indicate significantly higher participation than the other level in the same cohort.
*$p < .006$

that trends in some activities were not as pronounced as the correlation coefficients suggested. Cohort 1 participation rates are presented in Figure 1 by grade level. Two activities (Academic Clubs and Ethnic or Culture Clubs) had clear increasing trends as grade levels increased, with the former being rather steep. On the other hand, Music–Solo Instrument and Music–Band had clear decreasing trends. The other activities had fluctuations of less than 10% across the grade levels, and the patterns in Cohort 2 were similar.

Differences in participation between middle and high school students were examined using 2 x 2 crosstabulations (middle school/high school by participation/nonparticipation) with a critical alpha of .006 to maintain a family-wise error rate of .05. Significant differences by grade level are flagged in Table 3. In Cohort 1, middle school students reported participating at significantly higher rates than high school students in Music–Solo Instrument, χ^2 (1, 823) = 16.96, $p < .001$, and Music–Band, χ^2 (1, 823) = 19.05, $p < .001$, whereas high school students reported higher rates of participation in Academic Clubs, χ^2 (1, 823) = 62.61, $p < .001$, Ethnic or Cultural clubs, χ^2 (1, 823) = 24.58, $p < .001$, and Other activities, χ^2 (1, 823) = 42.59, $p < .001$. These findings confirm the trends evident in Figure 1.

Although Cohort 2's results were similar in pattern to Cohort 1, the only significant differences were high school students reporting higher participation rates in Academic Clubs, χ^2 (1, 283) = 15.26, $p < .001$, and Other Activities, χ^2 (1, 283) = 9.17, $p < .002$. However, the decreasing trend in Music–Solo Instruments and Music–Band suggest that lack of significance is due to sample size.

Ethnic Group Differences

There were very low numbers of participants in certain ethnic groups. Thus, for the purposes of the ethnic group comparisons, Chicano and Latino were combined to form a global Hispanic student category and East Indian/Pakistani, Japanese/Japanese American, Korean/Korean American, Pacific Islander, Pilipino/Filipino American and Vietnamese/Thai/Other Asian were combined to form an Other Asian student category. Additionally, any group with less than 30 members was eliminated from the analysis, resulting in a sample size of 728 for Cohort 1. These restrictions resulted in the elimination of Cohort 2 for these comparisons, as most ethnic groups in this cohort were fewer than 30 in number. Ethnic groups examined included African Americans, Chinese Americans, Hispanic Americans, Other Asian Americans, and White Americans.

Data were analyzed using 5 x 2 crosstabulations (ethnic group by participation or nonparticipation). The critical alpha was again set at .006. Results of these analyses are presented in Table 4. The highest rates of participation were reported by White Americans on Athletic Teams (72.6%) and Chinese Americans in the Music–Solo Instrument category (72.2%), and the lowest rates were White Americans in Dance (4.7%) and Hispanic Americans in Music–Choral (6.5%). Significant ethnic group differences were found in Music–Solo Instrument, χ^2 (8, 728) = 82.20, $p < .001$, Music–Choral, χ^2 (8, 728)

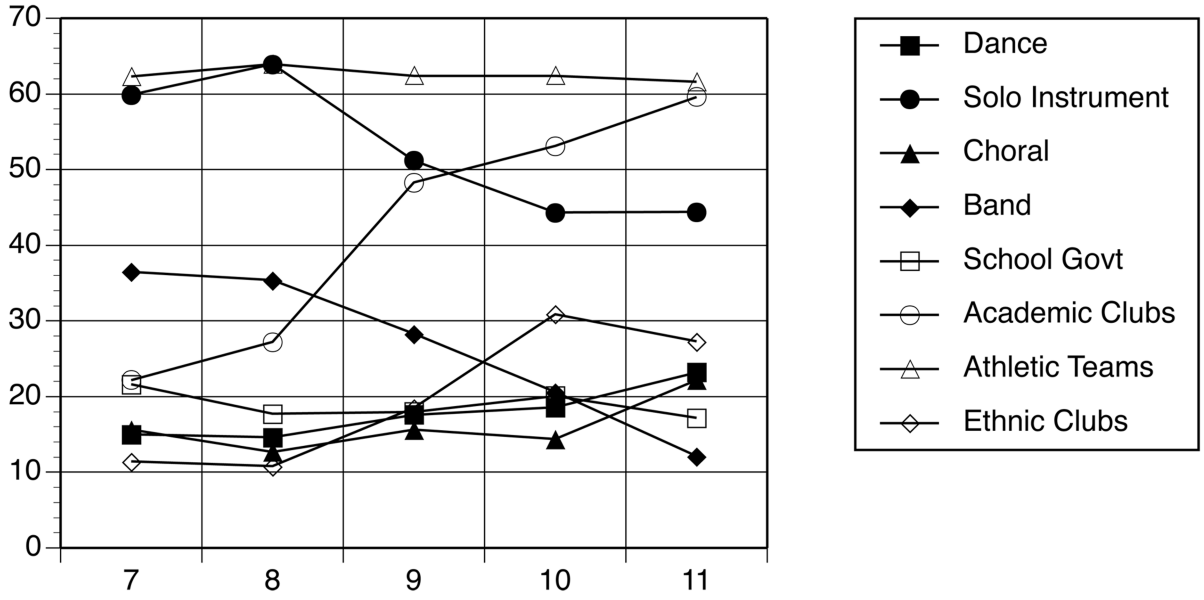

Figure 1. Participation rates by grade level

= 23.74, $p < .003$, Athletic Teams, χ^2 (8, 728) = 21.59, $p < .006$, and Ethnic or Cultural clubs, χ^2 (8, 728) = 24.51, $p < .002$.

Disaggregating the ethnic group differences by gender clarified the participation rates. In Music–Solo Instrument, female participation rates were substantially higher for African American students and moderately higher for Chinese American and Other Asian American students, whereas gender differences for Hispanic American and White American students were in the 5% range. In Music–Choral, African American females participated at substantially higher rates than all other ethnic and gender groups. Females in all ethnic groups participated in this activity at higher rates than males, and no Hispanic American males reported participating in this activity.

Participation rates in Athletic Teams were generally high across ethnic groups, with no groups reporting less than 45% and African American males reporting the highest levels of participation. Males reported participating at substantially higher rates than females in African American, Chinese American, and Hispanic American groups, and White American males also reported participating at slightly higher rates than females. Other Asian American females reported participating in athletics at a higher rate than males, but the difference was less than 5%.

Participation in Ethnic or Cultural Clubs was in the low to moderate range (6–29%) with females participating at higher rates than males in all groups. However, rates fluctuated considerably across gender and ethnic groups. Females from ethnic minority groups had the highest participation rates. Minority students participated in Ethnic or Cultural Clubs at greater rates than did White students, although the participation rate for White females was comparable to the rates for Black and Hispanic males.

Discussion

In this study, we examined academically talented students' participation in extracurricular activities in two independent cohorts. The results indicated that students participate in two to three activities, on average, and that participation rates in some activities follow gender stereotypical patterns. Differences by ethnic group and grade level were also evident for some activities. The data indicated that a substantial majority of academically talented students of both genders participate in extracurricular activities, and the consistency of the patterns across the cohorts suggests that the findings are robust in this population.

Gender

As in other studies of regular education (e.g., Fejgin, 1994; McNeal, 1998) and academically talented students (Olszewski-Kubilius & Lee, 2004; Worrell & Bucknavage, 2004), participation rates in some activities differed along gender stereotypical lines, with males favoring athletic

Table 4

Participation Rates (%) in Extracurricular Activities by Gender and Ethnicity for the 1999 Cohort

	African American			Chinese American			White American			Hispanic American			Other Asian American		
Activity	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
D	12.5	45.8	32.5	2.9	21.8	13.9	2.9	28.2	16.0	10.0	31.3	21.0	9.8	28.0	20.6
M (SI)*	18.8	41.7	32.5	67.0	76.1	72.2	42.2	37.3	39.6	23.3	28.1	25.8	54.9	68.0	62.7
M (C)*	18.8	45.8	35.0	11.7	23.9	18.8	9.8	12.7	11.3	0.0	12.5	6.5	2.0	21.3	13.5
M (B)	18.8	33.3	27.5	32.0	31.0	31.4	30.4	15.5	22.6	26.7	15.6	21.0	29.4	33.3	31.7
SG	31.3	29.2	30.0	12.6	16.2	14.7	18.6	14.5	16.5	6.7	31.3	19.4	16.7	32.0	26.2
AC	50.0	45.8	47.5	35.0	49.3	43.3	41.2	39.1	40.1	30.0	43.8	37.1	39.2	49.3	45.2
AT*	81.3	54.2	65.0	61.2	47.9	53.5	76.5	69.1	72.6	66.7	46.9	56.5	60.8	65.3	63.5
EC*	12.5	29.2	22.5	18.4	26.8	23.3	5.9	13.6	9.9	13.3	18.8	16.1	21.6	29.3	26.2
OA	50.0	37.5	42.5	36.9	54.2	46.9	35.3	66.4	51.4	36.7	37.5	37.1	41.2	50.7	46.8

Note. D = Dance; M (SI) = Music (Solo Instrument); M(C) = Music (Choral); M (B) = Music (Band); SG = School Government; AC = Academic Clubs; AT= Athletic Teams; EC = Ethnic/Cultural Clubs; OA = Other Activities. Flagged rates (*) indicate significantly higher participation than at least one other ethnic group.
* $p < .006$

teams and females favoring dance and choral music. Since athletics was a general category in this study, it was not possible to ascertain if the higher rates for males was due to involvement in team and competitive sports, as reported by Posner and Vandell (1999) and Vilhjalmsson and Kristjansdottir (2003), but this hypothesis should be explored in future research.

Contrary to Olszewski-Kubilius and Lee's (2004) results, no gender differences were found in the area of academic clubs. However the actual differences in this study—6.6% in Cohort 1 and 14.8% in Cohort 2—were in favor of females and opposite to the direction reported by Olszewski-Kubilius and Lee. Other than the differences in sample size between the two studies, there is no clear explanation for the difference in this area, and this finding should be examined in future research. Females also reported greater participation than males in ethnic or cultural clubs, maybe in keeping with their generally higher involvement in the arts. Indeed, it is interesting that White American females reported involvement in ethnic or cultural clubs at levels paralleling African American and Hispanic American males. The high rate of participation of Asian American males in comparison to their male counterparts of other ethnicities is particularly interesting, especially since there is considerable speculation about the impact of culture on schooling in relation to these groups.

Grade Level

Several differences in participation rates were found across grade level. Of course, grade-level differences may be based in part on the activities that are typically available in middle and high schools. However, there are alternative explanations that are also compelling. For example, the decreasing rates of participation in Music–Solo Instrument and Band in the upper grades may be the result of the winnowing that takes place with an increased commitment to mastering the instruments of choice both on the part of the students and their instructors. Sosniak (1990) divided talent development into three phases: a first phase characterized more by interest and involvement, a second phase characterized by a commitment to the discipline, and a third phase characterized by the decision to be one of the leaders in the domain. The shift to each phase results in a more selective group of participants, and Phase 2 often occurs during the adolescent years.

The greater participation in academic activities, cultural activities, and activities outside the eight named may reflect the increased availability of such activities at the high school level compared with those available at the middle school level. However, it is also possible that academically talented students, who, as a group, are generally college-bound, are increasingly likely to seek out experiences in their areas of academic interest for reasons of enjoyment, as well as practicality (i.e., college applications). Similarly, increased involvement in ethnic and cultural clubs may relate to the development of social identity, a cornerstone of the adolescent experience (Erikson, 1959, 1968; Marcia, 1980) that is particularly salient to minority adolescents in the U.S. (Phinney, 1990).

Ethnicity

As hypothesized, some ethnic group differences were also found. Ethnic groups' participation in ethnic or cultural clubs was higher than White Americans', in keeping with studies reporting higher scores for minority groups on ethnic identity (e.g., Phinney, 1992; Phinney & Alipuria, 1990; Phinney, Cantu, & Kurtz, 1997; Phinney, DuPont, Espinosa, Revill, & Sanders, 1994). The lower rates for African American and Hispanic American students in comparison to their White American and Asian American counterparts in playing musical instruments are less easily explained. One possible explanation is socioeconomic, since instruments and music lessons have financial implications for a family, and Whites and Asian Americans have higher incomes on average than Black and Hispanic families. Although it is not possible to examine this hypothesis directly in this study because participants did not provide information on family income, information from the program's database indicates that the Asian American and White students come from families with significantly higher incomes than do the Hispanic and African American students.

Gifted and Talented Students

The findings in this study are generally consistent with the findings in the Olszewski-Kubilius and Lee (2004) study, the only other study of extracurricular activities and high-achieving students in the U.S. Neither of these studies supports the hypothesis that academically talented students are primarily interested in academic activities and less interested in sports. In this study, more than half of the students in both cohorts reported participating on athletic teams. This rate is much greater than the rates for any other activity, including academic clubs and student government. Moreover, not only were the rates of athletic participation higher than rates of participation in the other extracurricular activities in this study, but they were also higher than rates reported for the students in the NELS database and rates reported in other studies of the general high school population (e.g., Eccles & Barber, 1999; Marsh, 1992; U.S. Department of Education, 1995). However, it should be noted that athletic teams provide opportunities for more students to participate than activities such as student government.

Perhaps not surprisingly, the data supported the hypothesis that academically talented students would have high rates of participation in extracurricular activities. These students are committed to and involved in schooling, variables that are related to participation in extracurricular activities (Marsh, 1992). No activity had fewer than 10% participation overall, although rates did fall below that percentage for some gender groups. When compared to results from the NELS data, the current sample had rates of participation approximately 1.5 times higher in academic clubs and sports (U.S. Department of Education, 1995), the only two directly comparable categories in the studies. While it is difficult to compare the other activities due to differences in the category titles, it does appear that this sample reported higher rates in the other activities listed, as well.

Limitations and Conclusion

This study had several limitations. First, participants were from a single program in one western state and may not be representative of academically talented students in general. It is also difficult to assess whether or not participation rates were similar to those found in the total school population. The difficulty stems from differences in categories used in various studies, as well as the fact that most studies focus on high school and college students, whereas our sample included middle school students. Third, in this study, we examined participation rates in global categories and did not break these into subcategories. A related concern is the lack of specificity in the Other Activities category.

In the future, research with a comparison group of students not identified as academically talented would be beneficial. Future research should also focus on the relationships between types of extracurricular activities and academic achievement in academically talented students, as participation in different activities yielded differential effects in nontalented populations. Finally, the specific types of athletic, academic, and other activities should be examined. Olszewski-Kubilius and Lee (2004) have begun this examination. For example, what athletic teams or academic clubs are these students actually participating in, and are these patterns similar to those in the general school population?

Limitations notwithstanding, this study makes an important contribution to the literature on extracurricular activities in academically talented youth. It highlights the lack of information in the extant literature, and the results provide a baseline for future studies looking at extracurricular activities in samples of academically talented students. It also helps dispel the myth of academically talented students not being involved in athletic and other nonacademic activities and suggests that their profile of extracurricular activities may be more similar to the general student body than previously suspected.

References

Blyth, D. A., Simmons, R. G., & Bush, D. (1978). The transition into early adolescence: A longitudinal comparison of youth in two educational contexts. *Sociology of Education, 51,* 149–162.

Broh, B. A. (2002). Linking extracurricular programming to academic achievement: Who benefits and why? *Sociology of Education, 75*, 69–91.

Brown, R., & Evans, W. P. (2002). Extracurricular activity and ethnicity: Creating greater school connection among diverse student populations. *Urban Education, 37,* 41–58.

Camp, W. G. (1990). Participation in student activities and achievement: A covariance structural analysis. *Journal of Educational Research, 83*, 272–278.

Dauber, S. L., & Benbow, C. P. (1990). Aspects of personality and peer relations of extremely talented adolescents. *Gifted Child Quarterly, 34,* 10–14.

Eccles, J. S., & Barber, B. L. (1999). Student council, volunteering, basketball or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research, 14*, 10–43.

Erikson, E. H. (1959). *Identity and the life cycle.* New York: Norton.

Erikson, E. H. (1968). *Identity, youth and crisis.* New York: Norton.

Evans, M. E., Schweingruber, H., & Stevenson, H. W. (2002). Gender differences in interest and knowledge acquisition: The United States, Taiwan, and Japan. *Sex Roles, 47,* 153–167.

Fejgin, N. (1994). Participation in high school competitive sports: A subversion of school mission or contribution to academic goals? *Sociology of Sports Journal, 11,* 211–230.

Fredricks, J. A., & Eccles, J. S. (2002). Children's competence and value beliefs from childhood through adolescence. Growth trajectories in two male-sex-typed domains. *Developmental Psychology, 38,* 519–533.

Gerber, S. B. (1996). Extracurricular activities and academic achievement. *Journal of Research and Development in Education, 30,* 42–50.

Gifford, V. D., & Dean, M. M. (1990). Differences in extracurricular activity participation, achievement, and attitudes toward school between ninth-grade students attending junior high school and those attending senior high school. *Adolescence, 25,* 799–802.

Haensly, P. A., Lupkowski, A. E., & Edlind, E. P. (1986). The role of extracurricular activities in education. *High School Journal, 69,* 110–119.

Haggerty, C., Dugoni, B., Reed, L., Cederlund, A., & Taylor, J. (1996). *National Education Longitudinal Study (NELS:88/94): Methodology report.* Washington, DC: U.S. Department of Education, National Center for Educational Statistics.

Holland, A., & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? *Review of Educational Research, 57*, 437–466.

Hood, A. B., Craig, A. F., & Ferguson, B. W. (1992). The impact of athletics, part-time employment, and other activities on academic achievement. *Journal of College Student Development, 33*, 447–453.

Lisella, L. C., & Serwatka, T. S. (1996). Extracurricular participation and academic achievement in minority students in urban schools. *The Urban Review, 28*(1), 63–80.

Marcia, J. E. (1980). Identity in adolescence. In J. Adelson (Ed.), *Handbook of adolescent psychology* (pp. 159–187). New York: Wiley.

Marsh, H. W. (1992). Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology, 84*, 553–562.

McNeal, R. B., Jr. (1998). High school extracurricular activities: Closed structures and stratifying patterns of participation. *Journal of Educational Research, 91,* 183–191.

National Center for Educational Statistics. (1986). *High school and beyond, 1980: Sophomore cohort second follow-up (1984): Data file user's manual.* Ann Arbor, MI: Inter-University Consortium for Political and Social Research.

Olszewski-Kubilius, P., & Lee, S. (2004). The role of participation in in-school and outside-of-school activities in the talent development of gifted students. *Journal of Secondary Gifted Education, 15,* 107–123.

Phinney, J. S. (1990). Ethnic identity in adolescents and adults: Review of research. *Psychological Bulletin, 108,* 499–514

Phinney, J. S. (1992). The Multigroup Ethnic Identity Measure: A new scale for use with diverse groups. *Journal of Adolescent Research, 7,* 156–176.

Phinney, J. S., & Alipuria, L. L. (1990). Ethnic identity in college students from four ethnic groups. *Journal of Adolescence, 13,* 171–183.

Phinney, J. S., Cantu, C. L, & Kurtz, D. A. (1997). Ethnic and American identity as predictors of self-esteem among African American, Latino, and White adolescents. *Journal of Youth and Adolescence, 26,* 165–185.

Phinney, J. S., DuPont, S., Espinosa, C., Revill, J., & Sanders, K. (1994). Ethnic identity and American identification among ethnic minority youths. In A. Bouvy, F. J. R. van de Vijer, P. Boski, & P. Schmitz (Eds.), *Journeys into cross-cultural psychology* (pp. 167–183). Berwyn, PA: Swets & Zeitlinger.

Posner, J. K., & Vandell, D. L. (1999). After-school activities and the development of low-income urban children: A longitudinal study. *Developmental Psychology, 35,* 868–879.

Schreiber, J. B., & Chambers, E. A. (2002). After-school pursuits, ethnicity and achievement for 8th- and 10th-grade students. *Journal of Educational Research, 96*, 90–100.

Silliker, S. A., & Quirk, J. T. (1997). The effect of extracurricular activity participation on the academic performance of male and female high school students. *The School Counselor, 44*, 288–293.

Sosniak, L. A. (1990). The tortoise, the hare, and the development of talent. In M. J. A. Howe (Ed.), *Encouraging the development of exceptional abilities and talents* (pp. 149–164). Leichester, England: British Psychological Society.

Terenzini, P. T., Pascarella, E. T., & Blimling, G. S. (1996). Students' out-of-class experiences and their influence on learning and cognitive development: A literature review. *Journal of College Student Development, 37*, 149–162.

U.S. Department of Education. (1995). Table 143. Percent of high school seniors who participate in selected school-sponsored extracurricular activities, by student characteristics: 1982 and 1992. *Digest of Education Statistics Tables and Figures 1995*. Retrieved June 8, 2005, from http://nces.ed.gov/programs/digest/d95/dtab143.asp

Vilhjalmsson, R., & Kristjansdottir, G. (2003). Gender differences in physical activity in older children and adolescents: The central role of organized sport. *Social Science and Medicine, 56,* 363–374.

Worrell, F. C., & Bucknavage, L. B. (2004). Participation in extracurricular activities by students attending assisted and prestige schools in Trinidad. *Caribbean Curriculum, 11,* 129–147.

Author Note

This study was conducted under the auspices of the Academic Talent Development Program, Graduate School of Education, University of California, Berkeley.

Correspondence concerning this article can be sent to Frank C. Worrell, Cognition and Development, 4511 Tolman Hall, University of California, Berkeley, Berkeley CA 94720-1670. Electronic mail can be sent to frankc@berkeley.edu.