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Extracurricular Participation, School Size, and Achievement and Self-Esteem Among High School Students: A National Look

Theodore Coladarci
University of Maine

Casey D. Cobb
Arizona State University

Using the NELS:88 database, we examined (a) the relation between school size and extracurricular participation (EP) in high school, (b) the effect of EP on 12th-grade academic achievement and self-esteem, and (c) the indirect effect of school size on achievement and self-esteem through its effect on EP. Consistent with the seminal study by Barker and Gump et al. (1964), we found higher EP among smaller-school students across various activities. We also uncovered a significant, if modest, effect of EP on self-esteem, but no meaningful effect on achievement. The indirect effect of school size on either outcome, through its effect on EP, did not obtain. Thus, there is no basis in our data to support the proposition that smaller schools, through their positive effects on extracurricular participation, foster either academic achievement or self-esteem.

Researchers and the laity alike have demonstrated considerable interest in the subject of extracurricular participation (EP) among high school students. Researchers, not surprisingly, assume more of an empirical hypothesis-testing posture and generally take one of two views (Marsh, 1992): (a) a zero-sum perspective, which considers EP to be a distraction from conventional academic pursuits and portending negative consequences for high school outcomes and beyond (e.g., Coleman, 1961); and (b) a participation-identification perspective, in which EP is an important formative experience that fosters within the student a sense of school identification and, in turn, engenders heightened self-esteem and academic achievement (e.g., Finn, 1989; Marsh, 1992).

The laity, in contrast, more likely is concerned with the implications of EP for fiscal policy. In short, are extracurricula worth it? With reduced state appropriations becoming the norm for many locales, and schools consequently facing the daunting task of identifying yet more chaff to separate from the educational wheat, the "bottom line" of EP looms large in the minds of many school board members, administrators, teachers, and parents.

The Consequences of EP

Although the researcher and the layperson arguably look at EP through different lenses, the fundamental question for both is one of causality: Do high school students benefit from—or get hurt by—participating in extracurricular activities? Despite over a quarter century of educational and psychological research, few studies have been able to provide anything other than equivocal results on causal relations involving EP. For example, Otto (1982) concluded that "[t]here is no evidence—only anecdotes and testimonials—that the amount of participation in extracurricular activity affects academic performance, whether favorably or unfavorably" (p. 218). Echoing this lament a full decade later, Marsh (1992) believed that the extant research did not permit an informed choice between the competing views of EP delineated above.

From his own investigation, which avoided many of the methodological shortcomings that characterized prior EP research (see Holland & Andre, 1987, pp. 449-452), Marsh (1992) held that the data in fact are more consistent with a participation-identification model. Using the High School and Beyond data base, he concluded that EP was

> favorably associated with (in order of size of the effect) social self-concept, academic self-concept, taking advanced courses, time spent on homework, postsecondary educational aspirations, GPA, parental involvement, absenteeism, senior-year educational aspirations, being in the academic track, college attendance, parental aspirations, and senior occupational aspirations. (p. 557)

In his study, statistically significant effects on senior-year outcomes ranged from $\beta = .03$ (academic ability) to $\beta = .25$ (social self-concept), with a median effect of $\beta = .09$.[1] These results suggest rather modest effects of EP across all out-

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Correspondence concerning this article should be addressed to Theodore Coladarci, 5766 Shibles Hall, University of Maine, Orono, ME 04469-5766. (theo@maine.maine.edu)

comes, although more pronounced effects for certain aspects of self-concept.

EP and School Size

If the effects of EP are judged to be meaningful, then the important question becomes one of identifying antecedents of EP. That is, what fosters extracurricular participation among high school students? While personality considerations doubtless influence whether one pursues such opportunities (Holland & Andre, 1987), so do features of the organization itself.

School size, an organizational variable of particular interest to rural education researchers, is one such antecedent condition that has been found to covary with EP. Specifically, proportionately more students in smaller schools participate in extracurricular activities when compared to participation rates in larger schools (e.g., Stevens & Peltier, 1994).

Researchers traditionally have explained this phenomenon by drawing on Lewinian theory and the concept of "force." Even though larger schools have more extracurricular activities than smaller schools, the increase is not proportionate to school size. In their seminal study, *Big School, Small School*, Barker and Gump et al. (1964) found that their smallest and largest schools differed by a factor of 65 in student population, but only a factor of 8 in the total number of extracurricular opportunities ("settings," in the language of these authors) and a factor of 1.5 in the variety of opportunities. The resulting dynamics of supply and demand, they argued, gave rise to perceived opportunities and obligations in the smaller school that produced a greater force toward extracurricular participation:

> Students from the small schools, where settings were relatively underpopulated, reported more own forces (attractions) and foreign forces (pressures) toward participation in behavior settings than did students from the large school. Furthermore, a sizable group of students emerged in the large school who experienced few, if any, forces toward participation. The small schools in the present study did not contain any such outsiders; all of the small school students reported experiencing many forces toward participation. (Barker & Gump et al., 1964, p. 133)

Importantly, the relation between school size and EP reported by Barker and Gump et al. (1964) over 30 years ago has held up across various investigations since, as Stevens and Peltier (1994) demonstrated in their review of research on this topic.

As with the literature on the consequences of EP, many of the studies regarding the relation between EP and school size reviewed by Stevens and Peltier (1994) suffer from one methodological weakness or another. Principal among these is questionable external validity: Although some studies drew on large samples, these few investigations typically were limited to a particular state. An important exception, which was not included in the Stevens and Peltier review, was the study of high school seniors by Lindsay (1982). Using the National Longitudinal Study of the High School Class of 1972 (NLS) database, Lindsay, too, found higher EP among seniors at smaller schools than at larger schools.

The Present Study

Our first objective was to contribute to the EP literature by examining the relation between EP and school size among students participating in the National Education Longitudinal Study of 1988 (NELS:88). Unlike NLS, which began with the student's senior year in high school, NELS:88 allows for a more comprehensive assessment of high school extracurricular participation—during the sophomore *and* senior years.

Our second objective was to test a causal model of school size, EP, and educational outcomes. In their literature review, Stevens and Peltier (1994) celebrate the higher EP among smaller-school students and, in turn, point to the putative effects of such participation on cognitive and affective outcomes. By doing so, they tacitly embrace a causal model in which smaller schools, through their positive effect on EP, bring about higher student achievement and self-esteem. That is, Stevens and Peltier, doubtless along with many other consumers of this research, assume school size to have an "indirect" effect on these outcomes through its positive effect on EP.

No one has systematically tested this proposition. Specifically, no investigation has treated EP as an intervening variable that mediates the relation between school size and academic or affective outcomes. Thus, our second objective was to address this void. NELS:88 is particularly helpful here, as well, for this database also provides eighth-grade data which, as will be seen below, allowed us to control for self-selection effects.

Method

Data Source

NELS:88 data were collected by the National Opinion Research Center under contract with the National Center

[1] β was a standardized linear partial regression coefficient from which the nonlinear component had been extracted, as had been the confounding influence of background factors such as socioeconomic status and academic ability. The median effect was $\beta = .07$ when based on all 22 outcomes, rather than the 17 for which significant effects were obtained.

for Education Statistics (NCES, 1990, 1992, 1994). NCES employed a two-stage sampling procedure: They first selected a probability sample of 1,052 schools in 1988 and, from each school, then selected approximately 26 eighth-grade students for base year data collection. A subsample of these students was surveyed again in the 10th and 12th grades. (For more details on the NELS:88 sampling procedure, see NCES, 1990, 1992, 1994.)

We imposed several criteria on sample selection for our analyses. We included those students who (a) participated in all three waves of NELS:88 data collection, (b) attended a public high school, and (c) attended the same school in the 10th and 12th grades.[2] Further, we only considered students attending either "smaller" or "larger" high schools (defined below), eliminating students from medium-size schools. These constraints resulted in a maximum N of 6,309 students: 3,317 smaller-school students and 2,992 larger-school students. Depending on the particular analysis, this number was reduced further because many students had missing values on some of the variables described below. The reduction was greatest for the multivariate analysis, which resulted in an N of 4,567 (due to listwise deletion of missing cases).

Variables

A brief description of our dependent and independent variables follows. Detailed information about these variables and their construction appears in the appendix.

Dependent variables. We looked at two general outcomes: academic achievement and self-esteem in the senior year. For a measure of academic achievement, we used the NELS:88 senior-year standardized composite of student performance in reading and mathematics (achieve12).[3] We assessed self-esteem (esteem12) by taking the mean across seven Likert-type items, administered in the senior year, that assessed various attitudes about one's self (e.g., "I feel I am a person of worth").

Independent variables. Our two primary independent variables were school size and a set of EP indicators. We constructed a dummy variable to reflect school size (size): Any high school with a total enrollment less than 800 was considered "smaller" and any school with a total enrollment of 1600 or greater, "larger." Students from all other schools were eliminated from our analyses.

As for EP, we examined self-reported participation for specific activities related to academics (e.g., clubs, student government, school newspaper), sport (e.g., baseball, basketball, football), and the performing arts (e.g., orchestra, musicals, plays). We treated each activity item as a dichotomy—0 (did not participate) and 1 (participated)—and assessed participation separately for the 10th and 12th grades. We also formed a participation composite for each of the three kinds of activities across the 10th and 12th grades (sports, arts, academics) and a total EP composite across all activities and both grades (TEP). All composites were formed by summing the respective items or variables.

Of course, simply knowing the number of activities a student reportedly has participated in does not necessarily signal the student's *investment* in extracurricular activities. Toward this end, we created a variable reflecting the total time the student devoted to EP, in terms of hours per week, across both the 10th and 12th grades. This measure was the mean of two Likert-type items for which the student reported typical EP time spent in the 10th and 12th grades, respectively.

"Self-selection," Holland and Andre (1987) remind us, is "[t]he most serious methodological problem plaguing research on participation" (p. 449). If, in fact, EP is associated with higher academic achievement or self-esteem, does this speak to the salutary effects of EP or, rather, a predisposition among students higher in achievement or self-esteem to subsequently engage in extracurricular activities? By providing eighth-grade data on these students, NELS:88 is particularly helpful for addressing such questions. Toward this end, we included several control variables in our multivariate analysis: family socioeconomic status (SES), eighth-grade academic achievement (achieve8), and eighth-grade self-esteem (esteem8).

Analyses

We conducted both bivariate and multivariate analyses.

Bivariate analyses. Descriptive in nature, our first set of analyses was designed to establish the bivariate relation between school size and EP. In a series of crosstabulations, we contrasted the EP of the 3,317 smaller-school students and the 2,992 larger-school students. For each activity at both the 10th and 12th grades, we determined the percentage of participants and nonparticipants for both smaller-school and larger-school students. We also compared the groups' means on each extracurricular activity composite (sports, arts, academics, and TEP) and the total time spent on extracurricular activities (time).

Multivariate analysis. We used the structural equation modeling program Amos (Arbuckle, 1995) to control for the aforementioned problem of self-selection and, in turn, to assess the effects of (a) school size on EP, (b) EP on 12th grade academic achievement and self-esteem, and (c) school size on both achievement and self-esteem through its effect on EP.

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[2]That is, F2PNLFLG = 1, G12CTRL1 = 1, and F2FLSCFL = 1, respectively.

[3]Unless otherwise noted, variable names in parentheses reflect our language and not the language found in NELS:88 documents.

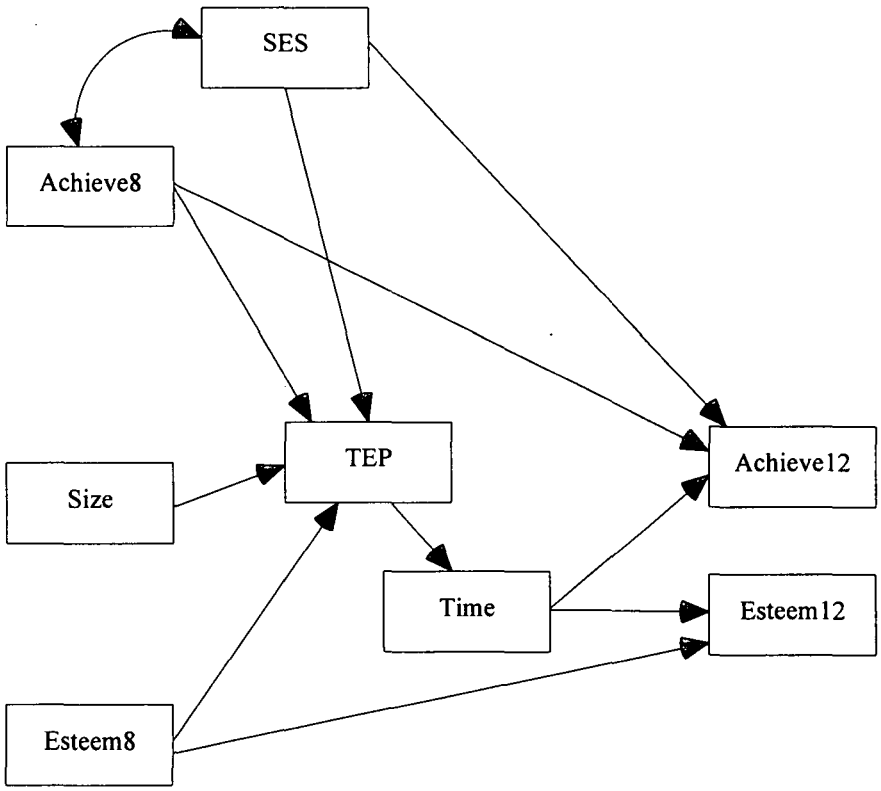

Figure 1. A model of school size, extracurricular participation, and academic achievement and self-esteem.

Our model appears in Figure 1. We treated SES, size, achieve8, and esteem8 as exogenous variables (i.e., the model contains no hypothesized causes of these variables). Because there was no basis for positing that prior achievement and prior self-esteem influences the size of the high school a student subsequently attends, no causal hypotheses were advanced between size and either achieve8 or esteem8. For similar reasons, neither did we posit a relation between size and SES. And although the relation between achievement and academic self-concept is well documented (e.g., Marsh, 1994), there is little basis for positing an analogous relation between achievement and general self-esteem (as operationally defined here). Thus, we assumed no covariation between achieve8 and esteem8. In contrast, SES and achieve8 were allowed to covary, given the established relation between the underlying constructs (e.g., White, 1982).

Our model also reflects the hypothesized effect of school size on total extracurricular participation (TEP),[4] as well as the self-selection influences on TEP of prior achievement, prior self-esteem, and SES. Believing that a student's actual investment of time in extracurricular activities is the causal mechanism by which EP exerts its effects (e.g., see Holland & Andre, 1987, p. 444), we hypothesized that any effect TEP had on achieve12 and esteem12 would be delivered indirectly through its influence on time.

We expected SES and achieve8 to carry direct effects on achieve12 (but not esteem12), and we expected esteem8 to have a direct effect on esteem12 (but not achieve12). We posited no direct effect of school size on either outcome variable. Finally, as with the relation between achieve8 and esteem8, we allowed for no covariation between achieve12 and esteem12.

Large-scale data analyses. Before turning to our results, we first address three decisions that one faces when analyzing large databases. The first two relate to the sampling procedure: How to adjust for (a) oversampling of certain demographic groups and (b) two-stage cluster sampling. Regarding the former, we created a new sampling weight for each student that was equal to the student's

[4]We initially conducted separate analyses for each activity composite, as well. The results did not differ appreciably from those based on total participation (TEP). To minimize redundancy in both our prose and our figures, we present the TEP-related model and analyses only.

NELS:88 sampling weight (F2PNLWT) divided by the mean weight. This had the effect of preserving the original sample size while correcting for the disproportionate sampling of Hispanics and Asian Americans.

Unlike the problem of oversampling, which is one of generalizability, cluster sampling affects the probabilities associated with hypothesis testing. Specifically, because tests of statistical significance assume simple random sampling whereas cluster sampling entails (in the present case) an initial sample of schools followed by a sample of students within schools, test statistics (e.g., *t*, *F*) are overestimated and, consequently, the corresponding probability, *p* values are too small. To minimize the Type I errors that cluster sampling invites, we adopted the more conservative alpha of .001 (versus .05).

The third decision reflects the well known admonition that statistical significance is not synonymous with practical significance, or, importance. Indeed, when a database comprises thousands of cases, the most trivial coefficient or mean-difference nonetheless may result in a rejected null hypothesis. Whereas this event has statistical importance—the corresponding parameter probably is not zero—the event does not necessarily carry implications for practice or policy. With regard to standardized partial regression coefficients (β), Pedhazur (1982) has suggested that researchers consider "meaningful" only those values of β that are (a) statistically significant and (b) at least ±.05 in magnitude. In interpreting the regression results below, we reserve use of the term "significant" only for effects that meet Pedhazur's criteria.

Results

The Bivariate Relation Between School Size and EP

Table 1 presents the percentage of smaller-school and larger-school students who reported to have participated in various extracurricular activities in the 10th and 12th grades. In Table 2, we provide the composite variables' means and standard deviations separately for smaller- and larger-school students, as well as the corresponding effect sizes.[5]

Several observations are clear from these tables. First, for most activities, participation increased—sometimes markedly—from the 10th to the 12th grades and irrespective of school size. Second, participation in any one activity never involved a majority of students, regardless of grade or size of school. However, this should not be interpreted as suggesting that the majority of students never engaged in *any* extracurricular activity during the high school years. Indeed, the frequency distribution of TEP (not presented here) indicates that only 9% of students reported having not participated in any activity in either the 10th or 12th grade.

Third, and consistent with the portrait drawn by Stevens and Peltier (1994), students attending smaller high schools reported greater EP than did students attending larger high schools. EP is significantly greater among smaller-school students for 21 of the 29 activities: 8 of the 11 sport activities, all 4 performing-arts activities, and 9 of the 14 club activities (Table 1). The most pronounced difference was with participation in FTA, FHA, or FFA,[6] particularly in the 10th grade, which involved roughly one fifth (20.5%) of smaller-school students but only 6.7% of larger-school students. In contrast, the significant percentage differences that favored larger-school students were smaller—and fewer (only four)—with the largest difference corresponding to participation in school service clubs (11.2% vs. 16.3%).

Not surprisingly, the greater participation among smaller-school students also was evident in the composite-variable results (Table 2), where we see effect sizes of +.23, +.30, and +.25 for sports, arts, and academics, respectively. That is, students attending smaller schools were roughly one quarter of a standard deviation higher than larger-school students in sport- and club-related participation (across both years), and almost one third of a standard deviation higher in band-related participation.

An effect size of +.39 was obtained for the TEP composite: Across all activities and both grades, participation was roughly four tenths of a standard deviation higher for smaller-school students than for students attending larger schools. And we obtained a *d* of +.21 for time, indicating a greater expenditure of time—across all activities and both grades—among smaller-school students.

Multivariate Analysis

Means, standard deviations, and intercorrelations for all variables in the model appear in Table 3, and the modeling results are presented in Figure 2. Roughly 70% of the variance in achieve12 and 15% of the variance in esteem12 was explained by the independent variables. Given the independent variables in our model, the lower R^2 for esteem12 reflects the lower temporal stability of self-esteem, particularly among adolescents (e.g., Dusek & Flaherty, 1981). In

[5]Effect size (*d*) is obtained by dividing the difference between two means by the pooled standard deviation (Hedges & Olkin, 1985, p. 57). The result is a mean difference in standard deviation units. For example, $d = +.50$ would suggest that the mean of the first group is one half of a standard deviation higher than that of the second group. While encouraging the reader to always consider the particular research context when judging the magnitude of *d*, Cohen (1969, pp. 22-25) offered the following classification of effects: $d = .20$, small; $d = .50$, medium; and $d = .80$, large.

[6]These abbreviations stand for Future Teachers of America, Future Homemakers of America, and Future Farmers of America, respectively.

Table 1
Percentage of Students Reporting to have Participated in Various Extracurricular Activities, by Grade and School Size

Activity	10th Grade			12th Grade		
	Smaller Schools[a]	Larger Schools[b]	Total	Smaller Schools[c]	Larger Schools[d]	Total
Baseball	19.8	12.9	16.5			
Basketball	26.6	14.8	21.1			
Football	17.4	14.5	16.0			
Soccer	4.9	8.7	6.7			
Swimming	1.9	5.6	3.6			
Other team sport	18.2	12.4	15.5			
Individual sport	28.1	21.8	25.2	21.7	18.1	20.0
Team sport				37.8	22.4	30.6
Intramural team sport				23.7	19.3	21.7
Intramural individual sport				12.3	14.0	13.1
Band, orchestra	30.0	17.7	24.2	25.5	16.8	21.5
Plays, musicals	14.5	9.7	12.3	19.6	13.1	16.6
Student government	9.7	5.7	7.8	18.7	15.2	17.1
Academic honor society	7.4	8.4	7.8	20.8	17.3	19.2
School yearbook, newspaper	10.6	6.2	8.5	23.2	13.3	18.6
Service clubs	10.6	13.9	12.1	11.2	16.3	13.6
Academic clubs	34.8	28.6	31.9	27.1	23.6	25.5
Hobby clubs	6.7	6.2	6.5	6.6	8.4	7.5
FTA, FHA, FFA	20.5	6.7	14.0	25.3	15.1	20.6

Note. "Smaller" schools and "larger" schools had a total enrollment of less than 800 and 1,600 or greater, respectively. Except for shaded entries, all comparisons resulted in a statistically significant χ^2 ($\alpha = .001$).
[a] *N* ranges from 3,006 to 3,211.
[b] *N* ranges from 2,729 to 2,858.
[c] *N* ranges from 3,121 to 3,198.
[d] *N* ranges from 2,753 to 2,794.

our data, for example, the correlation between esteem8 and esteem12 was $r = .38$, which is considerably smaller than the correlation between achieve8 and achieve12 ($r = .83$).

The Goodness of Fit, Adjusted Goodness of Fit, and Comparative Fit indices were .98, .96, and .97, respectively, all of which reflect an acceptable fit of the model to the data (e.g., Hoyle & Panter, 1995, p. 164). In structural equation modeling, a χ^2 value also typically is encouraged as a goodness of fit measure. However, this statistic is influenced by *N*—4,567 in the present analysis—which can produce statistically significant χ^2 values for even trivial departures from a perfect fit (e.g., see Marsh, Balla, & MacDonald, 1988; Thompson & Daniel, 1966). Consequently, we opted to ignore this statistic and, instead, focus on the indices noted above.

Self-selection effects on participation. The partial regression coefficients (β) that were estimated for this model confirm the presence of self-selection with respect to extracurricular participation. For example, higher achieving students tended to participate in more extracurricular activities than did lower achieving students, irrespective of one's socioeconomic status or prior self-esteem: TEP increased 14% of a *SD* for each standard deviation increase in achieve8 ($\beta = .14$).

School size and participation. Importantly, the salutary effects of smaller schools on total participation also are evident in these results. Smaller-school students demonstrated a greater inclination to participate in extracurricular activities than did larger-school students. Indeed, the effect of size on TEP ($\beta = -.21$) was the largest effect on TEP of any variable in the model. And because total participation, in turn, had a strong influence on the total time one invested in EP ($\beta = .58$), we therefore see that

Table 2
Means and Standard Deviations for Composite Variables, by School Size

	Smaller Schools			Larger Schools			
Composite	*M*	*SD*	*N*	*M*	*SD*	*N*	Effect Size
Arts	.91	1.22	3,109	.57	.99	2,674	+.30
Sports	2.09	2.07	3,121	1.61	2.01	2,711	+.23
Academics	2.34	2.01	3,111	1.85	1.93	2,679	+.25
TEP	5.32	3.47	3,080	4.01	3.19	2,646	+.39
Time	.08	.88	3,314	-.10	.87	2,980	+.21

Note. All mean differences are statistically significant ($\alpha = .001$).

size carried an *indirect* effect on time through its effect on TEP (-.12).[7]

Effects on academic achievement and self-esteem. Time failed to have a meaningful effect on achieve12 ($\beta = .04$). Consequently, the indirect effect of size on achieve12 through TEP and time was not appreciably different from zero (.005). Thus, although smaller schools were characterized by higher participation in extracurricular activities, there was no corresponding dividend in subsequent achievement that could be attributed indirectly to school size. That is, the tacit model of Stevens and Peltier (1994) was not supported with respect to academic achievement.

In contrast to the negligible effect of time on achieve12, time was found to have a stronger influence on esteem12 ($\beta = .12$). Regardless of socioeconomic status, prior self-esteem, and so forth, students who devoted more time to extracurricular activities showed some tendency to enjoy higher self-esteem as seniors: With every standard deviation increase of the former, the latter increased 12% of a standard deviation. As with achieve12, however, the indirect effect of size on esteem12 also was not significant (-.015). Again, although smaller schools promoted participation in extracurricular activities, there was no corresponding dividend—here, in subsequent self-esteem—that could be attributed to school size. Thus, the tacit model of Stevens and Peltier (1994) was not supported for self-esteem, as well.

Interactive effects. One reviewer wondered whether we found no indirect effect of TEP on self-esteem because of unexamined *interactive* effects in our data. Specifically, he suggested that because supply and demand make it more difficult for the larger-school student to participate in extracurricular activities, the effect of such participation on self-esteem may be more pronounced for the larger-school student than for the smaller-school student. To test for this possibility, we entered an interaction term (size x TEP) into an ordinary least squares regression equation where esteem12 was the dependent variable and SES, esteem8, size, TEP, and time were the independent variables. The increment in R^2 (Δ_{R^2}) associated with this term was a mere .040%. We also conducted this analysis using the full nine-point school size variable that NELS:88 provides (F1SCENRL), which produced similar results ($\Delta_{R^2} = .013\%$). We ran the analogous analyses on achieve12, which yielded Δ_{R^2} values of .005% and .018%, respectively. It would appear that size and EP do not interact to affect either achievement or self-esteem.

Summary and Discussion

School Size and Extracurricular Participation

Extracurricular participation (EP) was higher among students attending smaller high schools—those with total enrollments under 800—than that reported by students attending larger high schools (enrollments of 1600 or greater). This tendency surfaced in our analysis of individual activities, where smaller-school participation was greater for the majority of activities, as well as in our analyses of activity composite variables. Regarding the latter, smaller-school students were higher on all counts: participation in sports, performing arts, and academic clubs. The smaller-school advantage translated to an effect size of $d = +.21$ for total time devoted to participation and $d = +.39$ for participation across all activities.

How should one judge the magnitude of these d values? In particularly, how large are these values relative to more familiar phenomena in the behavioral sciences? Although "small" by Cohen's (1969) scheme, the effect of school size on time invested in EP is equivalent to the highly publicized difference between high school males and fe-

[7]An indirect effect is calculated by multiplying the path coefficients that represent the indirect chain of influence. For example, the indirect effect of size on time through TEP was obtained by multiplying the effect of size on TEP ($\beta = -.21$) by the effect of TEP on time ($\beta = .58$).

Table 3
Means, Standard Deviations, and Intercorrelations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	SES								
(2)	Achieve88	.41							
(3)	Esteem88	.08	.07						
(4)	Size	.12	.02	.05					
(5)	TEP	.17	.20	.12	-.19				
(6)	Time	.21	.23	.12	-.10	.58			
(7)	Achieve92	.41	.83	.09	.06	.19	.24		
(8)	Esteem92	.08	.07	.38	.05	.11	.16	.12	
	M	-.08	52.22	3.12	.44	4.85	.05	51.87	3.14
	SD	.73	9.71	.47	.50	3.42	.89	9.28	.50

Note. Listwise $N = 4,567$.

males in mathematics performance, which corresponds to $d = +.20$ (Hyde, Fennema, & Lamon, 1990). Such an effect also is equivalent to the average cognitive gain associated with one fifth of a year of schooling, as measured by grade equivalent scores (Glass, McGaw, & Smith, 1981, pp. 103-104). And the school-size effect on total participation is comparable to the observed difference between men and women in physical aggression ($d = +.40$; Eagly & Steffen, 1986). In this light, we believe that these school-size effects are important.

Interestingly, school size was the *greatest* determinant of total participation—more than the self-selection factors of socioeconomic status, academic achievement, or self-esteem. Moreover, total participation proved to be by far the strongest predictor of actual time spent on extracurricular activities. Combined, these results point to the indirect effect that school size has on the time a student devotes to EP, the latter being an important indicator of student *commitment* to such participation (Holland & Andre, 1987). In short, our results on the relation between school size and EP, based on a national sample of America's high school students, confirm the literature review by Stevens and Peltier (1994) and the findings of the earlier national study conducted by Lindsay (1982). Indeed, our results appear to echo the conclusion of Barker and Gump et al. (1964) over 30 years ago:

> Individual students in small schools, with their relatively underpopulated settings, live under greater day-to-day attraction, pressure, and responsibility felt toward taking active part in the voluntary activities of their school environment. They are more motivated to take part. (p. 135)

The Consequences of Extracurricular Participation

Do high school students benefit from—or get hurt by—participating in extracurricular activities? With respect to academic achievement, one can conclude from our data that EP, at the very least, does not appear to undermine subsequent achievement. That is, there is no basis in our data for the concern that by participating in extracurricular activities, students are expending time and energy that detract from the more traditional goals of secondary education. But nor is there basis in these data for claims that EP promotes achievement.

A somewhat different picture emerged with respect to 12th grade self-esteem, where the effect of EP was more pronounced ($\beta = .12$ vs. $\beta = .04$). This finding is not unlike those reported by Marsh (1992), who found that EP affected self-concept outcomes to a greater degree than achievement-related outcomes. Importantly, Marsh discovered that the effect of EP was a function of the particular facet of self-concept in question: Social self-concept was affected more than academic self-concept (βs = .25 and .17, respectively), and general self-concept was not affected at all. In our view, these results collectively underscore the potential impact of extracurricular participation on affective development and, further, the importance of considering diverse manifestations of self-concept in research of this kind.

Implications

But do these effects *matter*? That is, do they hold practical implications? Should they inform school policy, as in the case of the Maine school district that considers eliminating its music program (Harbour, 1995)?

There is some disagreement about this in the EP literature. Brown (1988), for example, judged the research

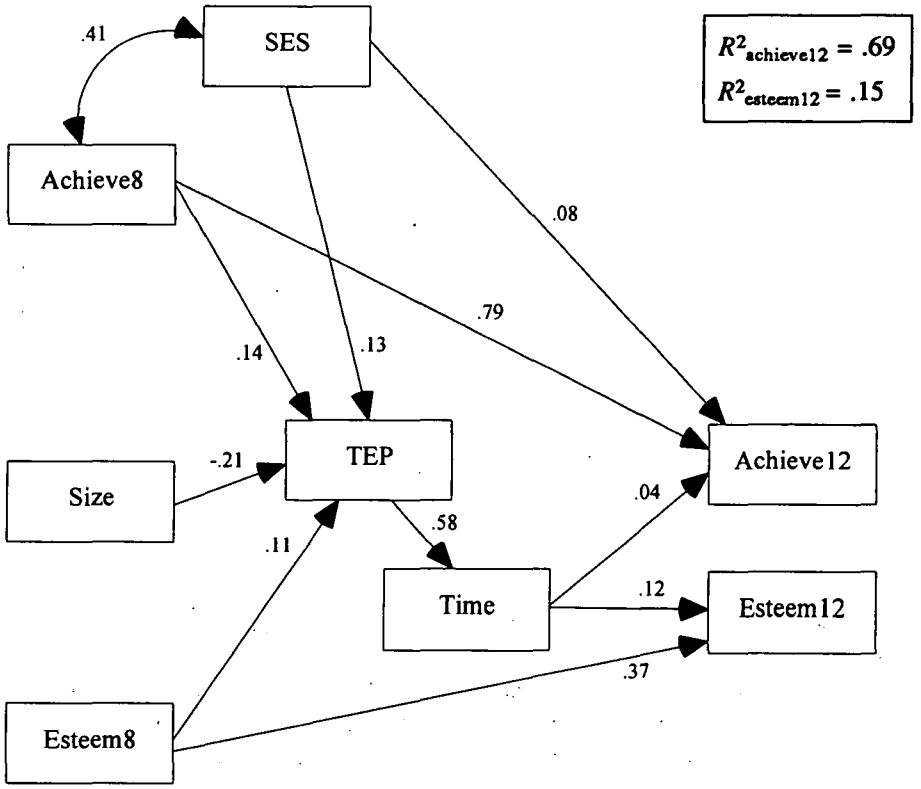

Figure 2. Results of structural equation modeling.

review by Holland and Andre (1987) to be "beneficent and "optimistic," replete with "overstatements," and "overinterpretations" (Brown, 1988, p. 107). In contrast, Brown surmised that "the strongest conclusion one can draw from existing [EP] research is that the effects of extracurricular participation on secondary school students' personal development or academic achievement are probably positive, but very modest . . ." (Brown, 1988, p. 108).

We tend to share Brown's sentiments regarding the impact of EP on academic achievement, where our effects and those reported by others tend to be in the single digits. With respect to self-esteem, however, we are inclined to hold a more optimistic view. Although the EP effect on self-esteem that we obtained is modest, it is real. And like Gage (1985, pp. 11-15), we believe that "weak relationships" nonetheless can have value in the behavioral sciences. Just as the smaller difference between males and females on the Preliminary Scholastic Aptitude Test ultimately results in a socially significant gender disparity in who receives National Merit Scholarships (Arenson, 1996; Burton & Lewis, 1988), the enhanced self-esteem that students appear to derive from extracurricular participation, while small, is a psychologically important effect and should not be taken lightly by educators or policymakers.

Conclusion

Students from smaller high schools clearly enjoy higher participation rates in extracurricular activities than do students from larger high schools. Whereas there is a negligible effect of extracurricular participation on academic achievement, the positive effect on self-esteem is noteworthy. However, there essentially is no indirect effect of school size on either outcome through its effect on extracurricular participation. Thus, there is no basis in our data to support the proposition that smaller schools, through their positive effects on extracurricular participation, foster either academic achievement or self-esteem.

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Appendix

Below, we describe the items and composites in our analyses. The NELS:88 variable names appear in brackets; our variable names are in parentheses. The NELS:88 prefixes BY, F1, and F2 refer to the base year (NCES, 1990), first follow-up (NCES, 1992), and second follow-up (NCES, 1994) surveys, respectively.

Extracurricular Participation Variables

Sport activities [F1S41AA, F1S41AB, F1S41AC, F1S41AD, F1S41AE, F1S41AF, F1S41AG; F2S30AA, F2S30AB, F2S30BJ, F2S30BK]: These items pertain to self-reported 10th-grade participation in baseball/softball, basketball, football, soccer, swim team, other team sport, individual sport (1 = school does not have, 2 = did not participate, 3 = intramural sports, 4 = junior varsity team, 5 = varsity team, 6 = captain/co-captain) and 12th-grade participation in a team sport, individual sport, intramural team sport, and intramural individual sport (1 = school does not have, 2 = did not participate, 3 = junior varsity, 4 = varsity team, 5 = captain/co-captain). We converted all times to a participation/nonparticipation dichotomy (0 = did not participate, 1 = participated). If a school did not offer the extracurricular activity, students were treated as nonparticipators.

Art activities [F1S41BA, F1S41BB; F2S30BA, F2S30BB]: These items pertain to self-reported 10th- and 12th-grade participation in school band or orchestra and in school plays or musicals (1 = school does not offer, 2 = did not participate, 3 = participated, 4 = participated officer). As with sport-related activities, we converted all items to a participation/nonparticipation dichotomy (0 = did not participate, 1 = participated). If a school did not offer the extracurricular activity, students were treated as nonparticipators.

Academically related activities [F1S41BC, F1S41BD, F1S41BE, F1S41BF, F1S41BG, F1S41BH, F1S41BI; F2S30BC, F2S30BD, F2S30BE, F2S30BF, F2S30BG, F2S30BH, F2S30BI]: These items pertain to self-reported 10th- and 12th-grade participation in student government, academic honor society, school yearbook/newspaper, school service clubs, school academic clubs, school hobby clubs, and school FTA/FHA/FFA (1 = school does not offer, 2 = did not participate, 3 = participated, 4 = participated officer). Again, we converted all times to a participation/nonparticipation dichotomy (0 = did not participate, 1 = participated). If a school did not offer the extracurricular activity, students were treated as nonparticipators.

Sport composite (sports): The sum of F1S41AA, F1S41AB, F1S41AC, F1S41AD, F1S41AE, F1S41AF, F1S41AG; F2S30AA, F2S30AB, F2S30BJ, F2S30BK.

Art composite (arts): The sum of F1S41BA, F1S41BB; F2S30BA, F2S30BB.

Academic activities composite (academic): The sum of F1S41BC, F1S41BD, F1S41BE, F1S41BF, F1S41BG, F1S41BH, F1S41BI; F2S30BC, F2S30BD, F2S30BE, F2S30BF, F2S30BG, F2S30BH, F2S30BI.

Total extracurricular participation (TEP): The sum of sports, arts, and academic.

Total time spent on extracurricular participation (time) [F1S42; F2S31]: Self-reported hours per week spent on extracurricular activities in 10th-grade (0 = none, 1 = less than 1 hour, 2 = 1-4 hours, 3 = 5-9 hours, 4 = 10-19 hours, 5 = 20+ hours) and 12th grade (0 = none, 1 = less than 1 hour, 2 = 1-4 hours, 3 = 5-9 hours, 4 = 10-14 hours, 5 = 15-19 hours, 6 = 20-24 hours, 7 = 25+ hours). Time is the mean of F1S42 and F2S31 after each was transformed to a z score to create a common scale.

Other Variables

School size (size) [F1SCENRL]: Total high school enrollment (1 = 1-399 students, 2 = 400-599 students, 3 = 600-799 students, 4 = 800-999 students, 5 = 1000-1199 students, 6 = 1200-1599 students, 7 = 1600-1999 students, 8 = 2000-2499 students, 9 = 2500+ students). We reduced the enrollment distribution to extreme groups: High schools with fewer than 800 students (size = 0) and 1600 students or more (size = 1), respectively.

Continued

Appendix *(Continued)*

Socioeconomic status (SES) [BYSES]: NELS:88 composite comprising father's education, mother's education, father's occupation, mother's occupation, and family income.

8th grade academic achievement (achieve8) [BY2XCOMP]: NELS:88 standardized composite of performance in reading and mathematics (sophomore year).

12th grade academic achievement (achieve12) [F22XCOMP]: NELS:88 standardized composite of performance in reading and mathematics (senior year).

8th grade self-esteem (esteem8) [BYS44A, BYS44D, BYS44E, BYS44H, BYS44I, BYS44J, BYS44L]: Each item is a four-point Likert scale (1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree). After reversing the scale of items where needed, we created esteem8 by taking the student's mean across the seven items (provided that the student had nonmissing values on at least five of the items). Item language: "I feel good about myself;" "I feel I am a person of worth;" "I am able to do things as well as most other people;" "On the whole, I am satisfied with myself;" "I feel useless at times;" "At times, I think I am no good at all;" and "I feel I do not have much to be proud of." (Cronbach's $\alpha = .77$)

12th grade self-esteem (esteem12) [F2S66A, F2S66D, F2S66E, F2S66H, F2S66I, F2S66J, F2S66L]: These were identical items to those administered in the 8th grade, and we followed a parallel procedure to form esteem12. (Cronbach's $\alpha = .82$)