Educational Equity and School Structure: School Size, Overcrowding, and Schools-Within-Schools

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Consistent with the Williams v. California suit, *our focus in this article is on educational equity, particularly the interface between equity and school organization. We concentrate on two structural issues, school size and school overcrowding, and one specific school structure, schools-within-schools. We organize the article as an interpretive summary of existing studies of these topics, concentrating on how these structural issues relate to social stratification in student outcomes, particularly academic achievement. Our evidence is drawn from both national studies and, when available and appropriate, from research that discusses the effects of school structure in California. We use this evidence to define which size high schools are best for all students (600–900 students), which responses to school overcrowding are appropriate (building more schools rather than adding portable classrooms or multitrack year-round schooling), and how creating smaller learning communities in high schools can work well for everyone by reducing the potential for internal stratification. California policies, however, have not promoted these responses. In many cases they have actually exacerbated inequality in educational outcomes and assisted the transformation of the social differences students bring to school into academic differences. We advocate reforms that are associated with high achievement and achievement that is equitably distributed by race, ethnicity, class, or family origin. Reforms that raise achievement of children at the lower end of the distribution without damaging those at the top are ones toward which we believe our nation should strive. By offering empirical evidence of practices that lead toward this important goal, we hope to inform the important debates surrounding the* Williams *case.*

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This article provides background information relevant to the plaintiff's case in *Williams v. California*. Consistent with the suit, our focus is on educational equity, particularly the interface between equity and school organization. We concentrate on two structural issues, school size and school overcrowding, and on one specific school structure, schools-within-schools (SWS). We organize the article as an interpretive summary of existing studies of these topics, concentrating on how these structural issues relate to social stratification in student outcomes, particularly academic achievement. The evidence we provide is drawn from both national studies and, when available and appropriate, from research that addresses these matters in California's public schools.

The article has four main sections. Part 1 focuses on school size. In Part 2 we discuss school overcrowding and one common response to overcrowding especially common in California: year-round multitrack schools. In Part 3 we examine current efforts to create smaller learning communities within secondary schools. Part 4 draws conclusions regarding school organization as they relate to educational equity in general, and the *Williams* case in particular.

PART 1: HIGH SCHOOL SIZE

WHY STUDY HIGH SCHOOL SIZE?

Although the ideal high school size has been debated for over a century, the issue is currently the subject of intense discussion within a broader educational reform agenda. Most of these discussions advocate making high schools smaller than they are; however, there is little agreement about the outcomes on which the effects of school size should be evaluated or about the mechanisms through which size might influence student and teacher outcomes. What is it about small schools that supposedly makes them better? Does an "ideal size" apply to students of different social backgrounds? Could high schools be *too* small? Sociological research on school size suggests that small schools should have at least two advantages over large schools: relationships among school members are more personal, and the schools offer a narrower curriculum. Large schools are said to be impersonal and bureaucratic. But do they have advantages as well?

TWO RESEARCH STRANDS UNDERLYING RESEARCH ON SCHOOL SIZE

Enrollment size is an important ecological feature of any educational organization. In an essay locating school size in a larger organizational context, Lee (2000) distinguished two streams in school size research, most of which focuses on high schools. One strand is sociological in nature and examines how size influences a school's other organizational properties.

As schools grow, they typically become more bureaucratic, resulting in more formalized human relations and increased curricular specialization. Another strand, typically conducted by economists, directs attention to the potential for increased efficiency and cost reductions as schools get bigger. Conclusions from these two streams are not consistent: Although the studies with an organizational focus generally favor smaller schools, research with an economic focus tends to suggest benefits from increased size.

Economy of Scale

Studies of the cost efficiency for "producing" a given level of student achievement favor school consolidation and larger size (Kenny, 1982). Logically, savings should accrue as costs are spread over a larger pupil base, which can be used to expand academic offerings and student services. Thus, larger size results in either greater curriculum specialization, more resource strength, or both. Here, curricular diversification is seen as an *advantage*, in that it responds to a broader set of student needs and interests. Although greater size is assumed to result in economic efficiency (Guthrie, 1979; Michelson, 1972), savings projected by proponents have seldom materialized (Chambers, 1981; Fox, 1981). As schools get larger, their support and administrative staffs usually expand. In rural areas, the cost of distributing materials and transporting students often offsets any savings (Chambers, 1981).

Bidwell and Kasarda (1975) offer evidence of an indirect relationship between size and academic outcomes, with the positive effect mediated through hiring more and better-trained staff to support students' special needs. The relationship between school district size and resource availability varies across communities, based on financial status (Friedkin & Necochea, 1988). Although larger districts in low-income areas typically have access to more resources than smaller ones, the higher incidence of "exceptional problems" in such populations introduces constraints that contribute to lower achievement.

Organization of the Curriculum

Research documents a relationship between organizational size and program specialization. In principle, larger schools have more students with similar needs and are thus better able to create specialized programs to address those needs. In contrast, small schools must focus resources on core programs, with marginal students (at either end of the ability distribution) absorbed into programs that may not meet their needs as well (Monk, 1987; Monk & Haller, 1993). Despite arguments that curricular diversification better "meets the needs of the kids," research on tracking suggests that extensive differentiation in students' academic experiences has negative

consequences on student learning (Gamoran, 1989; Oakes, 1985). Increasing size promotes curriculum specialization, resulting in differentiation of students' academic experiences, and ultimately social stratification of student outcomes (Garet & DeLaney, 1988; Lee & Bryk, 1988, 1989; Lee, Bryk, & Smith, 1993; Lee & Smith 1993, 1995, 1997). The more constrained curriculum in small high schools is typically composed of academic courses so that almost all students follow the same course of study, regardless of their interests, abilities, or social background. However, a more recent qualitative study found that even small high schools wanted to specialize their curricula but were constrained from doing so (Lee, Smerdon, Alfred-Liro, & Brown, 2000).

Organization of Social Relations

Sociological theory suggests that human interactions and ties become more formal as organizations grow (Weber, 1947). Organizational growth generates new bureaucratic structures, as connections between individuals become less personal. These structures can inhibit communal organization (Bryk & Driscoll, 1988). This general theory has been confirmed in research identifying the organizational characteristics of effective schools. In school climate studies, for example, size operates as an ecological feature of the social structure, part of the physical environment that influences the nature of social interactions (Barker & Gump, 1964; Bryk & Driscoll, 1988; Garbarino, 1980; Lee et al., 2000). In general, the sociological evidence about high schools suggests that social relations are generally more positive in smaller schools (Lee et al., 1993).

SCHOOL SIZE AND STUDENT OUTCOMES

Size, Learning, and Equity

A large-scale quantitative study using nationally representative and longitudinal data attempted to identify the ideal size of a high school, based on student learning (Lee & Smith, 1997). The study explored these issues for about 10,000 students in 800 public and private schools in the United States. Although most research on this topic has been framed within a "bigger versus smaller" mode, the objective here was to estimate an appropriate balance point between student learning and school size. Achievement gains in mathematics and reading over the course of high school were found to be largest in middle-sized high schools (600–900 students). Schools of this size were also favored in terms of social equity, in that they had weaker relationships between student socioeconomic status (SES) and

achievement. Lee and Smith also found that even though the same "ideal size" was consistent across schools identified by their average SES and minority concentrations, school size was a more important factor in determining learning in schools enrolling more disadvantaged students. Investigating the effects of school size in Chicago's (K–8) elementary schools, another study also found favorable effects for smaller schools in terms of student learning and teachers' willingness to take responsibility for their students' learning (Lee & Loeb, 2000).

School Reform and Size

Relatively small high school size was considered acceptable even by James Bryant Conant, the acknowledged father of the comprehensive high school. Although Conant (1959) considered a high school with a graduating class of 100 sufficiently large to implement his recommended curriculum, in general Conant advocated larger schools. More favorable to small schools are writings by John Goodlad (1984), who indicated that he ". . . would not want to face the challenge of justifying a senior high of more than 500 to 600 students" (p. 310). Although the Coalition of Essential Schools has made no specific recommendations about high school size, founder Theodore Sizer (1984) listed "keep[ing] the structure simple and flexible" among the five "imperatives for better schools" (p. 214). One of the Carnegie Foundation's major goals for middle schools is "to create small communities for learning" (Carnegie Council on Adolescent Development, 1989, p. 9). The first recommendation of a more recent Carnegie report on high school reform is that "schools must break into units of no more than 600 students so that teachers and students can get to know each other" (NAASP, 1996, p. 5).

In the last decade, the Annenberg Foundation committed $500 million to the reform of urban schools. Each of the large grants awarded to several large cities emphasized the importance of reducing school size. A series of front-page articles in the *New York Times* (1995) presented interesting stories about several of the (then) 46 experimental public high schools that New York City opened over the previous 2 years. The major criterion defining these schools was their small size (in the 110–660 range). Joseph A. Fernandez, the New York Schools Chancellor at that time, decried that "Our high schools were just too large, and there were a lot of problems with kids not feeling people even knew who they are." More recently, the Gates Foundation has awarded $51.2 million to New York's schools for the creation of 67 small, theme-based schools (Herszenhorn, 2003).

Chicago's proposal to the Annenberg Foundation also aimed to create "smaller, more intimate learning communities" (Chicago Annenberg Challenge, 1994, p. 4), resulting in a $49.4 million grant over 5 years. The

Challenge's major request for proposals (RFP) from schools highlighted size as one of three structural obstacles to progress in education (the others were time and isolation), and it emphasized that successful proposals should focus on changing these school characteristics. The RFP emphasized smaller size to "create conditions for a more personal and student-centered learning experience and permit closer interactions between schools and families" (Chicago Annenberg Challenge, 1995, p. 4). Clearly, well-funded national school reform efforts consider reducing size a high priority.

Not All Small-School News Is Good

A recent qualitative study explored issues of curriculum and social relations in nine small and large high schools in one state located in rural, suburban, and urban areas, as well as a small and a relatively large Catholic high school (Lee et al., 2000). Large schools were defined as those that enrolled over 1,500 students, and small schools enrolled fewer that 500 schools. The authors made special efforts to select small schools that did not have a special purpose. Six were public high schools serving students from designated catchment areas; three were schools of choice (two Catholic schools and one small public school).

Although without exception, teachers and students reported that social relations were more personal in the smaller high schools, this was not always seen as a benefit. A few students in the smaller high schools reported that they were unable to "live down" the negative reputations of their older siblings or even parents. Some teachers in such schools had to work hard to keep a modicum of privacy. In terms of curriculum, the authors hypothesized that smaller schools would be more likely to offer the "constrained academic curriculum"; however, this was not confirmed. Regular small public high schools worked hard to construct themselves as comprehensive high schools, with the result that teachers often taught out of their specializations, bizarre curricula were offered in any given year, and a general feeling was shared that their small sizes (and resulting restricted state funding, which was computed on simple student head counts) did not permit adequate specialization. Only in the small Catholic high school was a constrained academic curriculum in place.

A BIT OF CAUTION

Reform Ahead of Research

The studies reviewed here present empirical evidence about school size and how it influences students. We are struck by the energetic focus of such

reform documents as *Turning Points* (1989), *Breaking Ranks* (1996), advocacy from the Coalition of Essential Schools (Sizer, 1984), and the large investments in urban school reform from the Annenberg and Bill and Melinda Gates Foundations—all directed toward making schools (especially high schools) smaller than they are. We are also struck by the rather modest research base supporting these reformers' solid support of reducing the size of high schools. On this issue, reform seems to be somewhat in front of research.

As reported in the Lee et al. (2000) study, not all outcomes are favorable in small schools. Moreover, not all small schools consider smallness to be an advantage. An important distinction exists between schools that are small by design and those that are small by default. Much of the enthusiasm for small schools focuses on those small schools that *want* to be small, are staffed by innovative faculty and importantly, and are often schools of choice. However, the large majority of small U.S. high schools are small by default and are often located in rural areas where populations are declining. Although we support the move toward smaller high schools, we offer a caution about the research base on this topic: The focus should be on empirically grounded studies, and there should be attention devoted to possible negative consequences.

The number of students who are educated in a particular building can be viewed from several different vantage points. Part 1 focused on research that investigates how school social and academic organization and student outcomes are influenced by enrollment size, without regard for physical facilities. However, the number of students a school serves can also be viewed in terms of its physical *capacity* to educate those students. This issue has particular relevance to educational equity, in that overcrowded schools, especially in California, often educate the most disadvantaged children. Moreover, schools' responses to overcrowding differ according to the types of children they serve. We turn now to the difficulties, responses, and solutions that emerge from strained school capacity.

PART 2: SCHOOL OVERCROWDING

Although school size is measured in terms of total numbers of students, school overcrowding is measured in terms of the number of students enrolled compared to the number of students the facilities were designed to serve. This difference drives a shift in focus away from such matters as communal or bureaucratic organization or constrained curriculum toward a concern about basic resources. The issue of school overcrowding is intimately concerned with equity, in that inadequate facilities imply limited educational opportunities.

DEFINING OVERCROWDING

Schools, districts, and states vary widely in how they characterize and measure overcrowding, making large-scale investigations difficult. Moreover, national surveys generally ask school or district personnel such limited and subjective questions as, "Is this school overcrowded?" (NCES, 2000). Respondents at otherwise identical schools might answer such a question differently. Another challenge is that some school districts define school capacity in district-wide terms, rather than at the individual school level; districts with both overcrowded and underenrolled schools may yield an overall figure indicating their schools are not overcrowded (Muraskin & Stullich, 1998).

These issues of identification and definition are further complicated because school enrollments—and therefore determinations of overcrowding—depend on the time of year students are counted. In many urban secondary schools, spring enrollments are considerably lower than those in the fall due to substantial student mobility and attrition during the school year and to the fact that some schools drive out unwanted students (Fine, 1991). Districts also vary in whether they include portable classrooms and trailers in figuring enrollment capacities of individual schools (Muraskin & Stullich, 1998). This oversight is important, in that an overcrowded school using portable classrooms may or may not consider itself overcrowded. In sum, there is no universally accepted definition of school overcrowding.

A logical (and simple) definition of overcrowding is used by the National Center for Education Statistics (NCES; 2000): A school is overcrowded when "the number of students enrolled in the school is larger than the number of students the school was designed to accommodate" (p. 45). The authors calculate the percent a school is over- or underenrolled by subtracting intended capacity from current enrollment, and dividing the difference by intended capacity. Schools between 6% and 25% above capacity are considered by NCES to be "overcrowded," and schools beyond 25% capacity are deemed "severely overcrowded." Importantly, this definition does not include portable classrooms; the U.S. Department of Education considers the use of portable classrooms to be a *symptom* of overcrowding rather than a long-term *solution* (NCES, 2000).

Using these guidelines, the 2000 NCES study reported that 14% of U.S. public schools are overcrowded; 8% more are severely overcrowded. Secondary schools are more likely than elementary schools to be outside their capacity limits (although this may not be the case in California). Of special importance to educational equity, schools enrolling mostly minority students are more likely to be overcrowded than schools with minority enrollments below 50% (NCES, 2000).

CALIFORNIA'S OVERCROWDED SCHOOLS

For three fundamental reasons, public schools in California are among the most overcrowded in the nation. One is Proposition 13, passed in 1978 by California voters, which not only reduced property taxes but also required that future school construction bonds pass by a two-thirds majority of local voters. In the wake of this sea change for school finance, many California communities could no longer pass bond issues to fund new school construction. Proposition 13 effectively shifted the responsibility for new school construction from localities to the state. Although the state has increased funding somewhat for such construction, the level of funding made available to localities has been demonstrably inadequate in comparison to the state's enormous enrollment growth. Moreover, recent economic problems in California suggest that further reductions in school funding are on the horizon.

A second reason for the overcrowding is the rapid increase in the state's school-age population. In this regard, California leads the nation. Between 1987 and 1997, California public school enrollments increased by between 160,000 and 190,000 students each year (U.S. Department of Education, 1997). Four of the 26 U.S. school districts that experienced the greatest increases in student enrollments between 1988 and 1998 were in California (Los Angeles, Long Beach, San Diego, and Elk Grove Unified; U.S. Department of Education, 2000). Between 1999 and 2009, it is estimated that California public school enrollments will increase by an additional 1.68 million students (U.S. Department of Education, 1999). To put this in perspective, over the next decade Nevada, Utah, Colorado, Idaho, Washington, Tennessee, Hawaii, Alaska, Wyoming and Oregon *combined* will add fewer public school students than California.

Beyond Proposition 13 and population growth, California's school overcrowding problem has a third important source: the state's class-size reduction (CSR) policy. This well-intentioned and research-based policy, which limits K–3 class sizes to 20 students, has created overcrowding in even otherwise uncrowded schools (CSR Research Coalition, 1999; U.S. Department of Education, 1997). Classrooms that could have been used to accommodate growing student populations in all grades are instead used to reduce class size for younger children. Although gymnasiums, libraries, and computer labs have been converted into classrooms, the school facilities most often sacrificed to CSR are special education classrooms, which were reduced or lost completely by 40% of the state's schools (CSR Research Coalition, 1999). Only two out of five schools met CSR guidelines after the first 2 years; of the 60% that did not meet the guidelines, 81% cited limited space as the central reason for noncompliance (CSR Research Coalition, 1999).

THE EFFECTS OF SCHOOL OVERCROWDING

Few reliable analyses quantify a relationship between school overcrowding and student or teacher outcomes. Although several solid empirical studies explore the relationship between school size and various social and academic outcomes for students, *size* is not necessarily related to overcrowding. For example, schools with large enrollments may be below capacity, and even very small schools can be above capacity. One study that investigated the effects of school overcrowding on student achievement among New York City public schools was careful to account for class size to examine the particular effect of school-wide overcrowding. The authors reported that between 2% and 9% fewer students passed reading and mathematics proficiency tests in overcrowded lower-income schools compared to students in nonovercrowded lower-income schools (Rivera-Batiz & Marti, 1995).

Lower achievement in overcrowded schools may result from many causes, including increased stress among students and teachers, the fact that classes are sometimes held in gymnasiums or other nonclassroom facilities, or the deteriorated condition of school facilities. Overcrowded schools are twice as likely to report that their buildings are in "less than adequate condition" (NCES, 2000, p. 48). Specifically, schools beyond their enrollment capacities are more likely to have inadequate or substandard electrical and lighting systems, life safety features, heating/ventilation and air conditioning systems, and floors and foundations. Wear and tear on these strained facilities exacerbates physical deterioration as well.

COMMON RESPONSES TO OVERCROWDING

Schools in California and elsewhere address overcrowding in several ways. Indeed, one reason so little research exists on the effects of school overcrowding may be that causal relationships between school overcrowding and achievement depend heavily on particular responses to the problem. For example, one would expect different relationships between school capacity and student achievement in overcrowded schools that do nothing to address the problem, increase class sizes, extend the school day, add portable classrooms, or build permanent classrooms.

The most appropriate response to overcrowding is to build more schools. However, for many school districts, especially urban districts, the costs associated with major construction are prohibitive. One nonresponse made by school districts is to increase class sizes by placing more students into already-existing classrooms. Although this "solution" may seem cost-free in dollar terms, the quality of students' educational experiences may be adversely affected. The effect of class size on student outcomes is a contested issue that we do not address here. However, the general consensus is that

elementary school students learn more in smaller classes (see Finn & Achilles, 1999; Nye, Hedges, & Konstantopoulos, 1999, 2002).

Temporary Structures

Another common response to overcrowding, used by 36% of overcrowded schools nationwide, is to install temporary structures (usually portable trailers) on school grounds for use as classrooms (NCES, 2000). For some schools, portable classrooms are a temporary solution. For many others, trailers are a permanent fixture, remaining in place for decades. Portable classrooms are perhaps the most visible response to overcrowding taken by California's public schools. In the early 1990s, 72% of California public schools used portables, housing 27% of the state's public school students (EdSource, 1998). By 1996, 50,000 portables were used by California's schools (CDHS, 1998), but due largely to California's CSR policy the number grew to over 86,500 during the 1997–1998 school year (EdSource, 1998; Ross & Walker, 1999). Fifty-six percent of CSR classrooms in the first year of implementation were held in new portables (Legislative Analyst's Office, 1997). In 1999, over 35% of California public school students attended classes in a portable trailer, with 6,500 portables in use in Los Angeles alone (Ross & Walker, 1999).

Public health researchers have raised serious concerns about the environmental safety of portables, most notably among older models. Of greatest concern is exposure to volatile organic compounds, such as formaldehyde, benzene, and toluene, used in portable classroom construction, mainly in particle board, plywood, fiberglass, carpets, and glues. Although these materials are also used in the construction of regular schools, the smaller spaces, fewer windows, and generally weaker ventilation systems allow these toxins to become concentrated in portable classrooms (see California Department of Health Services, 1996; Ross & Walker, 1999).

Reorganized School Schedules and Calendars

A less common response to overcrowding—one chosen by only 5% of overcrowded schools nationwide –is to rearrange school schedules and calendars so that not all students are in the building at the same time (NCES, 2000). Some schools making use of this option operate split-day schedules, where two "shifts" of students attend the same school on the same day. Schools may also tinker with the year rather than the day by operating schools year-round. During the 2000–2001 school year, more than 3,000 U.S. schools, enrolling over two million students, operated on

some form of year-round calendar (National Association of Year-Round Education [NAYRE], 2001). Almost all of these schools (97.5%) are public.

The Single-Track YRE Model

Year-round calendars can be divided into single-track and multitrack models. The form a school implements single- versus multitrack—depends largely on *why* it has decided to adopt a year-round model. In the single-track model, all students and teachers operate on the same calendar and have vacations at the same time. Instead of the traditional 3-month summer vacation, students have shorter vacations spread evenly throughout the calendar year (Kneese, 2000; NAYRE, 2001). Importantly, the single-track model does not alleviate overcrowding; when students are on vacation, school is not in session. Schools using the single-track model make this decision for educational reasons, generally citing the reduced learning rates (especially among low-income students) that occur during long summer vacations (see Burkam, Ready, Lee & LoGerfo, 2004; Entwisle, Alexander, & Olson, 1997; Heyns, 1978). Indeed, California's single-track schools perform at or above expected levels, compared to demographically similar traditional calendar schools (Quinlan, George, & Emmet, 1987).

The Multitrack YRE Model

Unlike single-track calendars, schools generally adopt a multitrack model not to increase learning but to alleviate overcrowding (NAYRE, 2001). This is accomplished by organizing students into three or four groups, with one group on vacation at any time. Importantly, the school remains constantly in session. Over one million students attend one of California's 1,000 multitrack year-round education (MTYRE) schools, most of which are located in low-income and minority communities (California Department of Education, 2000; Helfand, 2000). Almost half (45%) of all K–12 students in the Los Angeles Unified School District (LAUSD) attend schools using MTYRE schedules. Multitrack high schools in California are almost entirely a Los Angeles phenomenon. All but one of the multitrack high schools in the state were in the LAUSD in 2000, and by 2006 the district expects that overcrowding will lead all of its high schools toward multi-track schedules (Helfand, 2000). However, even with multitrack schedules LAUSD high schools remain large by any standard; each LAUSD multitrack high school enrolls between 3,000 and 5,000 students, meaning that with a three-track system, at least 2,000–3,300 students (two-thirds of the total enrollment) are still on campus at one time.

The Concept 6 MTYRE model, commonly used by the LAUSD, requires students to attend school for only 163 days per year, compared to the traditional 180-day calendar. To compensate for this reduced instructional time, between 20 to 40 minutes are typically added to each school day. At the secondary level, however, this extra 6–7 minutes per class may not be wholly utilized for additional instruction, while the loss of 17 instructional days allows fewer nights for homework (Helfand, 2000). Another concern is that the Concept 6 calendar calls for two vacations each lasting 60 days during the school year—almost the length of the maligned traditional summer vacation.

Clear distinctions exist between California schools that employ single-track and multitrack plans: Most single-track schools are located in suburban districts, whereas multitrack schools are much more common in lower-income urban districts (where overcrowding is most serious). Half the students in California MTYRE schools are English Language Learners, and the rate of poverty among the student population is almost twice the California average (Helfand, 2000). Compared to non-MTYRE schools, MTYRE schools are also more often staffed by teachers with emergency credentials (California Department of Education, 2000). Studies that fully account for these differences between MTYRE and traditional calendar schools are rare, meaning conclusions regarding the effectiveness of MTYRE are suspect. Furthermore, we located few studies that were longitudinal in design, and none that utilized appropriate statistical analyses that accounted for the nested nature of the data (e.g., hierarchical models). Research findings regarding the effectiveness of MTYRE are further complicated by the presence of numerous multitrack calendars (often within the same school district); conclusions vary depending on the exact MTYRE calendar in question.

Studies by White and Cantrell (2001) and Quinlan, George, and Emmet (1987), reported that of all calendar types, students in California's multitrack schools have the lowest scores in mathematics and reading, even after accounting for school-average social class and the proportion of non-English speakers. Gandara and Fish (1994), employing longitudinal data, compared three elementary schools with 60/15 MTYRE calendars (12 weeks of classes separated by 3-week breaks) to three demographically and academically matched schools with traditional calendars. Although the authors reported virtually no differences in learning within the general student population, students deemed at-risk of educational failure in the MTYRE schools saw larger gains in reading than similar students at the comparison schools. The 60/15 plan analyzed in this study more closely resembles the type of calendar supported by advocates for year-round schooling.

In contrast to this 60/15 calendar, Herman (1991) evaluated 23 elementary schools employing the Concept 6 plan, which used much longer 60-day

student vacations. Herman reported no achievement differences between the Concept 6 schools and those using traditional calendars, but noted that students in the Concept 6 schools still scored far below national achievement norms. Stressing the point that the Concept 6 plan is a response to overcrowding and fiscal crisis more than an educational reform, Herman (1991) asserted, "'No harm done' innovations, such as those reported here, are insufficient to meet these pressing societal needs and must be supplanted by more substantial reforms that contribute positively to educational quality for all students" (p. 212).

Within-School Stratification

Multitrack plans at the elementary level may produce the academic "tracking" found in comprehensive high schools, in that different students (and sometimes different kinds of students) attend school at different times. In some multitrack California high schools, advanced courses are available only in certain tracks, meaning students who are on vacation at the time are denied access. Also, students for whom English is a second language (who constitute a large proportion of LAUSD students) are sometimes placed in the same track, which may result in stigmatization and further isolation. Magnet schools are also sometimes created within single tracks, meaning that the more able students (who typically select magnet schools) are in a single track (Helfand, 2000).

This "planned" stratification also occurs via structural mechanisms favoring students and parents who typically take advantage of educational choice. In most MTYRE California elementary schools, one track—often the "C-Track"—aligns closely to the traditional (and most desirable) September to June calendar. Another common feature of MTYRE schools is that student assignments to different tracks are made on a "first come, first served" basis. Because the C-Track is more convenient and desirable for most families, and more-affluent parents tend to select their children's tracks first, advantaged students are more often enrolled in the C-Track. An investigation of eight multitrack elementary schools in one California district reports that these C-Tracks enroll more White, English-speaking, and gifted and talented students and fewer Hispanic, free-lunch eligible, and highly mobile students (Mitchell & Mitchell, 2001). Teacher characteristics also vary between tracks, as teachers often have choice or are selected for tracks to serve client demand. On average, C-Track teachers have more teaching experience and are less likely to hold alternative teaching certificates (Mitchell & Mitchell, 2001).

The substantial between-track stratification at both the elementary and secondary level makes it difficult to evaluate multitrack schools because a

single MTRYE school may in reality be three *separate* schools, each enrolling quite different students. A study of over 380,000 LAUSD children reported that students in three-track elementary and middle schools do not perform as well in math and reading as their peers in traditional and four-track schools (White & Cantrell, 2001). These achievement gaps exist even after comparing only demographically similar schools. However, the lower achievement in three-track schools is largely driven by the B-Track students, who perform considerably lower than their A- and C-Track counterparts. The authors speculate that the differences in tracks may be related to the stratification resulting from how teachers and students are assigned to (or choose) the various tracks.

MTYRE schedules also limit students' ability to take advantage of co-curricular and extracurricular activities and sports, as many activities are offered during only one or two tracks. Academic enrichment and internship programs are often based on traditional school calendars, denying many students in multitrack high schools opportunities to participate when their "track" is out of school. School facilities that are constantly in use are also unavailable for supplemental instructional services and such community resources as adult education—programs that are particularly needed in the low-income communities that tend to have MTYRE schools.

PART 3: SCHOOLS-WITHIN-SCHOOLS

In Part 3, our concentration on school structure expands beyond school size and capacity to focus on a reasonable solution to large high school size: dividing large schools into schools-within-schools. The idea of dividing large high schools into smaller and semiautonomous subunits is not new, nor is it commonly associated with educational equity. However, this reform has been implemented mainly in high schools serving disadvantaged students, and those perceived as requiring reorganization due to low levels of student achievement, behavior and attendance. Between 1998 and 2001 two authors of this article (Ready and Lee) studied five schools employing the schools-within-schools (SWS) model. In this section we incorporate findings from our own examinations, as well as those of other authors who have studied this increasingly popular reform.

THE CONTEXT OF SWS DISCUSSIONS

As discussed in Part 1, large high schools often exhibit unfavorable social and academic characteristics. In line with the conclusion that attending smaller high schools is generally beneficial to students' social and academic development, what policy options are available for reducing school size? In

today's fiscal environment, it is quite unlikely that taxpayers would support the construction of many small high schools and the abandonment of the buildings that now house large comprehensive high schools. In many locations with large public high schools, particularly inner cities, even maintaining existing schools is a financial challenge.

A logical (and seemingly less expensive) alternative to constructing new schools is to divide existing large high schools into several smaller schools that inhabit the original building. Although the SWS model has received increased interest over the past decade, the ideas behind the structure claim a longer history. Barker and Gump (1964) suggested a "campus model" for high schools decades ago wherein,

> students are grouped in semiautonomous units for most of their studies, but are usually provided a school-wide extracurricular program. The campus school provides for repeated contacts between the same teachers and students; this continuity of associates probably leads to closer social bonds. A common sense theory is that the campus school welds together the facility advantages of the large school and the social values of the small school. (pp. 201–202)

Two decades later, John Goodlad advocated a high school structure incorporating "houses organized vertically, so that each contains students from all secondary grade levels" (1984, p. 311).

Although the term has several meanings, we use the term *schools-within-schools* to refer to high schools where all students and most faculty are members of only one of several smaller instructional units. This full-model SWS structure is distinguished from a more common format, where large high schools offer only one or two small schools, and most students remain in the regular high school program (Lee, Ready, & Johnson, 2001). For example, Stern, Raby and Dayton (1992) describe the career academy movement in California, which often involves one or two career-based "schools" within a larger comprehensive high school. Likewise, Muncey and McQuillan (1996) investigated the implementation of several individual and self-contained Coalition of Essential Schools programs within larger high schools. Neither of these models are necessarily whole-school reforms. In fact, Muncey and McQuillan concluded that implementing such partial-model SWS structures was a poor idea because of the animosity that can develop between a "special" sub-unit and the remainder of the school, mostly around differential resource allocation.

The terminology SWS high schools themselves use to describe their smaller units differs from school to school, with labels such as *houses, academies, blocks*, or *small learning communities* all referring to the smaller organizational groups. To avoid confusion, we use the term *subunit* to describe

these smaller units found within larger SWS high schools. Subunits are typically organized around curricular, pedagogical, or (most often) career themes. For example, a subunit might focus on the fine arts, cooperative learning, or careers in health or business (Lee, Ready, & Johnson, 2001; Oxley, 1989, 1994; Raywid, 1995). Some SWS high schools organize special subunits for the school's youngest students (usually ninth graders), which McPartland, Legters, Jordan, and McDill (1996) refer to as freshman academies. Administrative functions including homeroom or advisory, guidance counseling, and all but the most serious discipline infractions are handled within the subunits (Oxley, 1989).

Raywid (1995) actually refers to such organizational units as *minischools* and reserves the label *schools-within-schools* for subunits that are fully autonomous, and who report directly to district-level administrators and not to personnel within the building. However, in a recent nation-wide search for SWS high schools, Lee, Ready, and Johnson (2001) located very few schools employing the model Raywid describes. Most that were located were in New York City. For example, the Julia Richman Educational Complex in Manhattan consists of six small autonomous schools housed within the former Julia Richman High School building (see Cook, 2000).

The SWS design has recently attracted considerable interest from many of the same practitioners, researchers, foundations, and government agencies that have touted small schools. Despite a recent groundswell of support for this reform, the empirical base on SWS is quite sparse. Those who advocate the SWS model often cite research on school size and small schools to justify the SWS reform. However, it is unclear whether the findings from research on small schools and school size generalizes to the schools-within-schools structure.

DOES THE SWS STRUCTURE PRODUCE SMALL SCHOOLS?

Unlike most SWS high schools, the purposefully small high schools often praised in both academic literature and the popular press, such as Central Park East (see Meier, 1995) and Urban Academy (see Cook, 2000), have shed the trappings of the "shopping mall" high school (see Powell, Farrar, & Cohen, 1985). This was done both out of necessity (since they enroll fewer students and employ fewer teachers) and out of a philosophical agreement among staff about what students needed to know and be able to do. Specifically, such schools offer a constrained academic curriculum, including few AP or honors courses, perhaps one or two foreign languages, and a limited number of electives. The result is that students are more likely to share common social and academic experiences, and learning is less likely to be stratified based on students' social and academic characteristics.

The conditions under which these purposefully small schools are created differ from those common to SWS high schools. Many purposefully small schools are created out of whole cloth in new physical, social, and educational surroundings and are not reorganizations of preexisting comprehensive high schools (as most SWS high schools are). Importantly, purposefully small schools are often schools of choice, and are sometimes permitted to select teachers who share a belief in the benefits of small schools and a narrow curriculum. Preexisting comprehensive high schools that implement the SWS reform rarely have these advantages. Most SWS high schools are not schools of choice and are generally unable to hire new teachers who believe in the reform, making both parent and teacher "buy-in" an issue. Perhaps the most obvious difference is that SWS high schools usually implement the model while the school continues to operate; they must build the airplane as they fly it. As such, they face the difficult challenge of altering social and academic traditions associated with preexisting schools, and must weather the political storms inherent in major structural reorganizations.

Another distinction between individual subunits and autonomous small schools lies in their academic and curricular structures. In keeping with their comprehensive pasts, many SWS high schools continue to offer a diversified ("tracked") curriculum. Due to their smaller enrollments, advanced courses and other electives are generally offered outside the SWS structure, and enroll students from multiple sub-units. In some schools, however, such courses are restricted to only one or two subunits. For many students then, social attachment to their subunit is quite tenuous, as few of their academic or extracurricular experiences are subunit specific. In this sense, the SWS structure may create smaller learning communities for some students, and not for others. Indeed, the extent to which the SWS structure creates personalized environments may vary within an individual school, depending on the courses and activities in which particular students are enrolled.

Tyack and Cuban (1995) use the phrase "grammar of schooling" to refer to the practices and procedures that students, parents, teachers and communities use to define what "real schools" look like. For example, "real" high schools organize their days into periods lasting between 40 and 55 minutes, have football teams, marching bands, academic departments, and offer a smorgasbord of academic and nonacademic courses. Just as native speakers of a language would react negatively to mandated changes in grammatical structures, educational reforms which deviate from cultural notions of what schooling looks like often face the greatest resistance. SWS high schools often face such resistance because many components of "real" high schools (which often require large numbers of students) are incompatible with small schools. Within the five SWS high schools we studied, teachers and administrators found it difficult to sustain the SWS structure within a comprehensive high school. These difficulties generally centered

around the desire to retain both the benefits of small schools *and* those of large, comprehensive high schools. The consensus among staff was that the smorgasbord nature of the comprehensive high school usually led to the decay of the SWS structure; students' school-wide curricular choices frequently trumped attempts to maintain autonomous sub-units.

CHOICE AND THE SWS MODEL

SWS high schools commonly allow students to select their subunit, based presumably on their individual preferences and attraction to the various subunits' themes and offerings (Lee et al., 2001; McPartland et al., 1996; Ready, Lee & LoGerfo, 2000). The goal of permitting subunit choice is to foster commitment among students and to increase their engagement with school. Allowing student choice in selecting subunits, although logical in the context of commitment building, raises the same concerns expressed about educational choice in other contexts (Lee, 1993). Authors interested in the SWS model have recognized the danger that such structures may actually be used to sort students into different subunits based on academic ability. For example, in commenting on the small-school movement in Philadelphia high schools, McMullan (1994) warned, "The greatest concern is that charters do not become thinly disguised tracks into which students are placed based on some arbitrary standard of performance or expectation" (p. 69). Some subunits may actually be *designed* to attract certain types of students, or may develop reputations that draw students with particular characteristics. Indeed, Oxley (1994) warned, "[sub]-units must not intentionally screen out particular students or inadvertently attract only certain groups of students" (p. 256). These and other authors caution that the SWS structure may produce results similar to those found within diversified high school curricula: the allocation of students with differing interests and abilities to different classes and programs.

Unfortunately, we found that to varying degrees subunit choice permitted students to sort themselves based on their race, social class, academic backgrounds, and aspirations. Parallels to the stratification common to tracked high school curricula were striking. Academically motivated students tended to select subunits with reputations for academic rigor, while struggling students often chose subunits they thought had low academic and behavioral expectations. Moreover, some subunits were designed to attract certain types of students, including those with math or science themes and those with traditional vocational themes.

Our warnings regarding the potential of the SWS structure to segregate and stratify should not be read as an indictment of the reform but rather as a caution to consider in designing SWS high schools. In several different areas, the SWS structure offers potential solutions to problems that plague

comprehensive high schools. Our own research about the SWS structure has identified many benefits, including enhanced social relations among school members, safer and more orderly school atmospheres, and improved commitment to school (evidenced by increased student attendance). An equally important outcome is the reform's potential to encourage new processes and social and academic organizations, especially in terms of curricula, the use of time and space, and the relationships between teaching and learning. Perhaps the most important benefit of the SWS structure is that it forces schools into meaningful school-wide conversations about what they want their students to know and be able to do. Many such schools begin to rethink their missions, and consider exchanging the "shopping mall" format for a more focused program that is shared by the majority of students. In this sense, the processes and dialogues required to implement the SWS reform are themselves worthy undertakings.

PART 4: DISCUSSION

SCHOOL STRUCTURE AND EDUCATIONAL INEQUALITY

High School Size

Facets of school structure such as enrollment size and overcrowding are typically not regarded as elements that are either social policies in themselves or amenable to specific educational policy interventions. Schools are typically built with practical considerations that focus on accommodating particular numbers of students. Very seldom does logic drive answers to questions such as "What size high school might work best for the *students*?" and "What do we really want to accomplish as a school, and what is the optimal number of students to achieve these goals?" Research on high school size has generally concluded that high schools are larger than they should be. In large high schools, teachers typically do not know their students well, nor do they usually teach the same student for more than one year. On the other hand, the scant evidence does not necessarily make a strong case for very small stand-alone schools either, unless they are special-purpose schools serving particular clienteles.

Size and curriculum structure are typically linked, in that large high schools often offer a more differentiated curriculum. The accumulated research suggests that student achievement is lower in larger high schools, and the distribution of that achievement is inequitable. Moreover, there is evidence that size is a more important issue for students from disadvantaged social backgrounds, both directly in terms of learning and indirectly in terms of differentiating environments that seldom favor minority and

low-income students. Thus, it is often the case that the students who would benefit from smaller high schools the most—minority and low-income students—are actually educated in the largest schools.

California's Overcrowded Schools

Although our conclusions about high school size are drawn from a national context, they are surely applicable to California's secondary schools. Not only are many California schools that enroll disadvantaged populations quite large in terms of the number of students they were meant to educate, but schools built for a particular number of students are currently having to educate many more students than these already large schools were constructed to accommodate. Our conclusion is that the only appropriate solution to school overcrowding is to construct new schools. However, California school districts for long periods under considerable economic pressure have responded in less costly ways to this problem: adding portable classrooms, using nonclassroom space for instruction, and introducing multitrack year-round schooling. Each of these responses is short-term and accompanied by additional social and academic costs, especially for the state's most disadvantaged students.

Schools-Within-Schools

A much more recent reform initiative, breaking large high schools into smaller subunits, or schools-within-schools, is often implemented with the intention of improving the academic and social environments in schools that enroll high proportions of disadvantaged students. At present the research base on this reform is still small, but the number of schools moving in this direction is growing rapidly. What research exists on schools-within-schools suggests that secondary schools that engage in this reform improve their social environments. However, early indications also suggest that the reform may increase stratification inside high schools, especially if unrestrained choice is the means used to match students to subunits. At present, there is no research that documents overall achievement gains as a result of the SWS reform. Thus, the jury is still out on this relatively new reform, but we are quite hopeful about its potential to improve the nation's secondary school climates.

IS INEQUALITY INEVITABLE?

By no means do we suggest that all students' experiences in school should be identical. Our definition of educational equity does not include such homogenization. On the other hand, we suggest that schools should not

transform the social differences students bring to school into academic differences. We strongly advocate reforms that are associated with rising achievement, and achievement that is equitably distributed by race, ethnicity, class, or family origin. Reforms that raise achievement of children at the lower end of the distribution without damaging those at the top are ones toward which we believe our nation should strive.

Our own research leads us to support strongly the plaintiffs' case in the *Williams* class action suit. The State of California, through its public schools, must deliver a high-quality education to all its citizens. We hope that this article provides some evidence to help define which size high schools are best for all students (under 1,000 students), which responses to school overcrowding are appropriate (building more schools rather than adding portable classrooms or multi-track year round schooling), and how creating smaller learning communities in high schools can work well for everyone (by not allowing this mechanism to increase stratification).

Unequal educational treatments are not inevitable. We contend that all children deserve high-quality schools and that public authorities have a social imperative to enact policies that actualize this goal. Of course, we are under no illusion that this is either easy or that the solutions will not engender controversy. However, if as a nation we are to fulfill our promise of increasing the common good, public education's ability to serve the least among us must not be hindered. The *Williams* case is a means to remind California's authorities of this ideal and the responsibilities inherent in its realization.

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