Space Age Schools: SUPRAD and Integrated Quality Education

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Abstract

Established in 1957, Harvard University's School and University Program for Research and Development (SUPRAD) was a school reform project that brought together Harvard's Graduate School of Education and three Boston-area school systems. Over a fifteen-year period, SUPRAD educators developed a distinctive pedagogy that cohered around dual promotion of flexibility and differentiation, whether in school design, teacher deployment, or instructional practices. Initially intended to alleviate a perceived teacher shortage, SUPRAD evolved into a wide-ranging school reform project that took aim at many aspects of the traditional grammar of schooling, targeting in each case an element premised on there being one best system for all students. The Space Age was a time of great uncertainty, as technological and social advances heralded new possibilities in many fields, including education. Excited by these new possibilities, SUPRAD educators designed schools (including educational parks) whose design features and instructional practices were seen to promote delivery of integrated quality education. Drawing on documents archived at Harvard University and elsewhere, this thesis argues that SUPRAD was an important school reform project, noteworthy for both in its enlistment of elite actors and its promotion of a vision of schooling where egg-crate schools with interchangeable students and regimented staff would be replaced by free-form facilities built for maximum flexibility. Intent on remaking American schooling, SUPRAD educators such as Francis Keppel, Harold Gores, Neil Sullivan and Robert Anderson directed a succession of projects in a series of cities (Boston; Newton; Farmville; Fort Lauderdale; Berkeley), aspiring each time to construct Space Age schools.

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SUPRAD is not an international agency, nor a new detergent, nor a patent medicine. It does, however, promise a possible cure for one of the most pressing problems facing the nation's public schools: how to create better schools by using the best university and school administrator brains.

Terry Ferrer, "Better Teaching with SUPRAD," 1962.

Introduction: New Schools for New Education

In September 1994, *Sports Illustrated*, to mark its fortieth anniversary, published a special issue, "40 For The Ages," listing forty athletes, coaches, and broadcasters (with a few others) who in the magazine's eyes had "most significantly altered or elevated the world of sports during the four decades since *Sports Illustrated* began publishing" ("Forty," 1994, p. 46). Casting a wide net, *Sports Illustrated* attempted to establish a late-20th century sports hall of fame, one populated mostly by expected figures (the top five on the list being Muhammed Ali, Michael Jordan, broadcaster Roone Arledge, Jim Brown, and Billie Jean King). In 19th position, however, between Joe Namath and Jack Nicklaus, was a mysterious name—Dr. Harold Gores—identified as a "New York educator." Why was a New York educator high on *Sports Illustrated*'s list of people who most impacted late-20th century sports, higher even than Bill Russell (21st), Arthur Ashe (27th), or Pele (30th)? For *Sports Illustrated,* Harold Gores's importance derived from his role in the invention of AstroTurf, the plastic grass used "in hundreds of stadiums, domed and otherwise, in countries throughout the world" (ibid., p. 98).

AstroTurf gets its name from the Houston Astrodome, home of the Houston Astros, where it was installed in 1966, allowing baseball to be played where natural grass can't grow. AstroTurf's name, like that of that Astrodome itself, is telling, not least because AstroTurf is an exemplary Space Age invention, first, because it's made of plastic (the exemplary Space Age material[1]), second, because it offers a technological solution to a vexing problem—in this case playing baseball indoors, in other cases manufacturing solar cells or landing a man on the moon.[2] And new plastics were in every respect technological breakthroughs. "The AstroTurf system is complex," one of Gores's co-inventors told a congressional committee in 1971, "[comprising] 500 denier nylon 6-6 ribbon bonded into an all-synthetic backing" (92 Cong, p. 249). Having come up with the idea, Harold Gores played a limited role in the development of AstroTurf, doing little more than offering advice on the ideal properties of artificial grass.[3] But why was Harold Gores interested in artificial grass? Wasn't he a New York educator?

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[1] New plastics were essential to rocketry: "[S]pace exploration relied on high-performance synthetics, on Mylar, teflon, and nylon, on heat resisting composites and form-fitting foams." (Meikle, 1997, p. 216).

[2] "Without plastics, space exploration would not have been a reality. Lightweight plastics were used to fashion fuel tanks and the external parts of space vehicles, and to provide insulation." (Finkelstein, 2008, p. 91).

[3] Gores's role, to his wife's chagrin, turned his home into a laboratory: "He'd come home night after night with swatches. They all looked like rubber and felt like rubber to me." ("Forty," 1994, p. 98).

Harold Gores and School Design

In 1965, the year he invented AstroTurf, Harold Gores was president of Educational Facilities Laboratories (EFL), a Ford Foundation-sponsored think-tank committed to "improving public knowledge of school and college buildings and equipment, fostering research about physical things that make for good education and setting up co-operative study centers with school systems and colleges to carry out these aims" (Kleeman, 1958, p. 27). As EFL's president and public face, Gores was charged with building and maintaining the organization's reputation as an "internationally-recognized consulting organization covering all phases of education planning and management" (Marks, p. 2), tasks in which he was aided by EFL's relationship to the Ford Foundation, which provided EFL with $25.5 million between 1958 and 1976 (ibid.). Likely due to its Ford Foundation affiliation, EFL was from the start well connected, having on its first board of directors the presidents of Kaiser Aircraft, CBS, IBM and Purdue University, along with several high-level Ford Foundation executives (EFL, 1960a, p. ii). These links, together with its glossy publications and generous funding of educational projects, made EFL a prominent player in Space Age contests over school design. In educational historian Judy Marks's words, "Most significant among its accomplishments was EFL's ability to bring architects, designers, fabricators, moguls of the construction industry, educators, and school personnel to one table for the express purpose of improving the function and quality of school facilities" (2001, p. 5). "It was EFL," Malcolm Gladwell observes in a 1994 *Washington Post* article about Harold Gores and AstroTurf, "that pushed successfully for the use of carpeting in new school construction, which made classrooms quieter and easier to clean. It was also the group responsible for the move to build schools with air conditioning, overcoming tremendous opposition from school boards and educators by proving both that the idea was financially feasible and that it created an environment more conducive to learning in hot weather" (1994). As Gladwell's comments suggest, EFL was particularly interested in innovations that improve learning conditions—helping explain Harold Gores's invention of AstroTurf.[4]

[4] AstroTurf was a boon to physical education teachers. Prior to AstroTurf "city children had only limited areas on which to play and these were covered with asphalt or concrete surfaces which were hard and abrasive so falls often resulted in painful injuries." (Morehouse, 1992, p. 89).

Sports Illustrated notwithstanding, Harold Gores in the 1960s was best described as a Massachusetts educator, the bulk of his career having been spent in the small city of Newton,[5] where he was school superintendent between 1949 and 1958 (the year he became president of EFL). How did a small city school superintendent become president of a multimillion dollar educational enterprise?[6] While it helped that Gores was a Newton educator—Newton schools being seen in the late-fifties as springboards for "new patterns of organization, novel methods of instruction, and fresh approaches to the curriculum in a variety of subject fields" (Howe, 1960, p. 122[7])—Gores's most important qualification was that he was closely affiliated with Harvard's recently-established School and University Program for Research and Development (SUPRAD), a school reform project "designed to narrow the gap between research and practice by linking the university with public school systems to make teaching more attractive and effective" (Morse, 1962, p. 5). Harold Gores's journey from school superintendent to inventor of AstroTurf—the remarkable trip that landed him in a makeshift sports hall of fame—was anything but accidental, as Gores moved from one experiment-oriented research setting (Newton[8]) to another (SUPRAD) and then another (EFL), wrestling all the time with one question: How can schools be improved? Repeatedly confronted by the same question, Gores, at each step in his journey, settled on the same answer, which he articulated in a 1959 article:

> Flexibility and multiple use of space should be basic to the design of the building. Standardization of educational areas should be kept to a minimum, with an emphasis on designing spaces that meet particular needs, yet are not so frozen that they cannot, at will, be used for other purposes. (1959, p. 157)

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[5] In 1958, Newton's schools educated 18,000 students. (Gores, 1963b, p. 5).

[6] Under Gores's leadership EFL grew into a sprawling enterprise with offices in nine cities. "EFL headquarters was located in New York City. However, in 1959, to widen its contact with educators and designers, EFL established a regional centre directed by James D. MacConnell at Stanford University's School Planning Laboratory, and, in 1962, another centre at the University of Tennessee's School Planning Laboratory. In the 1970s, EFL opened an office in Austin, Texas, and supported three project centres the Building Systems Information Clearinghouse at Stanford University, the New Life for Old Schools program in Chicago, Illinois, and the American Association of Junior Colleges in Washington, D.C. EFL also operated several building systems projects across the country, including School Construction Systems Development (SCSD) and University Residential Building Systems (URBS) in California; Schoolhouse Systems Program (SSP) in Florida; Study of Educational Facilities (SEF) in Toronto; and Recherches en Amenagements Scolaires (RAS) in Montreal." (Marks, 2001, p. 3).

[7] As principal in 1960 of Newton High School, Harold Howe was predisposed to approve of Newton schools.

[8] "Even more important than the matter of financial support is the atmosphere of freedom in which we have been able to operate," Harold Howe wrote of the Newton school system. "Any genuine experimentation must carry the possibility of failure, as well as that of success; in Newton, teachers working on novel enterprises, whether for the benefit of the local system or for that of American education at large, have been given the feeling that they would be protected in failure and encouraged in success." (1960, p. 123).

As this thesis makes clear, SUPRAD educators embraced a pedagogy aimed at maximizing two attributes—flexibility and differentiation—promoting schools and practices which (as Harold Gores explains):

> care about individuals as distinguished from groups of individuals. Means will be invented so that the progress of each child will be separately charted. Ways will be found for him to break out of the box, to regulate his own academic pace, to forage for himself in the pasture of what he is curious about and what society says he has to know. No longer will the group set the limits of what and when he learns. (1964b, p. 21)

SUPRAD was originally designed as a teacher redeployment program, where teachers would teach in hierarchical teams (teacher; senior teacher; team leader; etc.), the aligned goals being (1) to facilitate division of teacher labour such that students could be grouped and taught in various ways (flexibility) and (2) to exploit the particular strengths of teachers by assigning each teacher to a suitable role (differentiation). Although SUPRAD quickly became more than just a teacher redeployment program, adding projects related to, for instance, teaching machines and contract correcting, SUPRAD educators continued to promote flexibility and differentiation, positing in their publications not just teachers but students, courses, class periods, and curricular topics as singular enough to warrant distinctive treatment, e.g.:

> The wealth of new options in designing a school program must be considered with this focus: how, in a particular situation and with the available resources, can each individual student be given a set of experiences which will best facilitate his own education. The whole way of thinking about school programming thus undergoes a transformation: rather than thinking first of uniform classes, teachers, texts, class periods, curriculum units, and grades, the innovating educator thinks first of the individual student and the wide variety of options of modular units of time, space, personnel, and materials at his command. (EFL, 1968, p. 14)

This passage, from a 1968 EFL report, *Educational Change and Architectural Consequences*, reveals a core belief of SUPRAD pedagogy: that effective schooling requires identifying and meeting the needs of each student—needs which, because each student is unique, can only be met through provision of a singular learning program. “Building a program for each student. . . doesn’t mean a vast increase in staff and space,” the EFL report adds, “but rather a reallocation of staff and space” (ibid.). The notion of reallocating staff calls to mind SUPRAD’s focus on

teacher redeployment, hinting at EFL's SUPRAD roots. If in 1958 Harold Gores cut official ties with SUPRAD, ten years later he remained a SUPRAD educator—that is, an educator who, having made "a new appraisal of the old arrangements" (Gores, 1966, p. 137), endorses a litany of SUPRAD programs: "And from that appraisal comes the nongraded school (not the ungraded school that preceded the graded school), the teacher team, large-group lectures, small-group seminars, independent study" (ibid.). How do we get from these programs to AstroTurf? Like the programs, AstroTurf's first purpose is to increase options available to teachers and students,[9] an expansion of possibilities in line with Space Age visions of a boundless world. "Technological innovation also brought a sense of rediscovery in the most everyday activities," Sean Topham writes in *Where's My Space Age* (2003). "It was as if we all had another chance at childhood, an opportunity to start over using a new set of rules, and remake the future" (p. 57).

SUPRAD and its many offshoots were Space Age projects not only because they were launched at a certain moment in history (although this is relevant), but also because they (to paraphrase Sean Topham) rediscovered an everyday activity, in this case schooling. Alert to new possibilities provided by new technologies, SUPRAD educators aspired to design what Harold Gores called "facilities for the future" (1963a, p. 34).

SUPRAD: A Brief History

Established in 1957, Harvard's School and University Program for Research and Development (SUPRAD) was a cooperative venture that brought together Harvard's Graduate School of Education and three Massachusetts school systems. Over time SUPRAD researchers developed a distinctive pedagogy focused on promotion of flexibility, whether in school design, teacher utilization, or lesson delivery, with an ideal SUPRAD classroom being a transformable space where members of a teaching team deliver bespoke lessons to *ad hoc* groups of students. The Space Age was a time of great uncertainty, as technological and social advances opened up new possibilities in every field. Many Space Age educators—including those affiliated with SUPRAD—predicted an overhaul of the American educational system, with schools retooled to deliver lessons on as-yet-unknown topics. Unsure what schooling would look like in ten or even

[9] "It's hard to play baseball on a concrete playground or football on asphalt," Jonathan King of EFL told Malcolm Gladwell in 1994, "so [Harold Gores] felt city kids would be robbed of the opportunity to play some of the games that people who live in Scarsdale and Chevy Chase play." (Gladwell, 1994).

five years, SUPRAD educators developed a unique pedagogy centred on the axiom that uncertain times call for provisional plans. In Harold Gores's words: "For the last dozen years education has been less sure of its future practices, and that uncertainty has resulted in a demand for flexibility of space" (Gores, 1966, p. 143).

A pedagogy, like any body of knowledge, can be disseminated.[10] In 1960, SUPRAD educators working for Educational Facilities Laboratories (EFL), who had in recent years helped design two schools in Massachusetts (Wayland High and Estabrook Elementary), were contacted by educators from Broward County, Florida, who were aiming to build a state-of-the-art school on the site of a decommissioned air force base. From this meeting came the Nova School, often acknowledged to have been the original educational park. This arrangement—where SUPRAD educators design schools in non-SUPRAD school systems—would be repeated in Prince Edward County (Virginia), Berkeley (California), and Boston, with the SUPRAD educator(s) in question implementing a number of SUPRAD programs. In two of these cases the SUPRAD educator was Neil Sullivan, a Harvard graduate student during the SUPRAD period, who spent years working to design schools along SUPRAD lines, his aim always being to deploy what he called (in a 1963 letter to Francis Keppel, SUPRAD's originator) "the nongraded program" (p. 1)—i.e., a program including not just nongraded classes, but team teaching and large- and small-group instruction as well. Sullivan's decision to implement SUPRAD programming in Prince Edward County was an important one, hinting at a conviction among SUPRAD educators that their program had proven its worth as a suburban school reform project, sanctioning its use in more challenging settings.[11] The mid-sixties saw the rapid expansion of a school reform movement whose members wanted to replace segregated neighbourhood schools with integrated educational parks, a type of school described by one educational park advocate as "large facilities in a campus-like setting, utilizing centrally-organized common facilities and drawing its student population from the community, not limiting it to the geographically and socially narrower neighborhood" (Wolff, 1965. p. 4). Neil Sullivan arrived in Berkeley with hopes of building an educational park, more specifically an educational park whose "centralized facilities and built-in flexibility would contribute to the

[10] Patricia Murphy (1996) defines a pedagogy as "about the interactions between teachers, students and the learning environment and learning tasks" (p. 35), a helpful definition that encompasses beliefs about all aspects of schooling, from how teachers and students interrelate, to teaching and learning practices, to the classroom environment.
[11] "[T]he nongraded program is receiving its most severe test," Sullivan informed Francis Keppel in 1963, referring to the program's use in Prince Edward County. (1963a, p. 1).

effective and efficient use of personnel, and a variety of learning experiences for all students" (BUSD, 1968a, p. 34). If this sounds a lot like a SUPRAD school, the similarity is not accidental, instead reflecting Sullivan's belief (shared by other SUPRAD educators) that educational parks are ideal sites for SUPRAD programming, not least because—in Sullivan's and others' eyes—both an educational park and a SUPRAD school speak to the allied importance of flexibility and differentiation:

> [An educational park has] enough classroom space to make flexible teaching arrangements possible. Some courses may call for the combination of several classes. Others may require that a class be split into small groups. The educational park can provide classrooms for every need. (BUSD, 1967a, p. 3)

In 1969, with his educational park plan stalled,[12] Neil Sullivan resigned as superintendent of Berkeley schools and left for Massachusetts, where he became education commissioner. In Massachusetts, Sullivan worked with former SUPRAD colleagues, including most importantly Robert Anderson, to advance "Operation Schoolhouse," a Harvard-directed venture which saw Harvard's graduate school of education commissioned to design a number of Boston schools. Within the context of SUPRAD, Operation Schoolhouse is significant not just because of its scope (Harvard was contracted to design "twelve or more" schools [SPP, 1967, p. 1]), but also because it was premised on the attractiveness of SUPRAD schools, whose many innovations (so it was believed) would draw white families otherwise opposed to integration.[13] Although of high caliber, Harvard's Operation Schoolhouse schools opened segregated, an outcome guaranteeing that by 1972, the year Neil Sullivan (dismayed by the failure of Operation Schoolhouse) resigned as Massachusetts education commissioner, SUPRAD was truly finished.

The story of SUPRAD presents an elite group acting to transform a bedrock feature of American life, the public school system—something that could only have happened during the Space Age, a period when new technologies led to widespread questioning of old ways. "The technological revolution that is now fully upon us involves all areas and disciplines," former NASA director James Webb wrote in 1969. "No nation that aspires to greatness, or to use its power for good, can continue to rely on the methods of the past" (p. 15).

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[12] The unravelling of Sullivan's plan is discussed in Brillinger, 2016, pp. 126-129.

[13] This was the "white bait" theory, espoused by sociologist Robert Dentler in the context of educational parks: "Tradition-oriented white citizens might be attracted to back education parks, where they oppose neighborhood school pairing, because the park package gleams so handsomely. (1964, p. 22).

Research Questions and Scope of Project

The origins and development of Harvard's SUPRAD project raise a number of questions, the most important being:

1. Why was SUPRAD established?
2. How did SUPRAD operate?
3. What was SUPRAD's impact?

To understand SUPRAD's pedagogy and practices requires studying not only its origins in Cold War anxieties and enthusiasms about the future, but also its iterations as those emotions increase, diminish or disappear. SUPRAD's through-line connects Francis Keppel's interest in enabling staff flexibility (i.e., teachers being free to perform many roles), Harold Gores's desire to build flexible schools (i.e., schools with adaptable spaces), and Neil Sullivan's eagerness to transform communities (through construction of a new kind of school). In each case, we see an educator rejecting a feature of traditional schooling, whether the solo teacher, the egg-crate school,[14] or the *de facto* segregated school system.

Despite various twists and turns, the SUPRAD story is fairly straightforward: in the late-1950s, researchers in Harvard's Graduate School of Education developed a distinctive pedagogy that they tried, with some success, to disseminate. That the pedagogy was never widely accepted reflects its becoming associated in the public eye with desegregation, an association SUPRAD educators—to their credit—embraced with pride.

Chapter One reviews the scholarly and popular literature on SUPRAD and its many offshoots. As will become clear, SUPRAD has received little scholarly attention, an irony given the project was designed and directed by Harvard professors. In addition to the many SUPRAD documents archived at Harvard (reports, proposals, correspondence, etc.), I used in my research a number of contemporary newspaper, magazine, and journal articles, including some two dozen written by participants in the program. Well-funded and institutionally supported, SUPRAD was more influential than its obscurity suggests, and one important goal in my literature review is to explain this discrepancy.

Chapter Two locates my research within a four-part conceptual framework whose components are (1) Rajendra Kumar Shah and Sanothimi Campus's understanding of pedagogy,

[14] Natt D. Burbank describes an egg-crate school as: "[A] central corridor flanked on either side by a series of uniform classrooms." (1962, p. 51).

(2) David Tyack and William Tobin's notion of a grammar of schooling, (3) William Carleton's definition of technocracy, and (4) Dale Carter's vision of an American rocket state. One reason why SUPRAD achieved traction in the early sixties was that its focus on individual achievement ("Tomorrow's school will care about individuals as distinguished from groups of individuals" [Gores, 1964b, p. 21]) was in line with Cold War concerns that the United States was lacking in "scientific manpower."[15] This chapter also discusses my methodology.

Chapters Three, Four, and Five examine SUPRAD's practices (Chapter Three) and pedagogy (Chapters Four and Five), presenting the SUPRAD project as a response to mid-fifties fears that America's schools were unprepared for Cold War challenges. Initially, SUPRAD was an experiment in school staffing ("teacher redeployment," in SUPRAD parlance [Keppel et al. 1960, 242]), the goal being to use the hierarchical structure of a team to draw ambitious young people into the teaching profession. SUPRAD, however, was never only about teaching teams; other SUPRAD projects tested the benefits of (for instance) teacher-lecturers, nongraded classes, and teaching machines, with projects assigned to one of three school systems (Newton; Concord; Lexington). SUPRAD pedagogy reflected a technocratic ethos that posited credentialed experts as best positioned to dictate educational (and other) policies, but over time, as the pace of social, scientific and technological change accelerated, SUPRAD educators came to accept that no expert, no matter how credentialed, could predict the future needs of students, teachers or society at large.

Chapter Six traces the history of Educational Facilities Laboratories (EFL), a Ford Foundation-sponsored organization aimed at designing schools suited to SUPRAD programs.[16] Like SUPRAD, EFL was experimental in orientation, focusing on pilot projects designed to test school design features (open classrooms, for instance), although some EFL pilot projects took the form of full-fledged schools (including the first operational educational park). EFL is best seen as the design arm of SUPRAD: each supported by the Ford Foundation, the two programs shared plans and staff members, working together to identify the consequences of one or another educational change. EFL's most important project, the Nova School in Davie, Florida, opened in

[15] "The teacher shortage was a chronic problem obvious to anyone who kept abreast of current events in the early 1950s. . . [The] National Manpower Council by 1953 had explicitly tied this problem to the crisis in scientific manpower production. Their breakthrough report of that year devoted an entire chapter to an evaluation of the supply and demand of public school teachers." (Rudolph, 2002, p. 64).

[16] SUPRAD and EFL educators were influenced by the writings of J. Lloyd Trump, whose 1950s publications also inspired many non-SUPRAD educators.

1961 as a K-12 educational park (a university was added in 1964), offering a SUPRAD-inspired educational program in a facility that reflected the ideas of SUPRAD educator Harold Gores and other EFL consultants. Administered by SUPRAD educator Arthur Wolfe, Nova was something of a SUPRAD super-laboratory, where the combined impact of many SUPRAD programs could be assessed; as such, the Nova School was a statement about what SUPRAD educators hoped to achieve.

Chapter Seven discusses a redirecting of SUPRAD resources, prompted by Francis Keppel's interest in whether SUPRAD programming—team teaching, non-graded classes, etc.—could benefit underprivileged students. In September, 1963, Neil Sullivan became superintendent of the Prince Edward County Free Schools, a privately-funded school system established by the Kennedy administration to serve African American children denied formal schooling since 1959. Francis Keppel and Neil Sullivan saw SUPRAD programming as potentially groundbreaking in settings like Prince Edward County, where students urgently needed individualized instruction. Neil Sullivan's year in Virginia has been extensively studied, although no attention has been paid to Sullivan's SUPRAD experiences and their impact on his work in Prince Edward County.

Chapter Eight follows Neil Sullivan to Berkeley, California, where he spent three years trying to build an urban educational park. Unlike most mainstream educational park advocates, Sullivan saw educational parks (built along Nova School lines) primarily as sites for innovative programming, with integration a welcome byproduct.

Chapter Nine discusses Operation Schoolhouse, a Harvard-directed project aimed at integrating Boston's *de facto* segregated school system. Presenting SUPRAD programming as Boston's mid-sixties version of "white bait," the chapter focuses on a single school, the Joseph Lee Elementary School, detailing the school's similarity to other SUPRAD schools.

Chapter One: Review of the Literature

In 1956, Harvard dean of education Francis Keppel, in a seventy-page-long proposal inviting the Ford Foundation to sponsor the project that became SUPRAD, characterized the nascent endeavour as an effort to close the gap "between educational ideals and educational realities" (1956a, p. 2). As this characterization hints, SUPRAD was conceived of as a school reform project, one of many launched in the 1950s, a decade rife with discussions of a "crisis in education".[1] In *Tinkering Towards Utopia,* David Tyack and Larry Cuban describe attempts at school reform as "planned efforts to change schools in order to correct perceived social and educational problems" (1995, p. 4), a useful description that highlights the extent to which reform projects emerge from concerns about society. As Tyack and Cuban note, Americans have long believed improvements in education lead to improvements in society, with "educational elites [seeing] themselves as expert social engineers who could perfect the nation by consciously directly the evolution of society" (ibid., p. 2).[2] During the Space Age, this view—that improved schools would lead to an improved nation—dominated discussions of education, its prominence reflecting a widely-held belief that lacklustre American schools were "endangering the nation's security [as schools fell] behind the Russians in science, mathematics, and engineering" (Ravitch, 1983, p. 228). In this period, with education entangled with concerns about national security, school reform became a national obsession, as one bestselling book after another held that (in Andrew Hartman's words) "education. . . was the key to Cold War success" (2008, p. 2).

Harvard's SUPRAD program has received little scholarly attention, and this despite its producing three well-regarded offshoots: Educational Facilities Laboratories, the Prince Edward County Free Schools, and the educational park concept.[3] This chapter explores popular and scholarly study of SUPRAD, focusing both on what was written and on what, in my view, should have been written. Although a Space Age school reform project, SUPRAD was rarely seen as

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[1] In 1958, *Life* magazine published a five-part series on what it called America's "crisis in education," highlighting differences between the American and Soviet educational systems. Critiquing the American system, *Life* claimed that while Soviet students spent most of their time studying math and science, American students wasted their days in "life adjustment" classes that taught them how to fit into society. (Hartman, 2008, p. 177).

[2] In Michael B. Katz's words: "Throughout the history of American educational reform, one theme has remained constant: the grandiose and unrealistic expectation that schools can solve America's social, economic, cultural, political, and moral problems." (1987, p. 124).

[3] Both Educational Facilities Laboratories and the Prince Edward County Free Schools were organized and directed by a former SUPRAD educator while the educational park concept emerged from SUPRAD thinking about a school purpose-built for team teaching and nongraded education.

such, instead being perceived as one of many early-sixties team teaching projects. The purpose of this chapter is to discuss SUPRAD's place within the narrative of Space Age school reform, first by exploring where students of school reform locate it, second by presenting my own view of where it fits in. The heart of the chapter is a survey of key texts on 20th century school reform, my focus being on how the texts answer three questions:

1. What motivated Space Age school reformers?
2. What changes to schooling did Space Age school reformers promote?
3. Who were the important Space Age school reformers?

My broad goal in this chapter is not to answer these questions myself, but to see how historians of school reform answer them, a necessary first step in identifying where—if anywhere—these historians position SUPRAD in their narrative of Space Age school reform. Do they consider SUPRAD an important school reform movement? If so, what SUPRAD ideas and practices do they highlight? Alternately, do these historians ignore SUPRAD, and if so, what—if anything—does this tell us about SUPRAD's importance? My analysis of key texts on school reform is selective—a necessity given the large literature on 20th century school reform. In choosing texts, I opted to examine texts I felt should—based on their subject matter—discuss SUPRAD. Another approach would have been to analyse only texts that *do* discuss SUPRAD; that method, however, would have made for a misleading, and brief, chapter.

Space Age School Reform

In 1987, Michael Katz, challenging claims about the effectiveness of campaigns for educational reform, argued that changes to schooling are shaped more by social forces than by the actions of school reformers: "The forces most powerfully shaping schools do not flow from educational planning or deliberate policy. Nor have they ever. Rather, the source of contemporary pressure for change lies, as it always has, in the contradictions between the schools and the social order" (p. 2). One contradiction touched on by Katz was between the 1950s reliance on nurturing "life-adjustment"[4] curricula and Space Age America's need for battle-ready

[4] Life adjustment education, Andrew Hartman explains, aimed to reconcile young people to an imperfect society: "Educational 'adjustment' cohered with what has been termed the 'therapeutic ethos,' a psychological framework that pervaded social reform efforts during the postwar years. . . In short, Dewey's dictum was reversed: rather than adjusting society to the child, in the hopes of creating a socialist society, the child was to be mentally adjusted to the decidedly un-socialist society already in existence." (2008, p. 55).

proto-scientists able to take on their Soviet equivalents. Here a contradiction turns on the obsolescence of schooling's mission, as changed circumstances (i.e., the Cold War) meant that schools were burdened with a new aim, one dictated not by school reformers but by what Katz calls the "social order"—which isn't to suggest that influential school reformers were opposed to the new program. The question "What motivated Space Age school reformers?" is best answered by reference to three factors, one foreign and two domestic. The foreign factor should now be apparent: the Soviet Union. In John Rudolph's words:

> [F]ollowing Sputnik, one could hardly talk about education without in the same breath mentioning national defense. Throughout this period, the national media was filled with images of Soviet proficiency in science and mathematics—images pushed by agencies such as the Office of Defense Mobilization as well as magazine and newspaper editors across the country. The *Life* magazine series on the crisis in education [see footnote 17 above] publicly demanded more rigorous scientific training to meet the Soviet threat. . . At the federal policy level, the National Defense Education Act of 1958 contributed significantly to molding public perceptions of the nature of the reforms (2002, p. 169).

Rudolph's reading of reformers' motives is shared by other historians of education, including Tyack and Cuban ("Another example of the delayed impact of reforms across periods is the implementation of innovative curricula in science and mathematics triggered in the Eisenhower years by the fear that the United States was falling behind the Soviet Union in training scientists and engineers" [1995, p. 47]), Peter Dow ("The ascent of Sputnik on 4 October 1957 has come to symbolize a turning point in American education. The Soviet space triumph, the launching of a one hundred and eighty-four pound communications satellite into Earth orbit before the United States could claim any comparable feat, convinced many Americans that the USSR had achieved scientific superiority over the United States" [1991, p. 1]), Diane Ravitch ("The Soviet launch of the world's first artificial satellite on October 4, 1957, promptly ended the debate that had raged for several years about the quality of American education. Those who had argued since the late1940s that American schools were not rigorous enough and that life adjustment education had cheapened intellectual values felt vindicated" [2000, p. 321]), Tom Holert ("The symbolic starting point for the Education Shock age was the 'shock' that struck the West on October 4, 1957, when the Soviet satellite Sputnik I entered into orbit" [2021, p. 18]), and many others. If commentators repeatedly cite Sputnik the reason relates to the satellite's launch confirming in

Americans' minds something they had intuited for several years, that the Cold War (in John Rudolph's words) "demanded a school curriculum that would provide the necessary intellectual rigor to compete internationally with the Russians" (2002, p. 10). When it comes to identifying school reformers' motives, the question of whether the Soviet Union (which had exploded a hydrogen bomb in 1949) was a mortal threat is irrelevant; reformers believed it was, spurring them to propose a long list of educational reforms.

Space Age school reformers were also prompted by two domestic developments, the first being an ever-expanding campaign for integrated schools. Following the 1954 Brown v. Board of Education Supreme Court decision, supporters of equal educational opportunity took heart from the court's avowal that "education is a constitutional right of every citizen that must be granted to everyone on equal terms" (Labaree, 2010, p. 30), launching what David Labaree calls "the desegregation movement in the 1950s and 1960s, which gradually grew into a broad movement for making American schools inclusive" (ibid, p. 5). As Labaree explains:

> [For] the desegregation movement, schools were critically important as a mechanism for social opportunity. Their purpose was to promote social mobility. Politics was just the means by which one could demand access to this attractive educational commodity. (Ibid. p. 30)

Despite its legal force, Brown v. Board of Education was only the start of a decades-long drive for what David Tyack and Larry Cuban (following Richard Kluger[5]) call "simple justice," a state-of-affairs turning on equitable allocation of learning opportunities: "A major catalyst for this campaign for 'simple justice' was the Supreme Court's decision in Brown v. Board of Education in 1954. Its immediate target was the racial segregation of students, but its language of justification and its force as a legal and moral precedent encouraged not only blacks but other groups as well to demand educational equity as a right" (1995, p. 26). Yet Space Age school reformers, confronting racial injustice, were motivated by more than just desire to right a moral wrong; pragmatic considerations—related to the omnipresent Cold War—also played a role:

> The Cold War context created two powerful motives for racial reform. First, national leaders concluded that segregation wasted the potential utility of black children, an inefficient policy akin to squandering mineral wealth or other natural resources. Second,

[5] Kluger in turn borrows the term "simple justice" from a report by the 1934 Virginia Commission on Interracial Cooperation, where it stands for "an honest effort to be fair to the Negro."

> the liberal establishment came to appreciate that Africans, Asians, and Latin Americans, most of whom lived opposite the global "color line," might resist joining the American system, while the image of white cops beating black protestors was splashed across the front pages of newspapers worldwide. (Hartman, 2008, p. 158)

Moreover, integration itself, once it began arriving in piecemeal fashion, brought new problems. Diane Ravitch, in her 1983 book *The Troubled Crusade*, discusses an early-1960s perception that the United States "was in the grip of an 'urban crisis'" (p. 147), a crisis "discussed intensively in the popular press and in policy-making circles" (ibid.), and commonly seen as stemming "from the changing racial composition of the cities":

> In the years from 1940 to 1966, as agriculture was mechanized, nearly four million blacks migrated from the South to other regions of the country, and most settled in urban areas. The black population in almost every major American city grew markedly during the 1950s and early 1960s. Between 1950 and 1966, the black population in the central cities nearly doubled, from 6.5 million to 12.1 million, growing from 43 to 56 percent of the nation's blacks. (Ibid.)

The "rural migrants," Ravitch adds, "arrived with poor education and few skills" (ibid.), creating a situation—unrelated to racial integration *per se*—where schools struggled to educate students arriving in classrooms with a wide range of learning skills and prior achievement levels. Arising from this situation, Glen Heathers wrote in 1966, "were two sorts of disagreement" among 1960s school reformers:

> One involves differing conceptions of school goals. The organizational requirements of a school program that stresses the pupils' personal-social development are different from those of a program that focuses on academic attainment. The other type of disagreement involves how and to what extent individual differences among pupils should be provided for in the school program. As [John] Goodlad points out, a school may set out to teach the same body of subject matter to all pupils and at the same rate; it may offer all pupils the same subject matter but provide for different rates of advancement; or it may vary subject-matter offerings from pupil to pupil as well as make provisions for different rates of progress. (1966, p. 110)

The first of these disagreements—over how rigorous schools should (or shouldn't) be—was discussed earlier in the context of Cold War anxieties about national security, but the second

disagreement (which also featured in Cold War-era debates on education's shortcomings[6]) only became urgent once the number of "educationally disadvantaged" (ibid.) students reached a certain level. As Heathers explains:

> The great movement to integrate the nation's schools probably will influence school organization. The problem which this movement poses to those who organize the schools is how to teach both the privileged and the disadvantaged in the same school without *de facto* segregation in grouping for instruction and on the basis of subject matter taught. (Ibid., p. 120)

While the vast majority of school reformers saw integration of schools as welcome and needed, many reformers balanced discussion of benefits with analysis of potential problems. Schools, it was argued, needed to change for integration to work. But how must they change? Answers to this question are discussed below.

Space Age school reformers also found cause for concern in a postwar baby boom and ensuing teacher shortage. As David Tyack explains in *The One Best System*:

> The most serious problem was the shortage of teachers, already serious before the population bulge of about 13,000,000 wartime babies hit the elementary grades. Partly to fill the gaps left by the 350,000 teachers who left the classroom, more than 125,000 people were teaching on emergency certificates, further diluting already minimal standards for competence (less than half of the teachers in 1947 had completed a college education). Although the nation would require hundreds of thousands of new teachers, enrollments in teacher training programs were well below capacity. (1974, p. 274)

The 1950s teacher shortage, as Tyack notes, preceded school enrollment of baby boom children (which turned a shortage into a crisis), initially arising from what John Rudolph calls a "variety of factors affecting supply and demand":

> One situation that obviously discouraged many capable individuals from entering the profession was the low pay. In the absence of additional state or federal aid, local communities, already over-burdened in many cases with expensive building projects, were

[6] The Cold War component entailed education of elite students: "Many of the critics seemed to be suggesting that American schools, in order to meet the rigorous demands of the postwar world, should abandon their historic commitment to a common education for all, and, in the style of European schools, adopt an elitist approach to the cultivation of talent and move the most gifted students ahead as rapidly as possible." (Dow, 1991, p. 12)

> hard pressed to raise salaries. Further contributing to the science teacher shortage. . . was the low public esteem such positions held in the United States. (2002, p. 65)

Unsatisfactory pay and low public esteem notwithstanding, the postwar teacher shortage was a demographic phenomenon reflecting an abundance of school age children; in Rudolph's words: "By the fall of 1953, first grade enrollment had increased by 34 percent with no relief in sight. Though high school enrollment remained manageable in the early 1950s, even declining in 1950, the demographic crest proceeded inexorably into the upper grades by the mid-fifties" (2002, p. 11). The baby boom itself was, of course, a *fait accompli*, leaving postwar school reformers to confront the boom's many after-effects, including most importantly a teacher (and facility[7]) shortage. Among the anxious reformers none was as important as the Ford Foundation with its deep-pocketed Fund for Advancement of Education: "It was essential that the American people be alerted to the anticipated increase in school enrollments and the teacher shortage likely to result from it. Consequently the Fund sponsored the publication of a number of documents which in addition to setting forth the basic statistical facts regarding American education offered predictions about the future" (Woodring, 1970, p. 186). As we'll see, publication of pamphlets was just the beginning of the Ford Foundation's efforts to address the postwar teacher shortage.

Historians of education present Space Age school reformers as harbouring three major concerns: first, that ineffective schools threatened national security; second, that schools needed to be reorganized to ensure effective integration of disadvantaged students; third, that the baby boom and ensuing teacher shortage impeded effective schooling. In 1963, the National Education Association (NEA) issued a report (*Schools for the Sixties*) that offered convenient labels for the three kinds of problems related to reforming schools: "organizing the curriculum; organizing the school and classroom; and organizing personnel, space, and materials" (p. 107). Often writing for a receptive audience,[8] Space Age school reformers proposed a number of changes related to these three facets of schooling (curriculum, facilities, personnel), confidently taking the first step in what Tyack and Cuban call "a long and complex set of steps: discovering problems, devising remedies, adopting new policies, and bringing about institutional change" (1995, p. 4). What, then, did these reformers propose?

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[7] "In the 1940's observers worried most about the critical shortage of funds and wondered how the cities could ever hire enough teachers and build enough schools to educate the multitude of children born during the war." (Tyack, 1974, p. 270).

[8] In 1959 James Conant's *The American High School Today* "became a surprise best-seller" (Ravitch, 2000, p. 323)

Education and National Security

In harbouring Cold War-era anxieties about national security, 1950s school reformers took their cue from the federal government, whose interest in science education, John Rudolph explains, "was to pick up considerably during Eisenhower's two terms as chief executive":

> The technological race with the Soviets soon provided all the incentive necessary to prompt a reconsideration of American educational policy. Reports out of the Soviet Union describing their centralized, highly efficient system of scientific and professional training, combined with the scientific manpower shortages in American government research labs and industry, pushed science education, at all levels, toward the top of the federal agenda by the middle of the decade. (2002, p. 57)

School reformers were quick to adopt this framing, where American schools were presented as dangerously unable (or unwilling) to train new scientists, primarily because a progressive life adjustment curriculum had come to dominate the school day. "In the months following Sputnik, the schools were widely cited as the weak link in America's race against the Soviet Union. Progressive education and the philosophy of life adjustment were singled out" (Hartman, 2008, p. 174). By the late-1950s, a consensus view had emerged positing that educational improvement turned on instilling schools with "rigor," meaning, in Tyack and Cuban's words,

> a demanding world of discipline, and high cognitive expectations for the mostly dull and disorderly young of the nation. Turning back from "life adjustment" to the earlier goal of mental training, critics demanded a revamping of curriculum, tougher selection and training of teachers, greater regimentation in the classroom, attention to patriotism, and fewer 'frills' (1995, p. 57)

"The Cold War," Rudolph explains, "demanded a school curriculum that would provide the necessary intellectual rigor to compete intellectually with the Russians" (2002, p. 10). Rigor, then, was a magical elixir that, circulating throughout schools, would transform American students into lab-coat-wearing foot-soldiers in the Cold War. That said, injection of rigor into schools was, as Tyack and Cuban note, a complex process involving (at the very least) reforms of curriculum, teacher training procedures, and instructional practices.

Proposed curricular reforms were as one might expect. Commentators troubled by what they saw as "the lackluster and anti-academic character of the high schools of the 1950s" (Tyack and Cuban, 1995, p. 52), argued for an increased emphasis on "science, mathematics, foreign

languages, and other traditional liberal arts" (ibid.), with the NEA, for example, stressing the importance of advanced science education: "The pursuit and use of scientific knowledge are the most fundamental forces changing the world today" [1960 NEA document quoted in Rudolph, 2002, p. 1). The late 1950s, Ronald Evans observes, saw the emergence of a "new social studies" rooted in "national security anxieties linked to schooling in the context of a cold war struggle for survival. Largely discipline-centered, the social studies projects of the era, which received unprecedented federal and private financial support, were a direct outgrowth of the criticism of progressive education and of progressive social studies" (2011, p. 9). Resting on a belief that "innovative materials for instruction would lead to a transformation in "teaching practices" (ibid., p. 5), the new social studies was representative of many Cold War curriculum reform projects that, Evans notes, were part of a broad movement aimed at promoting "basic education":

> A new consensus emerged, based on the primacy, sanctity, and integrity of the academic disciplines; the value of inquiry or discovery learning; the suitability of academic study for the high school; support for gifted education; production of change materials; development of curriculum reform projects; and proper in-service teacher training. (2011, P. 21)

What, to borrow Evans' term, was "proper in-service teacher training"? And how—in advocates' eyes—was such training related to victory in the Cold War? Discussing the 1950s emphasis on educational "rigor," David Tyack and Larry Cuban mention commentators' demand for "tougher selection and training of teachers" (1995, p. 52). Quoted by John Rudolph (2002) one group of such commentators (the NSF's Biological Sciences Curriculum Study [BSCS]) maintained that high school teachers were "simply not sophisticated enough" (p. 106) to teach advanced biology courses, necessitating either better training of teachers, or—a more immediate solution—creation of teacher-proof "curriculum packages" that (to quote a BSCS report) "make it as difficult as possible for teachers to teach other than the way we want it taught" (ibid.). Other proposed solutions to 'improper' teacher training involved changes aimed at attracting better-qualified candidates to the teaching profession. (No need to teacher-proof a curriculum if teachers are sophisticated enough to deliver it.)[9] Writing in 1975, Michael Katz observed that a teaching career, while more rewarding than in the past, was not without its downsides:

[9] Still another way to "teacher-proof" schools, some reformers argued, was to replace teachers with machines programmed to deliver even the most challenging lessons. As Diane Ravitch writes: "Admirers of behaviorist B. F. Skinner claimed that the teaching machine and programmed instruction would revolutionize the classroom. Others,

> Teaching in America has always been poorly paid and poorly regarded. It is only recently that teachers have gained some measure of employment security and freedom from harassment and dismissal at the whim of school boards. Dreadful working conditions combined with the lack of autonomy, status, and adequate pay have sent people away from teaching in droves; it is a commonplace to observe that the brightest university graduates have not often entered the schools. (1975, p. 131)

The obvious solution to university graduates' reticence to enter a teaching career, as Katz and others note, is to improve working conditions within the profession. "Bright, creative, and well-educated people want to function as professionals, to make the decisions about how they will do their job. Education has not suffered from any freedom granted teachers to run schools as they see fit; it has suffered from the suffocating atmosphere in which teachers have had to work" (Katz, 1975, p. 131). Of course 1950s school reformers differed on what "professionalization" meant in the context of school teaching, and so if some, as Katz notes, equated it with autonomy, others linked it to more selective recruitment. Arthur Powell, describing Harvard's graduate school of education under Francis Keppel, presents Harvard as ground zero for this approach:

> Keppel defined the personnel problem in education as one of recruitment rather than of training. He resolved to attract to the School a larger number of graduates from the better liberal arts colleges. He bluntly asked why such graduates traditionally looked down on schools of education and the schoolteaching job. His candid answers emphasized how social-class factors affected the composition of the profession and the content of schooling. By 1952, the new institutional strategy of career recruitment was assumed to be fully consistent with the social science research agenda. The more scholarly curriculum offered by the faculty would help lure able students suspicious of traditional professional courses. (1980, p. 244)

Evident from this passage is that Keppel considered a "scholarly curriculum" to be a recruiting tool, suggesting that his notion of a "professional teacher" was of someone ready and able to deliver the rigorous curriculum demanded by 1950s reformers concerned with national security.

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touting the virtues of television teaching, talking typewriters, computers, and multimedia equipment, envisioned the advent of 'the automated classroom.'" (1983, p. 233).

In this sense, Keppel and others advocating for better-trained teachers were as cognizant of the Cold war as were reformist advocates of a teacher-proof curriculum.

School Integration

A second major concern of Space Age school reformers was integration of schools, seen as both a democratic necessity and as an educational challenge. The majority of these reformers believed that segregated schooling was a multifarious harm, impacting not only the well-being of racially isolated African American students, but also the national interests of the United States. In David Theo Goldberg's words:

> The post-World War II period saw the emergence of nationalized desegregating efforts—in the army, the courts, on the streets, in buses and schools—prompted not only by moral and internal political imperatives but also by geopolitical Cold War competition and assertive local mass mobilization. "National interest" and foreign policy demand strongly encouraged if not necessitated public commitment to race-neutral governmentality. (2009, p. 73)

As Goldberg notes, the battle for school integration was part of a larger struggle to desegregate many areas of American life. That said, school integration had unique complexities, including, as many historians of education observe, uncertainty about how to define "success."

> The social reformism that produced the [Elementary and Secondary Education Act][10] in 1965 had already stimulated intense concern among social scientists and educators about the education of poor children. During the decade after the Brown decision, the wide disparity between the achievement levels of white and black children was a major problem in desegregating school districts. Administrators in the newly desegregated schools of Washington, D.C., met the problem by assigning students to one of four different tracks on the basis of their ability; "tracking" was described as an appropriate response to the disparate learning needs of the children, but it was also reassurance to white parents that desegregation would not lower standards. (Ravitch, 1983, p. 149)

[10] The 1965 Elementary and Secondary Education Act, writes Harvey Kantor, "not only broke through the long-standing opposition to federal aid to education. . . it also focused attention on the educational needs of poor children and established federal standards to push school districts toward more equitable treatment of disadvantaged students. The result was to give the federal government a distinct new role in defining the nation's educational priorities and to make federal policy a central focus of the struggles over access to schooling and control of educational policy that characterized the history of education during the 1960s and early 1970." (1991, p. 49).

The problem of disparate achievement levels in integrated schools has yet to be solved[11]—which isn't to say that Space Age school reformers, who were among the first to confront the problem on a large scale, didn't propose solutions. The point of disagreement, Glen Heathers wrote in 1966, "involves how and to what extent individual differences among pupils should be provided for in the school program" (p. 110). While Heathers here discusses all schools, not just integrated ones, the disagreement in question was especially divisive in relation to school integration, precisely because, as Tyack and Cuban explain in *Tinkering Towards Utopia*, many progressive educators—convinced "children had different abilities, interests, and destinies in life" (1995, p. 20)—argued for a particular version of equality of educational opportunity: "They gave different labels to students who did not fit their definition of 'normal,' and they created tracks and niches for them. Progress to these experts meant a place for every child and every child in his or her place" (ibid.). In theory tracks and niches seem fine, and they undoubtedly benefit many children in many places, but in the context of a newly-integrated school, they typically resulted in a new kind of segregation—by classroom rather than by school. Charles Clotfelter, in his 2011 book *After Brown: The Rise and Retreat of School Desegregation*, explores the factors that thwarted school desegregation in the 1950s, naming "tracking and other forms of ability grouping" (p. 9) as the most important and enduring factor, arguing that such practices "created racial disparities within schools" (ibid.). Unlike many Space Age school reformers, who defended such practices as ways to find "a place for every child," Clotfelter criticizes them as attempts "to accommodate white parents' wishes to minimize interracial contact" (ibid.). At the heart of this still-unresolved debate about the merits and failings of what came to be called "differentiation in the curriculum" (Hartman, 2008, p. 183) was a straightforward question: Could a differentiated curriculum be made to work for rather than against African American students? In the late-1950s, this question took on added urgency when educational Cold Warriors advanced the view that learning benefits or losses to African American students—from differentiation or any other practice—were vastly less important than matters of national security—which in their view would clearly be bolstered by widespread adoption of differentiated curricula. This view emerged organically from the Cold Warriors' previously discussed push for rigorous schools, the belief being (*pace* James Conant's view as summarized by Andrew Hartman) that "the education received by the academically

[11] In 2022, for example, 83% of white students in the Berkeley Unified School District met the California state standards in English, as opposed to 30% of African American students. (Markovich, 2023).

talented—which [Conant] estimated to be about 15 percent of teenagers—[was] in need of improvement. He wanted the less capable students weeded out of difficult courses so that teachers were better able to attend to the needs of smart students" (2008, p. 182). Tracking and ability grouping, then, were posited by some 1950s school reformers as Cold War weapons akin to the rigorous military training programs aimed at identifying and developing elite soldiers. But where did this leave African American students?

If in the late-1950s, national security-minded supporters of differentiated instruction saw nothing wrong with subordinating the needs of African American students—save for those seen as belonging to the top 15%—to the needs of the "academically talented," by the mid-1960s the situation was very different, with differentiated instruction promoted by reformers who saw such instruction as beneficial to African American students, and so as a possible solution to America's 'urban crisis.' One such reformer was NYU's Glen Heathers who wrote in 1966:

> Concerns about the educationally disadvantaged, likewise, are influences toward school reorganization. Programs, such as New York City's Higher Horizons and various programs designed to reduce the number of high-school dropouts, are challenging conventional plans of school organization that make limited provisions for dealing with special groups of students. The great movement to integrate the nation's schools probably will influence school organization. The problem which this movement poses to those who organize the schools is how to teach both the privileged and the disadvantaged in the same school without *de facto* segregation in grouping for instruction and on the basis of subject matter taught. (1966, p. 120)

The "school reorganization" in question was nongrading of students, defined by Heathers as "a departure from the conventional graded system for organizing instruction [that] rejects the grade-level curriculum, and grade-level placement and promotion, on the assumption that these fail to provide adequately for individual differences among pupils" (1966, p. 111). In a nongraded system, we read in the 1963 NEA report *Schools for the Sixties*,

> the sequence of content is determined by the difficulty of the subject matter and the student's ability to cope with it. Instructional materials are varied to match the spread of individual differences within the instructional group, and students move upward according to their readiness to proceed. Promotion or nonpromotion does not exist as such; continuous progress for each learner is an important goal. The nongraded school is

> characterized by central concern for *the* individual and *all* individuals. As viewed from this learner-centered perspective, the first function of the school is to develop the unique potentialities of all students. (1963, p. 83)

In theory—which is where many Space Age school reformers felt most at home—a nongraded system was ideal for a school with a wide range of student achievement levels, a description reformers like Glen Heathers applied to newly-integrated schools: "It seems likely that nongrading will be resorted to increasingly in racially integrated schools as a means of dealing with the increased range of individual differences" (1966, p. 122).

Of course prior to worrying about the classroom impacts of racial integration, 1950s school reformers wrestled with the vexing question of how to build public support for school integration. Here, however, reformist thinking was in line both with Cold War concerns about wasting "the potential utility of black children" (Hartman, 2008, p. 158), and with worries about the global impression of a Jim Crow United States. Promotion of nongrading was a lonelier proposition, likely because nongrading was associated with grouping by achievement level, a practice often viewed as leading to *de facto* classroom segregation.[12]

A Teacher Shortage

The third component of what Space Age school reformers saw as an educational "crisis" was a teacher shortage caused by the 1940s baby boom. In Arthur Powell's words: "The central problem of American education seemed a shortage of educational personnel" (1980, p. 260). By the mid-1950s, the "flood" (Rudolph, 2002, p. 11) of children into schools had reached the point that an alarmed federal government, organizing its 1955 White House Conference on Education, tasked one working group with addressing the questions "How can we get enough teachers—and keep them?" The working group's report to the President, published in April, 1956, opened with a disheartening summary of events:

> The shortage of teachers is at least as severe in the United States as the shortage of school buildings, but it is harder to see. A dilapidated and overcrowded schoolhouse can be photographed and is quick to arouse indignation. A classroom without a teacher also would

[12] Nongrading was so easily mistaken with grouping by achievement level that advocates felt the need to spell out differences between the two systems: "Nongrading is a vertical plan of school organization. It cannot be compared with ability grouping or any other scheme of horizontal organization. Failure to understand this difference leads to meaningless comparisons of organizational plans and to misleading conclusions about them." (NEA, 1963, p. 85).

> be quick to arouse indignation, but few of these are apparent to the public. Instead, there are classrooms with unqualified people serving as teachers. It is impossible to tell a qualified member of the faculty from an emergency substitute at first glance, and so the shortage of real teachers is to a large extent invisible. It is no less sinister for that reason. Tens of thousands of American children are today being taught by men and women who themselves have an inadequate education. Many courses cannot be offered because qualified people cannot be found to teach them. (Committee, 1956, p. 34)

How, then, *could* America get enough teachers—and keep them? In its 1956 report, the teacher shortage working group made twenty-two recommendations falling into three broad groups, (1) recommendations aimed at attracting more and better-qualified people to teaching (e.g., increase salaries; offer more financial assistance for teacher candidates; enhance the professional status of teachers), (2) recommendations aimed at improving teacher education programs (e.g., encourage teacher colleges to build relationships with school systems; offer more federal financial support to teacher colleges; require teacher colleges to cooperate with other academic departments), and (3) recommendations aimed at improving teachers' experiences in the classroom (e.g., relieve the teacher of onerous duties by hiring teacher aides; make efforts to reduce class sizes; ensure every school has the appropriate facilities and equipment for each subject; urge schools to adopt sound professional development practices) (Committee, 1956, pp. 44-49). Evident from the 1956 report is that the three components of the Space Age "educational crisis"—'soft' schools, disparities in student preparedness, and a teacher shortage—were seen as related such that provision of more and better teachers becomes something of a cure-all. In brief, assuming a large influx of better-trained teachers, not only would courses be more rigorous (teachers being more knowledgeable), but disparities in student preparedness could be better addressed (additional teachers allowing for individualized instruction). On this last point, while the report pays lip service to low-achieving students, its focus remains on their high-achieving classmates, whose needs are presented as paramount: "Much greater efforts must be made to identify high school students who would benefit from college. . . The goal is not an indiscriminate increase in college attendance but much stronger encouragement of those with recognized ability" (Committee, 1956, p. 46). "Stronger encouragement" of high-achieving students is, of course, a form of differentiated instruction, and it is here—in encouraging practices aimed at supporting one group of students—that the report suggests how the teacher shortage hinders such instruction. "Many courses cannot be offered

because qualified people cannot be found to teach them" we read elsewhere in the report (p. 34). Which courses are these? Although the authors of the 1956 report don't say, other Space Age school reformers—members of the NSF's Biological Science Curriculum Study—do, arguing that high school science teachers are "not sophisticated enough" to teach high-level biology courses (in Rudolph, 2002, p. 106). John Rudolph, commenting on this sentiment, writes: "At issue was the perceived competency of high school teachers to use conceptually discrete monographs to present a coherent year-long course in biology" (ibid.). If the BSCS solution was to create teacher-proof curricula, other reformers, in larger numbers, argued not for better textbooks and monographs, but for better teachers. But how, to paraphrase the 1956 report, to get and keep them?

In the mid-1950s an unexpected solution to the teacher shortage problem arrived in the form of teaching teams. "The authors of the idea," Charles Silberman writes in *Crisis in the Classroom*,

> regarded team teaching as a device to hold able teachers in the classroom. Under the conventional system, ambitious teachers have no option but to leave the classroom for administration if they are to increase their salary and improve their status. Team teaching was designed to create another option by making it possible for a teacher to begin as an assistant, move up to a job as a regular teacher, and then, if particularly qualified, become a team leader. (1970, p. 162)

The authors in question, Silberman adds, "hoped that this sort of differentiated career ladder, with gradations in salary and status, would attract abler people into teaching in the first place and keep them there longer" (ibid.). Also in 1970, Paul Woodring, formerly an advisor to the Ford Foundation, published *Investment in Education*, an "historical appraisal" of the Fund for the Advancement of Education. In his book Woodring discusses the fund's mid-1950s attempts to "improve the status of teaching as a profession" (p. 147), attempts that started with funding of teacher-aide programs—"The hypothesis underlying this aim was that professional teachers ought to spend their time in professional activities in order to make the most of their special training. Nonprofessional tasks essential to the activities of the schools should be assigned to aides" (ibid.)—developing into support for team teaching experiments: "The team-teaching plan is a logical extension of the effort to make better use of teacher time and talent that was begun with the teacher-aide programs, but it goes much further" (ibid., p. 149). Again we find team

teaching presented as a solution to the teacher shortage, both because the use of aides (retained as members of a teaching team) "made the teaching profession more attractive because it relieves teachers of dull chores" (Woodring, 1970, p. 149), and because in a team teaching system each teacher "[accepts] the task for which he is best qualified by virtue of his education, professional training, and personality" (ibid.), an alluring proposition. "Team teaching plans," Glen Heathers wrote in 1966,

> have their most evident relations to societal forces through the provisions they make for dealing with the national shortage of well-qualified teachers. These provisions are designed to make more effective use of today's teachers, to offer teachers more attractive careers, and to improve the in-service education of teachers. The features of team-teaching plans that are meant to improve teacher utilization are specialization in curricular areas and in instructional settings; the employment of teacher aides and clerks to relieve teachers of nonprofessional chores; the use of technological aids such as TV, programed instruction, tapes, and overhead projectors; and the increased employment of part-time teachers. These all are ways of stretching or focusing teacher talents that are in short supply. (1966, p. 124)

Writing in 1970, Charles Silberman described team teaching as "a useful but essentially limited device" (p. 160), arguing that "putting teachers together in teams doesn't necessarily mean that the curriculum or the teaching will be improved, only that a new kind of division of labor will be put into effect" (ibid.). Yet Silberman, even as he dismisses team teaching as "simply a new label for old-fashioned departmentalization" (ibid., p. 162), concedes that "most schools purporting to use team teaching do not distinguish either the role or the salary and status of the various team members" (ibid.), indicating that team teaching as commonly used in the 1960s was quite unlike the system described by its original authors.

But who were these original authors—the ones who in Silberman's words "regarded team teaching as a device to hold able teachers in the classroom" (ibid.)? As noted above, the main aim of this literature review is to locate SUPRAD within the story of Space Age school reform. The apt location, it turns out, is right here, at the point in the narrative where team teaching is presented as one solution to the 1950s teacher shortage. Although in some ways peripheral (the teacher shortage proving more transient than was predicted [Powell, 1980, p. 281]), this location, in the light of my research, becomes far from marginal, as SUPRAD pedagogy offers potential solutions to educational problems unrelated to a teacher shortage, including problems related to

differentiated instruction. Because SUPRAD's development is explored in a later chapter, there's no reason to survey that development now, allowing our focus to remain on SUPRAD's original aim as a school reform project aimed at attracting promising people to the teaching profession. Charles Silberman, tracing the origins of team teaching, identifies the "authors of the idea" as "members of the faculty of the Harvard Graduate School of Education" (1970, p. 162). The "Harvard men," in Silberman's words, "hoped. . . a differentiated career ladder, with gradations in salary and status, would attract abler people into teaching" (ibid.). Silberman never mentions SUPRAD by name, but other historians of postwar school reform do, including most importantly Arthur Powell whose 1980 history of the Harvard Graduate School of Education (*The Uncertain Profession*) describes SUPRAD as a Francis Keppel-devised "agency to disseminate promising school reforms," continuing:

> The School and University Program for Research and Development (SUPRAD), a collaborative venture between the Graduate School of Education and the suburban school systems of Newton, Lexington, and Concord, was conceived to be an organizational equivalent to the ties between medical schools and teaching hospitals. Keppel personally viewed SUPRAD as mainly a vehicle for reordering the personnel structure of schools, and he allocated most resources to a team teaching project in Lexington. (1980, p. 269)

As a "vehicle for reordering the personnel structure of schools," SUPRAD was designed to be a proving-ground for team teaching, an innovation which Francis Keppel in his original SUPRAD proposal calls "a change in the personnel structure of the schools" (1956a, p. 23). Keppel's 1956 proposal is discussed by Arthur Morse, whose 1960 book *Schools of Tomorrow—Today* presents SUPRAD (allowing Keppel to speak for himself) as aimed at professionalizing—and so making more prestigious—a teaching career:

> The Dean [i.e., Keppel] pointed out that almost 10 percent of U. S. teachers leave the profession each year, that at any time half the American children are being taught by relatively inexperienced teachers, over 80 percent of whom are observed by supervisors less than once a month. . . Dean Keppel pointed out that unlike careers in business, law and government the teaching profession is characterized by "lack of advancement. . . lack of a sense of goal, absence of increased responsibility and opportunity to use special abilities which usually accompany merit and experience. . . Salaries are not only too low—they also

> do not offer any range. They seem to operate on the assumption that all teachers are the same and all teaching jobs alike." (1960, p. 21)

Morse, echoing Keppel's comments, describes the traditional personnel structure of schools as detrimental to both teachers and students: "With equal disregard for differences in ability school boards pay each teacher essentially the same salary. The gifted teacher can improve her status in one way—by taking an administrative position which will shatter the relationship which established her superiority—her contact with students". (Ibid., p. 11).

Outlining the history of 1950s school reform, Silberman, Powell, and Morse all present SUPRAD as a Space Age solution to America's teacher shortage, arguing that Francis Keppel, concerned about the teacher shortage, saw teaching teams as a way to make a teaching career more appealing, leading him to establish SUPRAD—the first team teaching project. That this narrative is essentially true[13] begs the question of why the narrative is not more widely known, especially among students of postwar American education. John Rudolph's 2002 book *Scientists in the Classroom* illustrates this point, as Rudolph discusses the mid-century teacher shortage and several proposed solutions without mentioning Keppel or SUPRAD:

> Further straining the integrity of schooling was the acute shortage of qualified teachers. Colleges and universities were only graduating a fraction of those needed, forcing districts to increase class size and, more troubling to some, hire unqualified applicants. . . College students found little incentive to enter the teaching profession, and the few well-qualified teachers increasingly turned their backs on the classroom, citing low pay and prestige, as well as greater opportunity in the rapidly expanding postwar economy. Those left behind willing to tend the overcrowded classrooms were far from the intellectual leaders of the day. Horror stories of children being taught by cab drivers and busboys made their way into the news. (2002, p. 12)

This passage, with its talk of college graduates uninterested in a low-pay, low-status teaching career, cries out for mention of SUPRAD, arguably the 1950s most ambitious attempt to attract well-qualified teaching candidates. So what books and articles on postwar education—beyond those of Silberman, Powell and Morse—do discuss SUPRAD?

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[13] SUPRAD had a second important purpose, inherent in its name: the program aimed to foster cooperation between three school systems (Newton, Lexington and Concord) and a university (Harvard).

Studies of SUPRAD: Newspapers

During its years of operation (1957-1964), SUPRAD received substantial journalistic and scholarly attention, though in the latter case most articles were written by SUPRAD participants themselves. Journalistic interest in SUPRAD was widespread during the life of the project, with some one-hundred relevant articles available today on newspapers.com. Newspaper coverage of SUPRAD was spurred by an April, 1957, Harvard press release announcing "a new program of education":

> Harvard's Graduate School of Education and the school systems of Concord, Lexington and Newton will be the laboratories for a new program of education. The program, financed by a $290,000 grant from the Fund for the Advancement of Education, is designed to foster close relations between the public school systems and a private university. Announcements of the program today called for relations between the university and school systems "analogous to those which have long been in effect between medical schools and teaching and research hospitals." ("New program," 1957, p. A26)

Following the official launch of the SUPRAD project in the fall of 1957, a number of articles appeared in Boston area newspapers, each article typically covering not SUPRAD as a whole, but one of SUPRAD's practices (team teaching, contract marking, etc.). Representative of these articles was a December, 1958, piece in the *Boston Globe* ("Newton Has Teachers Who Only Lecture") which credits Newton High's "large-group lectures" with "[shattering] the old idea of one teacher to 30 pupils in each subject and every period" (Forman, 1958, p. 25). This article, which quotes Newton High School principal Harold Howe II on the morale-boosting value of a team teaching arrangement ("When a teacher can specialize, and is given time to do a real professional job, he'll take pride in that job" [ibid.]), anticipates future newspaper articles about SUPRAD in that it ignores the broader SUPRAD program (Harvard is never mentioned) to focus on one SUPRAD practice: team teaching at Newton High School. This template reappears in another *Boston Globe* article, "Each Lexington Pupil Has a Team of Teachers," published in March, 1959, and describing Lexington's "new idea called 'team teaching' which may set off a revolution in the elementary schools" (Forman, 1959a, 31). As these examples hint, SUPRAD as a whole (a sprawling project encompassing three school systems) received little press coverage, with attention instead going to components of the project.

A key moment for newspaper coverage of SUPRAD was the September, 1961, opening of Lexington's Joseph Estabrook Elementary School, a state-of-the-art facility that was not only designed by SUPRAD educators, but built with SUPRAD practices in mind.[14] The Joseph Estabrook Elementary School, the Long Beach *Independent Press Telegram* reported in October, 1961, is "the school that has everything":

> The little red schoolhouse ain't what it used to be, and each fall it grows less so. In the past few years, schools have introduced an impressive parade of new "teaching techniques"—teaching by television, tape recordings, machines, "team teaching," "ability grouping," varying class size. Now a school has been designed here which provides all these innovations under one roof. Opened last month, the one-story 21-room Joseph Estabrook School already is being called "the school of tomorrow". (Kiester, 1961, p. 127)

This passage calls to mind Neil Sullivan's 1963 description of the Free Schools' "nongraded program": "It had to be nongraded; it had to be interage; it had to be narrow range; it had to be team teaching; it had to be large-group, small group instruction" (p. 1). For reasons that were clear to many SUPRAD educators, fair assessment of whether SUPRAD programming worked had to await construction of purpose-built schools, largely because traditional schools, to quote a 1968 Educational Facilities Laboratories report, "stand as handicaps to new programs and new thinking in education" (p. 85). The October, 1961, *Independent Press Telegram* article cited above is important because for the first time SUPRAD is treated as a *program*, that is, as a set of complementary practices—and this despite the acronym "SUPRAD" not appearing in the article (although the Harvard School of Education is mentioned).

In September, 1962, the *New York Herald Tribune* syndicated a report on the SUPRAD project. Appearing in a number of newspapers under various titles (e.g., "Better Teaching with SUPRAD;" "Research Program Promises Better Educational Solutions"), the article by Terry Ferrer improves on earlier articles on SUPRAD by describing not only the problems SUPRAD was meant to solve, but also how individual SUPRAD programs might solve these problems. The article also—importantly for my research—hints at SUPRAD's Space Age origins:

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[14] The school's website opens its "History of the Estabrook School" by noting: "In 1957, Harvard University and Lexington Public Schools (Franklin School) engaged in a progressive partnership called the SUPRAD project (School and University Program for Research and Design [sic]) that led to the design and build of the original Estabrook School, which opened in 1961 and became one of the first team teaching schools in the United States" (Estabrook).

> Working with a small nest egg of $1,084 million, SUPRAD has engaged in some two dozen projects ranging from team teaching to revamped junior high school mathematics taught by teaching machine. A SUPRAD computer has gobbled up the diverse cards of boys and girls who want to take driver training and Latin the same year (only to find they are scheduled at the same time of day) and automated out the problem. Next challenge for the computer is organizing an entire high-school master class schedule, in a matter of minutes, thus sparing the principal and staff hours of juggling slips of paper and charts. (1962, p. A30)

Ferrer's article is valuable because, although it focuses on SUPRAD's team teaching project (advancing in doing so the inexact claim that "Team teaching was developed by SUPRAD as one answer to keeping the male teacher in the classroom" [ibid.]), it presents SUPRAD as more than just a team teaching project, with a number of SUPRAD's initiatives described, including use of teaching machines in mathematics instruction, computer automation of scheduling, employment of student interns ("to spruce up the sometimes dull process of learning to be a teacher" [ibid.], and experimentation with contract correctors. In many respects, Ferrer's article provides the best possible introduction to SUPRAD, as it presents the Harvard project in something approaching its full complexity: "SUPRAD has engaged in some two dozen projects ranging from team teaching to revamped junior high school mathematics taught by teaching machine" (ibid.).

Studies of SUPRAD: Journals

The most informative articles on SUPRAD were published by SUPRAD educators. In January, 1958, three months after SUPRAD's launch, the *NASSP*[15] *Bulletin* published a special issue on staff utilization, focusing on the research of J. Lloyd Trump[16] (three articles by Trump are included), but also introducing SUPRAD through the words of two SUPRAD participants, Harvard professor Matthew Gaffney and Newton High School teacher Floyd Rinker. Like most newspaper articles about SUPRAD (Ferrer's is an exception), these articles focus on particular SUPRAD practices (team teaching in Gaffney's case, the Newton Plan in Rinker's), obscuring as

[15] National Association of Secondary-School Principals.
[16] Trump was a University of Illinois professor who in the mid-1950s headed the NASSP commission charged with studying staff utilization in secondary schools. The commission's report (informally called the 'Trump Report') was widely discussed following publication, including by SUPRAD educators. In 1959, EFL convened at conference at the University of Michigan to discuss the Trump Report.

a result the scale of the SUPRAD project. That said, the Gaffney and Rinker articles, unlike most newspaper pieces, discuss the thinking behind the SUPRAD project, offering as a result a chance to understand SUPRAD's aims. In discussing SUPRAD, Gaffney relies on two Keppel-authored documents—a 1955 report to the president of Harvard, and an early version of Keppel's original Ford Foundation proposal—to discuss SUPRAD,[17] leading Gaffney to follow Keppel's lead and portray SUPRAD as primarily a team teaching project:

> For a number of years, Dean Keppel of the Graduate School of Education at Harvard, in his annual reports to the President of Harvard stressed the needs of a "breakthrough" in secondary education. In his report of the year 1954-1955, he asks if schools should not consider a reorganization which would lead to teams of teaching personnel, including a leader, perhaps certain subject specialists and a staff of junior status including young teachers and "aids." (1958, p. 188)

Having summarized at length Keppel's rationale for teaching teams, Gaffney presents SUPRAD as a reflection of that rationale:

> The thought and planning thus expressed in the working document of the Harvard Graduate School of Education [i.e., Keppel's original proposal] resulted in a collaboration of the faculty of the Graduate School with a group of neighboring public school systems. The program has been designated "Suprad" [and] has financial support from the Fund for the Advancement of Education. (Ibid., p. 192)

Gaffney, like Keppel, sees SUPRAD as a team teaching project, a reasonable perception given the project's origins, and a perception shared by most journalists commenting on the project. That said, it's important to recall that some journalists, Terry Ferrer, for example, acknowledged in their reporting that SUPRAD was more than just a team teaching project, resulting in articles (some very detailed) where team teaching is not mentioned (e.g., "Concord Teaches Languages in the Laboratory" [Forman, 1959b, p. 13]). What these contrasting treatments of SUPRAD reveal is contemporary uncertainty about the program's design and purpose.

Floyd Rinker's *NASSP Bulletin* article also focuses on a single component of SUPRAD, the "Newton Plan," a project located at Newton High School and already up-and-running when SUPRAD launched. The "Newton Plan Studies" committee, Rinker comments,

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[17] Rinker had two years' experience with the Newton Plan to draw on.

> is fortunate to be working with the Graduate School of Education, Harvard University, under a grant from the School and University Program for Research and Development. A joint committee of Harvard and Newton Plan workers have agreed on the conditions and requirements necessary for a complete, discriminating, and technically sound evaluation. (And release of information to the public concerning this evaluation of Newton Plan will be manually coordinated by Harvard and the Newton Plan Studies staff.) (1958, p. 78)

The Newton Plan, as Rinker explains in his article, aimed to answer a number of questions, the most important being: "Can a secondary school adopt the lecture-seminar plan of the university to improve the educational opportunities offered boys and girls?" (p. 70). To answer this (and other) questions, the Newton High English department implemented in the mid-fifties a system of large classes, where teacher-lecturers spoke in an auditorium to groups ranging from 60 to 425 students, "according to subject matter and the lecturer's preference" (p. 71), allowing as a result "classroom teachers time for conference, paper correction, and lesson preparation" (ibid.). Like team teaching, the Newton Plan was an exercise in "staff redeployment," that is, in answering the question (posed in Rinker's article) "Are there ways to redeploy the present teaching staff so that each individual takes on a task for which he is best fitted?" (p. 70). And while the Newton Plan is not a type of team teaching (the word "team" does not appear in Rinker's article), it, like team teaching, takes advantage of the fact that each teacher has unique strengths and weaknesses. In this sense, the Newton Plan—again like team teaching—tries to bring flexibility to the practice of teacher (re)assignment.

A second *NASSP Bulletin* special issue on staff utilization was published in January, 1959, and again a SUPRAD participant shared his experiences. Henry Bissex, a Newton High teacher-lecturer, described three years of Newton Plan operations, emphasizing Harvard's three-year-long (and continuing) evaluation of the Newton Plan. Bissex, discussing the 1959 school year, writes "The School and University Program for Research and Development (SUPRAD) continues its support of the evaluation conducted by the Harvard Graduate School of Education. SUPRAD also supports the special Program in the language department"[18] (p. 119), a brief but telling passage that reveals both how long Harvard had been involved with the Newton Plan and

[18] The "special program," Bissex explains, "was housed in "a language laboratory installed last summer [that] provides the setting for completely new techniques of teaching modern languages. The laboratory is equipped with ten compartments, each with earphones, turntables, and two-way communication for taped lessons and for questioning." (1959, p. 109).

the expansion of that involvement into areas other than English. The Bissex article is important because it reveals that Harvard educators were evaluating the Newton Plan prior to SUPRAD's launch, raising the possibility that Francis Keppel's notion of teachers working in differentiated "teams" emerged, at least in part, from his familiarity with the Newton Plan.[19]

In January, 1960, the *NASSP Bulletin* published a third special issue on staff utilization, featuring another article on SUPRAD, "The High School Principal in Newton, Massachusetts, Responds to Re-deployment," by Harold Howe, principal of Newton High School. Relating his experiences with SUPRAD, Howe, unlike his colleague Floyd Rinker, discusses topics other than use of teacher-lecturers, describing two other SUPRAD practices,[20] a contract-correcting project and a foreign-language project, identifying them as key components of the Newton Plan. In presenting the Newton Plan as multi-faceted, Howe's article reveals that SUPRAD was about more than reorganizing (or re-deploying) teachers, with two of the Newton Plan's programs unrelated to teacher redeployment.[21] Hinting at SUPRAD's wide scope, Howe's article reveals that SUPRAD was a disruption at Newton High School. "Special projects of the kind we have undertaken demand a tremendous amount of administrative energy and time. Not only do these projects place extra burdens upon everyone in the school's regular administrative hierarchy, but also they require the appointment of special people to co-ordinate daily activities, as well as to make detailed plans for the future" (p. 132). If Howe here sounds disenchanted, the reason likely relates to his sense that the Newton Plan (and SUPRAD's role in the Newton Plan) had yet to prove its worth: "That there have been discomforts involved, we cannot deny; just as we cannot deny that we have made mistakes—and even occasionally exaggerated our accomplishments. However, I am convinced that we are closer than we were some time ago to appreciating the fact that the frontiers of any enterprise constitute an exciting place in which to live and work" (p. 138).

Arguably the most important article on SUPRAD ("School and University: Partners in Progress"), by Francis Keppel and Paul A. Perry, SUPRAD's originator and assistant director respectively), appeared in the January, 1961, issue of *The Phi Delta Kappan*. Providing a view

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[19] The Newton Plan launched in 1956, the same year Keppel submitted his original proposal to the Ford Foundation.
[20] Harold Howe identifies Newton High's teacher-lecturer project as one of three "Newton Plan" projects.
[21] Newton High's contract-correcting project hired "specially trained, but non-professional, personnel" (Howe, 1960, p. 123) to mark English essays and exams, while its foreign-language project used "special recordings. . . to capitalize on the capacity of teenage students to teach themselves." (Ibid.).

from within, Keppel and Perry's article links SUPRAD (identified as "An Extension of Earlier Efforts" [p. 176]) to previous Harvard projects aimed at "[encouraging] liberal arts graduates of high academic standing to enter teaching, to improve relationships between faculty members in education and in the arts and sciences, and to develop more effective programs of graduate training for prospective teachers" (ibid.). Roll-calling SUPRAD's key practices, Keppel and Perry suggest that SUPRAD, as a school reform project, is notable for the variety of its studies:

> During its first three years of operation, SUPRAD has supported a dozen projects ranging from short-term, exploratory studies to long-term investigations of considerable scope and depth. These have included studies of team teaching in an elementary school (the Franklin School in Lexington); the teaching of social studies to secondary students (in Emerson Junior High School in Concord); grouping practices at the junior high school level (at Day and Meadowbrook Junior High Schools in Newton); the use of large-group instruction for high-school students (at Newton High School); and the dissemination of research information to school teachers and administrators. (Ibid.)

As SUPRAD insiders (few SUPRAD participants had access to the project's inner workings[22]), Keppel and Perry were positioned to know both the cost of the project and the program's goals. After noting that "in the spring of 1959. . . the Ford Foundation made grants totaling nine million dollars to nine colleges and universities," Keppel and Perry add:

> [Of this money. . .] Harvard Graduate School of Education received a $2,800,000 grant[23] for an eight-year program concentrated on three major objectives: the establishment of career patterns for potential teachers and other educational specialists; the improvement of relationships between scholars and the schools; and the continuation of research and development activities within this cooperative relationship. (1961, p. 177)

These objectives are in line with objectives outlined in Francis Keppel's original application for Ford Foundation funding. As the Ford Foundation's eight year grant suggests, SUPRAD was always seen as a long-term project, raising questions about what, if anything, changed as the project developed. These questions will be addressed in a later chapter, but for now it's worth noting that Keppel and Perry, writing in 1961, considered SUPRAD to be in its early days: "In

[22] Despite his importance to the project, Harold Howe was not a member of SUPRAD's administrative board, a situation that rankled him: "[We] have fumbled along with some sense of purpose and with a fair amount of efficiency in terms of handling our day-to-day problems." (1960, p. 133).
[23] $29,000,000 in 2025 US dollars.

attempting to sum up the current status of Harvard's efforts, we must first emphasize that we have barely begun on the long-range program made possible by the 1959 Ford Foundation grant" (p. 179). And what, in Keppel and Perry's eyes, was this long-range program meant to achieve? "In the years ahead we hope to see more progress in the following areas," they write,

> 1. Commitments from school systems for financial support of full-time study by their experienced teachers.
>
> 2. An increase in the number of liberal arts college undergraduates planning integrated five-year programs leading to teaching careers. . .
>
> 3. More clearly defined roles and career patterns in the school systems, with provision for superior candidates to move into them.
>
> 4. A workable and efficient system of sharing new knowledge gained from research and development activities. . .
>
> 5. Permanent financing for many phases of research and development, which cannot depend indefinitely upon foundation philanthropy. (1961, p. 180)

This list is noteworthy for two reasons, first, because it catalogs SUPRAD's most important aims (better teacher training and organization of teaching staff; more funding for research on teaching; improved practices for dissemination of research on teaching), second, because it reveals Francis Keppel's long-term commitment to these aims. On the second point, careful reading of Keppel's 1956 SUPRAD proposal finds Keppel aligning his proposed program with each of these aims, albeit in different words than found here.[24] Of course, this isn't to argue that SUPRAD unfolded exactly as Keppel expected or hoped it would, but only to point out that Keppel's program began as and remained a project with two overriding goals, (1) fostering of cooperation between school systems and universities to the benefit of the former, and (2) trialing of a team teaching system.

Two more articles on SUPRAD should be mentioned, both focused on team teaching. In 1960 Harvard professors Robert Anderson, Ellis Hagstrom and Wade Robinson published an article in *The School Review,* "Team Teaching in an Elementary School," the first journal article to explain how SUPRAD teachers are deployed in a classroom: "In 1957-58 the personnel of

[24] For instance, if Keppel and Perry's 1961 article associates SUPRAD with "Commitments from school systems for financial support of full-time study for experienced teachers," Keppel's original proposal recommends "Fellowships for full-time graduate study of 'career' personnel to prepare for new positions." (1956a, p. 70). In both cases career teachers are supported in study, the difference being responsibility for funding has moved from the Ford Foundation (1956) to school systems (1961). This shift makes sense given Keppel and Perry's observation (point 4 above) that foundation philanthropy cannot be relied upon "indefinitely". (1961, p. 180).

Franklin School in Lexington, Massachusetts, were reorganized into four teams," the article begins, continuing:

> Two of the teams were large, composed of five or six teachers. Two were small, composed of three teachers. The titles team leader and senior teacher were used to designate teachers who had responsibility for leadership in the teams. Classwork in each team was planned jointly by all team members, and through various redeployment procedures the children were taught in groups that ranged in size from six to more than a hundred. (1960, p. 71)

The program described here, as Anderson notes elsewhere (1960, p. 3), was the first test in any setting of an experimental team teaching program. For this reason, Anderson and his co-authors' article is important not only as a record of team teaching's "exploratory year, during which the participants hoped to discover whether a hierarchical pattern of team organization was feasible" (1960, p. 73), but also for its treatment of the rationale behind team teaching, and so of SUPRAD itself. SUPRAD was founded, the authors note, for two reasons: first, to encourage cooperation between public schools and universities "in programs of research and development" (ibid., p. 72), second, to bring "first-rate people" into teaching by offering "opportunities for professional growth in the typical school" (ibid.). Much of this would have been familiar to readers of newspaper articles about SUPRAD, but Anderson and his co-authors offer something new in cataloging the "many beliefs and practices [the Franklin School Project] has chosen to challenge" (ibid., p. 75). Their project, they explain, challenges:

> [the belief that] individual professional autonomy, as exemplified in the self-contained classroom, is conducive to professional growth and satisfaction. . .
>
> [the belief that] the assignment of differential rewards, status, and responsibility to teachers will lead to poor morale and low productivity. . .
>
> [the belief that] there are advantages in having a single teacher manage all the subject-matter instruction for a given class. . .
>
> [the belief that] the ideal size of classroom groups for all kinds of instructional purposes is somewhere between twenty and thirty. . .
>
> [the belief] that the lecture technique of teaching and its variants are essentially unsuitable as instructional approaches to young children. (Ibid.)

"Team organization may be understood best," Anderson and his colleagues add:

> against the background of the more common organizational pattern of self-contained classrooms. In the typical self-contained organization, some twenty to thirty pupils are assigned to each teacher, and each group is placed in a classroom where most of the instruction takes place at the hands of that one teacher. She is expected to have the skills and the knowledge for competent instruction in virtually all the subject-matter areas. She must provide as best she can for the range of individual needs and abilities in her group. (Ibid.)

These, then, are some of the orthodoxies team teaching challenges, and while Anderson and his co-authors are forthcoming on *how* team teaching challenges them (e.g., "groups of teachers take joint responsibility for the instruction of a segment of the school population" [p. 76]), they are reticent on *why* such challenges are advantageous—perhaps because team teaching was in 1960 an experimental practice whose benefits had yet to be demonstrated. That said, Anderson *et al* are willing to discuss *anticipated* advantages of team teaching:

> The goal is flexible grouping based on specific instructional needs. Thus the team may deal with its pupil complement as a total group, or it may regroup and subdivide the pupils in much the same way that the teacher of the self-contained classroom groups and regroups the pupils who are her responsibility. [. . .] [A]ctivities that seem to require a high rate of interaction between pupils or between pupils and teacher can perhaps best take place in small groups ranging in size from ten or twelve down to a few. The flexibility of pupil grouping and redeployment facilitated by the team organization seems to offer a solution to this problem. (1960, pp. 79-80)

An important benefit of team teaching, this passage suggests, is that it allows for assortment of pupils into groups of various sizes—large groups for some activities, small groups for others—with different teachers responsible for different groups. Flexibility in class sizes, as Anderson and his co-authors know but don't mention, inevitably leads to calls for flexibility in class*room* sizes, a key development in the SUPRAD story that preceded this article by several years.

As Robert Anderson knew, SUPRAD was more than just the Franklin School team teaching project. This knowledge notwithstanding, Anderson, in April, 1961, published "School-University Cooperation and the Lexington Project," another article conflating SUPRAD and the Franklin School Project, though here the latter is called by a new name: the "Lexington Project."

> One of the more interesting and important developments that may be noted on the educational scene today is a tendency for school systems and universities to join forces in the search for better school practices. One such partnership has existed in New England since 1957 in the form of the School and University Program for Research and Development (SUPRAD). . . A large enterprise supported by SUPRAD has been the teaching-teams project in Franklin Elementary School in Lexington, a project begun in 1957. (1961, p. 282)

While Anderson's 1961 article expands our understanding of the Franklin School project, discussing "problems and opportunities that arise from the existence of such a project under school-university sponsorship" (ibid.), this expansion comes at a cost, primarily because the "problems and opportunities" Anderson explores are so specific (e.g., the article details a six-level "Administrative Chart of the Franklin School Project") that their discussion constitutes something of an 'anti-overview' of SUPRAD. This matters because SUPRAD, to the extent it is later examined by non-SUPRAD-affiliated authors, is nearly always presented as a team teaching project, with SUPRAD featuring not in studies of (for instance) Space Age school reforms, but in histories of team teaching. And while these histories often say insightful things about SUPRAD, treating it as team teaching's proving-ground, they don't, or can't (given their subject matter), do the project justice.

SUPRAD as Team Teaching

Before discussing what non-SUPRAD commentators have written about the project, I need to discuss another genre of writings about SUPRAD, namely books about team teaching written or edited by SUPRAD-participants. Two such books exist, *Team Teaching in Action* (1964, co-authored by Medill Bair, superintendent of Lexington schools), and *Team Teaching* (1964, co-edited by Judson T. Shaplin, Keppel's assistant at Harvard in the early-1960s[25]). Both books draw many of their examples from SUPRAD schools, repeatedly referencing SUPRAD

[25] In a preface, Shaplin and his co-editor Henry Olds document their ties to SUPRAD: "The editors also wish to express their appreciation to their colleagues, Francis Keppel, Leonard M. Lansky, and David V. Tiedeman, for their encouragement and advice; to the School and University Program for Research and Development (SUPRAD) for making available to us their facilities and staff; and especially to Wade M. Robinson, Executive Director of SUPRAD, for his stimulating criticism and for his help in solving many of the problems encountered in preparing this book." (Shaplin and Olds,1964, p. xv).

while explaining how a team teaching program might be funded, staffed, and operated. In itself, this is unobjectionable; in the early-1960s Lexington's team teaching program was the best-funded and most-ambitious team teaching program in the United States. The problem arises when SUPRAD is presented as exclusively a team teaching project, with its other components downplayed or ignored. Bair's book, admittedly, concedes that SUPRAD includes "a variety of research and development programs" (p. 185), but no other program is named. What matters is not that a book on team teaching draws examples from the SUPRAD project, but rather that in doing so the book implies that the only interesting thing about SUPRAD was its team teaching component, as happens here: "The mechanism of Harvard's SUPRAD came into being at least in part to enable a clinical partnership to he established between a school system and the university so that promising ideas such as team teaching could be tested under favorable conditions" (Anderson, 1964a, p. 174). Passages like this help explain why SUPRAD, when discussed by historians of education, is treated as a team teaching project.

Examples abound to illustrate this last point. One example is Martin Mayer's 1961 book, *The Schools*, described in Mayer's preface as "the result of some thirty months of observing, interviewing, reading, and (briefly) teaching" (p. xiii), all in the service of "[getting] at the realities of education" (ibid.). While not a book about team teaching, *The Schools* includes (in a chapter on "tools and technology") a detailed section on team teaching that begins and ends with discussion of SUPRAD. Mayer opens his book by quoting Francis Keppel, who describes one problem SUPRAD is meant to solve: "You want to teach kids? We'll put you in a classroom at twenty-one or twenty-two, you'll always have the same number of kids, no change in your job, no change in influence, the salary goes up because you live longer'. . . The problem is the lack of increase in responsibility, not the lack of salary. There's no connection between the career a man can see in the schools and what he can see in academic life or law or medicine, etcetera" (Keppel in Mayer, 1961, p. 387). "Harvard's attempt to solve this problem," Mayer writes,

> goes under the name of SUPRAD, the initials chosen, somewhat erratically, from *S*chool and *U*niversity *P*rogram for *R*esearch and *D*evelopment. Its most important single project has been "team teaching," which in the elementary grades would free teacher and child from the self-contained single classroom and the idea of "my class." Instead of eighteen teachers and eighteen classes in a six-grade school with 550 pupils, there would be three to six "teaching teams" of varying size, each responsible as a whole for 90 to 250 students.

> Each member of the team would work part of each week with some of the students in the group. (Ibid.)

Mayer's treatment of SUPRAD is important for two reasons, first, it is more extensive than other non-affiliated treatments (e.g., Silberman, Powell, Morse,), second, although it does present team teaching, and so SUPRAD, as a possible solution to the postwar teacher shortage, it follows this discussion with examination of other problems SUPRAD can potentially solve:

> Team teaching can offer certain advantages in itself, apart from the recruitment argument. Teams which work with several grades at once can more easily break down "grade-placement" barriers and teach children material which they have missed or which they would not learn until later under a rigid grade system—though it has been necessary in Lexington to keep team teachers working with the grades they had taught before. Part-time specialist teachers are more easily integrated into a team program. The individual child's needs and talents are more likely to be seen when several teachers are looking at him, and meeting once a week to exchange their views. (1961, p. 389)

Team teaching, Mayer concludes, "seems in itself a desirable goal" (p. 390), a conclusion that motivates him to discuss non-SUPRAD team teaching programs: "in Norwalk, Connecticut (with the help of Harvard's Judson Shaplin), in Long Beach, New York (under the auspices of the NYU college of education), and in Baltimore (with a program launched by John Fischer before he became dean of Teachers College" (ibid.). Notwithstanding an over-the-top ending ("If the teaching community can be brought to accept [team teaching] and use it, American educators a century from now may make annual pilgrimages to lay flowers at the tomb of Francis Keppel, the founder" [ibid.]), Mayer's treatment of team teaching highlights the important role SUPRAD played in the formation and development of the practice.

Mayer's book, although not about team teaching *per se*, includes more information on SUPRAD than do books where team teaching takes centre stage. To cite two examples, if Nicolas Polos's *The Dynamics of Team Teaching* (1965), which "[attempts] to portray team teaching in its own light, as seen by educators actively engaged in the projects" (p. v), credits SUPRAD with "some of the original experiments in team teaching" (p. 4), and Edward Buffie and Gerald Smith's chapter in *Educational Manpower* (edited by James Olivero and Edward Buffie) describes SUPRAD as a "pioneer project in team teaching" (p. 265), neither text has anything more to say about the Harvard project. What this reveals is that SUPRAD as a school

reform project has only ever interested three groups: education reporters describing the "school of tomorrow," SUPRAD participants discussing their own work, and a few historians of school reform. As noted above, there is a place for SUPRAD within the narrative of Space Age school reform, in the section of the story detailing solutions to the postwar teacher shortage problem. My discussion of SUPRAD places the program there, but only as precursor to explaining why SUPRAD was more than a team teaching project.

Chapter Two: Conceptual Framework

This thesis describes Harvard's SUPRAD endeavour in two dimensions, as both an autonomous undertaking, and as antecedent to five affiliated endeavours: Educational Facilities Laboratories, the Nova School, the Prince Edward County Free Schools, Berkeley's educational park project, and Boston's Operation Schoolhouse. When I began writing the thesis, I quickly realized that if I wanted to map relationships between these six projects, I first had to transform the acronym "SUPRAD" into a noun modifier,[1] allowing me to discuss such concepts as a "SUPRAD practice," a "SUPRAD school," and a "SUPRAD educator." In tracing the origins and development of the SUPRAD project, my thesis relies on five terms, defined below:

SUPRAD. A Harvard-directed endeavour launched in 1957 that brought together Harvard researchers and the school systems of Lexington, Concord, and Newton, Massachusetts.

SUPRAD practice. Any of the teaching/learning practices assessed during a SUPRAD project, e.g. team teaching, nongraded classes, or programmed instruction.

SUPRAD educator. A teacher, intern, or administrator who participated in SUPRAD.

SUPRAD school. A school staffed or administered by SUPRAD educators that is designed to facilitate use of SUPRAD practices.

SUPRAD pedagogy. Interactions between educators, students and the learning environment and learning tasks as they transpire within a SUPRAD school.

This last definition captures something significant about the SUPRAD program, namely that SUPRAD educators aimed to create a *system* that could be implemented in any school district, accepting the district in question was willing to listen to SUPRAD educators, build SUPRAD schools and adopt SUPRAD practices, something many districts were in the 1960s willing to do, either because a SUPRAD educator was in charge (Prince Edward County; Berkeley; Boston) or because local officials were impressed by SUPRAD practices (Broward County, Florida). At the heart of this thesis is an analysis of SUPRAD pedagogy, discussed first as a set of practices, next as beliefs about why those practices are effective.

All this is to say that among the more important concepts in this thesis is "pedagogy," defined below and used throughout the thesis as shorthand for a set of beliefs about best practices in schooling. Developed over a six-year period, SUPRAD pedagogy promoted various teaching

[1] Noun modifiers are found everywhere in ordinary language: "computer scientist," "weather report," "bicycle race."

techniques and classroom practices through assertion that Space Age conditions gave schools certain obligations, a key one being to individualize each instructional situation to meet the needs of both students and teachers. Encouraging schools to embrace two complementary values, differentiation and flexibility, SUPRAD pedagogy held that in a rapidly-changing world all aspects of schooling—teachers, lessons, facilities—had to be adaptable. The notion of a SUPRAD "grammar of schooling" is also important in my research, helping explain what was new about SUPRAD pedagogy. My conceptual framework also includes two ideas that are particularly helpful in studying the Space Age, the notion of a "technocracy" (i.e., a social order where experts dominate policy debates), and the concept of an "American rocket state". Because consummate technocrats in a technocratic nation, SUPRAD educators received a fair hearing—especially when they argued that technocrats must be heard.

Defining "Pedagogy"

To analyze SUPRAD pedagogy (or another pedagogy) one must first determine what a pedagogy is. The term "pedagogy," as Rajendra Kumar Shah and Sanothimi Campus explain, can have either a narrow or a broad definition depending on whether the definition references only "teaching techniques and classroom practices" (2021, p. 14) or whether, in contrast, the definition expands to include "non-technical influences on classroom interactions and practices" such as "the material, institutional, discursive, and axiological norms and negotiations that both shape and are shaped by pedagogical encounters" (ibid.). Making their case for the superiority of the latter definition, Shah and Campus draw on an abundance of scholarship:

> As noted by Osaki and Agu (2002) "The community, the district and the nation surround the classroom and limit, as well as influence, what takes place within it …" (p. 104). Therefore, pedagogy and teaching knowledge are "culturally and socially shaped by shared meanings derived from social interaction and practice… tacit as well as explicit knowledge, including values, attitudes and feelings" (Bermeo, et.al., 2013, p. 41). Not only do the parameters of knowledge (in the form of the official curriculum) and the social and moral norms of the community shape pedagogy, but so too, do the material (including physical and financial) conditions (Vavrus & Bartlett, 2012; Vavrus & Salema, 2013). (Ibid.)

This patchwork passage hints at widespread support for a broad definition of "pedagogy," one that includes much more than just teaching techniques and classroom practices. At minimum, a pedagogy emerges from particular cultural conditions, themselves shaped by time- and place-bound conditions, meaning that, for instance, a pedagogy developed in 1950s America *must* differ from a pedagogy that arose in 21st century Canada, if only because (in Robin Alexander's words) "Teaching is a deliberate cultural intervention in individual human development that is saturated with the values and history of the society and community in which it is located" (2008, p. 173). What this means for an investigation of SUPRAD is that such an investigation must attend to conditions in Space Age America, where, as one historian notes, "the public possessed an apparently insatiable appetite for information about space science and technology" (McCurdy, 1997, p. 94). SUPRAD pedagogy, as will become clear in a later chapter, harnessed this appetite, less by promoting a science- or technology-based curriculum than by celebrating the types of expertise possessed by scientists and technicians. "Pedagogy cannot be disembedded from the wider education system," Patricia Murphy argues, continuing: "So, in order to address what is an effective pedagogy, we must be agreed on the goals of education" (1996, p. 35). For Murphy, then, analysis of a pedagogy necessarily involves study of education's goals—at least as certain pedagogues saw them. In the context of SUPRAD pedagogy, this claim raises questions that are reassuringly similar to questions raised by Shah and Campus's (and Alexander's) definitions of pedagogy, e.g.: What did SUPRAD educators hope to achieve through promotion of SUPRAD ideas? To what degree did these educators' hopes reflect "the material, institutional, discursive, and axiological norms" (Shah and Campus, 2021, p. 14) of Space Age America?

Only by defining pedagogy in a broad way—as a "uniquely human device for both the reproduction and the production of culture" (Watkins, et al., 2015, in Shah and Campus, 2014, p. 14)—do we position ourselves to appreciate the many challenges SUPRAD pedagogy posed to traditional pedagogy.

The Traditional Grammar of Schooling

A good example of a pedagogy is David Tyack and William Tobin's "grammar of schooling," which they define as "the regular structures and rules that organize the work of instruction" (1994, p. 454). The grammar of schooling, for Tyack and Tobin, includes "standard organizational practices in dividing time and space, classifying students and allocating them to

classrooms, and splintering knowledge into 'subjects'" (ibid.). As Tyack and Tobin note, multiple grammars of schooling exist at any one time, with, to take an obvious example, elementary schools organized differently than high schools. In the former case, "People are accustomed. . . to elementary schools that are divided into *grades* in whose *self-contained* and *coeducational* classrooms pupils are taught several basic subjects by a *single teacher*" (ibid.). In contrast, in the case of a high school people are used students being taught by many teachers, one for each subject. These and other standard organizational practices can be distinguished from the values and beliefs that inform, sustain and justify them. Indeed, only by identifying relevant "sociocultural" (Shah and Campus, 2021, p. 14) material can we fully appreciate what Tyack and Tobin might (*pace* their reference to "traditional grammar of schooling" [1994, p. 466]) call "traditional pedagogy." The traditional grammar of schooling, as Tyack and Tobin note, is durable enough to resist reformist challenges. One explanation for this durability is that the grammar aligns with long-standing beliefs about "the character of a 'real school'" (ibid., p. 456). In their words:

> [The] coherence of educational institutions results in large part from the conformity of institutional forms with general public beliefs. . . congruence between cultural beliefs and organizational forms provides legitimacy and public support and helps to explain similar institutional forms in schools in very different kinds of communities. (Ibid.).

In exploring the ideas that shaped the traditional grammar of schooling, Tyack and Tobin reference nineteenth century Americans' embrace of efficiency, which encouraged educators to "concentrat[e] the work of a teacher on one grade [which] permitted a more precise sequencing of the curriculum and classification of pupils by proficiency. As a result, one teacher could teach all children in the classroom the same subjects, in the same way, and at the same pace" (ibid., p. 458). "Efficiency," needless to say, was just one value embraced by devotees of the traditional grammar of schooling, but its relationship to the grammar exemplifies what Tyack and Tobin call "congruence" between cultural beliefs and organizational forms.

Technocracy

SUPRAD pedagogy relied on technology, whether in the form of movable partitions to allow for transformable classrooms, Skinnerian teaching machines facilitating individualized learning, audio-visual equipment for lecture halls, or computers to assist in scheduling and the

sorting of students. As early as June, 1957, Harold Gores, in his capacity as superintendent of Newton Schools, contacted the engineering firm Bolt, Baranek, and Newman (now Raytheon BBN) to ask about sound suppressing partitions, an inquiry that elicited a response worthy of the Apollo program:

> One point that seems evident to all is that any movable partition element which can easily be used to subdivide a space into two or more simultaneously usable spaces will be an expensive and complicated device. We discussed the problems of assuring air-tight connections between the elements of such a movable partition, the problems of achieving adequate weight in such partition elements, and the need usually for two such elements at any time a closure is provided. We discussed various ways in which corridors and other dead spaces could be utilized to provide further effectiveness in movable closures. It may well be, however, that the cost of such flexibility may prove to be greater than the cost of providing fixed spaces of different sizes for foreseeable needs of smaller and larger rooms. (Newman, 1957, p. 1)

BBN's discouraging reply notwithstanding, Harold Gores, both as a member of SUPRAD's administrative board and later as president of EFL, continued to search for sound-suppressing partitions, maintaining his belief that "flexibility" was a valuable enough commodity to justify ongoing consultation of acoustic engineers. "It was agreed," we read in the 1957 minutes of a SUPRAD board meeting, "that the board might move immediately on this problem by making available to the school system the services of an acoustic engineer on the Harvard or M.I.T. staff" (SUPRAD, 1957g, p. 3). And Harold Gores wasn't alone among SUPRAD educators in seeking technological solutions to teaching/learning problems. For the Newton Plan to work, a 1957 description notes, teacher/lecturers need "the best possible audio-visual equipment [including] "a loud-speaker system. . . film projector and screens, the Vu-Graph,[2] the victrola, the large-size television receiver, the tape recorder and amplifier systems" (SUPRAD, 1957e, p. 12). If all this equipment makes a Newton Plan lecture sound like a rock concert, the comparison is not inapt: both events rely on technology to project sound and images to an audience, with new devices allowing for new forms of communication.

Writing in 1965, William C. Carleton described the United States as a "technocracy," which he defined as a "technicalized, cybernetic, computerized society increasingly run by

[2] A Vu-Graph was a rudimentary overhead projector.

scientists, engineers, and technicians" (p. 487). Because seen as irreplaceable—the only people capable of "controlling and mastering the machine" (p. 493)—technocrats, Carleton argues, are a new elite: "This elite consists of strategically placed scientists and administrators in the leading universities, the national foundations, the big corporations, and government" (p. 496). Inclined to conceptualize society as a device, and so see social problems as technical in nature, technocrats, Carleton argues (pp. 494-497), intuitively seek solutions based on four principles:

1. *Top-down*. (Solutions come from high-level officials and organizations.)
2. *Large-scale*. (Solutions are implemented on a national scale.)
3. *Technology-based*. (Solutions involve a technological fix.)
4. *Transformative*. (Solutions lead to fundamental social change.)

Articles of faith for a 1960s technocrat, these four principles comprise a Space Age ideology, i.e., a set of beliefs whose enactment produced such cultural products as *Star Trek* or SUPRAD. Who makes key decisions within *Star Trek*'s world? Experts and specialists—the very people Francis Keppel hoped would shape educational policy.

As a feature of Space Age culture, technocratic thinking features in writings on the Space Age in many guises, as a "rationalist mindset" (Tribbe, 2014, p. 160), an "idolization of science" (MacGregor, 2008, p. 56), an "engineering approach" (Peoples, 2008, p. 56) "glorification of science and technology" (McCurdy, 1997, p. 93), "systems analysis" (Light, 2005, p. 39), and—perhaps most tellingly—as "Space Age management." This last expression, Roger Launius notes, was a 1960s term-of-art referring to deployment of NASA's administrative techniques in civilian (i.e., non-military and non-space program) areas of American life:

> [It] seems obvious that NASA officials would view the methods that led to success in the space program as adaptable in seeking to solve the other problems of society. James E. Webb, NASA Administrator from 1961 to 1968. . . sought to create a "Space Age America" and argued for the export of the technocracy and bureaucracy needed for Apollo to address societal needs. (Launius, 2008, p. 159)

To describe Space Age culture as technocratic, then, is in part to posit it as shaped by NASA administrators, whether deliberately (as when James E. Webb redeploys NASA resources "to address societal needs") or organically, as when, for instance, Americans embrace NASA's 'can do' attitude, a pioneering spirit holding that all aspects of life (e.g., race relations) can and will

be improved.[3] As Sean Topham shows in *Where's My Space Age?*, Space Age culture comprised a grab-bag of high-tech gadgets: "Motifs from atomic physics decorated everything from tableware to cocktail accessories. . . Aerodynamic fins appeared on cars and kitchen appliances in a celebration of jet-powered air travel" (2003, p. 57). All that said, Space Age culture was also these gadgets' ideological underpinnings, identifiable as a set of technocratic principles together conveying the message that, in Peter Schrag's words, "*they*—the planners, the scientists, the technicians—were taking care of things" (1973, p. 255). Whether watching *Star Trek* or reading about Harvard-sponsored educational reforms, Space Age Americans could rest easy, knowing technocrats had things under control ("Here was paranoia in reverse," writes Schrag [ibid.].) By the end of the 1960s it was a common trope that a nation that could send a man to the moon could accomplish anything it wanted; in LBJ's words: "I'm sick of all the people who talk about the things we can't do. Hell, we're the richest country in the world, the most powerful. We can do it. We can do it if we believe it" (in Fischer, 2006, p. 149).

Many SUPRAD educators were what Howard Segal calls "technological utopians," i.e., people who saw in technology hopes of "[making] the real world more nearly perfect" (Segal, 1985, p. 9). In her 2003 book *Rocket Dreams,* Marina Benjamin pays close attention to such utopians, linking them with a hope-infused "winged gospel" (p. 18) whose message proclaimed "that once mankind perfected the art of bearing itself aloft, the soul too would fly; we would end war, poverty, and inequality and would finally come to see that the similarities that exist among diverse peoples vastly outclass the differences" (ibid). Technology, then, was expected to bring an improved world, one offering humanity an opportunity to "begin anew and learn from our past mistakes" (Benjamin, 2003, p. 19). The notion of beginning anew was central to SUPRAD pedagogy, underpinning SUPRAD educators' aversion to the traditional grammar of schooling, and while SUPRAD educators might have been expected to endorse the traditional grammar of schooling, if only because it propped up a social order that rewarded them, their attitude toward it was far from favourable. To understand SUPRAD's elitist targeting of tradition, one must first grasp the impact of Space Age technologies, which created a sense of a 'before' and an 'after' (the atomic bomb; Sputnik; computers), giving some elite actors the sense that earlier elites had built now-obsolete institutions. Furthermore, as Karen Ferguson explains in *Top Down*, her 2013

[3] As one 1960s African-American resident of Titusville, Florida said: "You can't live in a space age and treat people in antiquated ways." (In Moss, 1997, p. 85).

book about the Ford Foundation, it wasn't only new technologies, but also the election of John F. Kennedy, that led early-sixties technocrats to believe the United States had a chance (in Marina Benjamin's words) "to begin anew." Kennedy's election, Ferguson writes (2013),

> emboldened [Ford Foundation] trustees and the rest of the postwar liberal establishment to act on their ambitions for the nation and the world. Modernization and the other, attendant ideological foundations of postwar liberalism reached the peak of their influence during the New Frontier, restoring the trustees' confidence and impatience to make a real mark on American society. . . modernization once again became a crusade, at home as well as abroad, based on the belief that all could partake in the good life, given the right technocratic tweaks to the system and the appropriate behavioral adjustment. (PP. 49-50)

It's helpful to see SUPRAD as a product of this modernizing mindset, brimming with confidence and certain that technocratic fixes (not tweaks) could improve schools beyond all expectations. The important question, for both the Ford Foundation and SUPRAD educators, was who would fix the system? The answer, in their eyes, was obvious.

The American Rocket State

What was the "Space Age"?[4] The term Space Age, as even a brief survey of its various usages reveals, is deployed in many ways: to refer to an age of space exploration; to evoke an era of technological progress; to denote a period that started a particular year and lasted a specified number of years. "Space Age," writes Alexander Geppert, offering several definitions, "[is] the term commonly used to define 'the period of human exploration and exploitation of outer space'[5] and conventionally applied to the years from the launch of Sputnik, the first artificial satellite, in October 1957 through the six Apollo Moon landings between July 1969 and December 1972" (2012, p. 219). While Geppert's dates define the Space Age as a whole, several historians posit the years 1958-1963 as particularly important for understanding the Space Age, identifying the five-year span as a feverish era during which (in Marina Benjamin's words):

[4] My working library for this project includes eleven texts with the phrase "Space Age" in the title, speaking to a widespread belief that such an age did exist.
[5] Geppert here cites the *Oxford English Dictionary*.

> The astronauts were the ultimate modern heroes. . . These were men who had the "right stuff," the steely nerves, quick-fire responses, and necessary swagger that allowed them to perch atop towering rockets that blasted them clean off the face of the earth. (2003, p. 28)

Why 1958-1963? Primarily because these were the years of Project Mercury, America's first attempt "to develop a single-seat space capsule capable of placing an astronaut in orbit around the earth" (McCurdy, 1997, p. 60). Constituting the first phase of NASA's ongoing mission to explore strange new worlds, the Project Mercury years were the Space Age's exultant period, when one or another successful mission "contributed significantly to a public mood of euphoria and pleasure with NASA's space effort" (ibid., p. 86). In relation to the Space Age as a whole, the particular importance of the period 1958-1963 was its aura of ongoing experimentation, as fundamental questions (Is space travel possible? Can a rocket ship safely return to earth?) were asked and answered. As a 1963 article on Project Mercury noted, "The whole Mercury project may be considered an experiment, in a certain sense. We were testing the ability of a man and machine to perform in a controlled but not entirely known environment" (Kraft, 1963, p. 80).

Subtitled "the rise and fall of the American rocket state," Dale Carter's *The Final Frontier* (1988) describes a United States so beset by fears of Soviet technological superiority that its citizens are willing to invest any resources (national or personal) needed to counter the Soviet threat:

> [The] mission required, according to both President and Vice-President, the voluntary and unified support of the American people. Substantiating his inaugural rhetoric, Kennedy argued that in order to regain ascendancy in what he considered to be a race for global supremacy, Americans *en masse* would have to press themselves into the service of these modern-day pioneers. 'In a very real sense, it will not be one man going to the moon,' he told Congress in May 1961, 'it will be an entire nation. For all of us must work to put him there.' (Carter, 1988, p. 159)

As a result of such rhetoric (and of the events that inspired it), "both American history and American society were invested in the space program generally and in the astronauts specifically. The men who pioneered on that final, inexhaustible frontier took with them more than just the hopes of NASA and the Democratic party: they embodied a nation, a social system, a whole way of life" (ibid.). A "rocket state," for Carter, is a nation whose "whole way of life" is invested in rocketry, which is to say a nation whose citizens venerate technology and technicians, the first-

and second-order creators of that rocketry. Carter, referencing NASA Administrator James Webb, argues that in the early-sixties many Americans saw "space age management" as a panacea:

> To Webb the large-scale integration of men and machinery, of invention and production carried out by the space agency in the execution of the Apollo project comprised both a practical mechanism for the creation of an efficient, benevolent, and liberating social system and a formal paradigm for the rational administration of the resulting society. By combining the engines of private enterprise with the guidance systems of the state, the consumables of industry and the monitors of academia with the impulse powers of science and technology, modern executive systems such as those pioneered by NASA could [in Webb's words] 'meet new needs or effect desired improvements in our situation as a people and a nation.' (Ibid., p. 199)

A rocket state, then is a state ruled by space age managers, i.e., bureaucrats and politicians eager to bring all institutions—government, industry, academia—under their own control. Such a state is, of course, a technocracy, albeit a particular kind where the public—awestruck by rocketry—willingly cedes power to the technocrats.

As teacher-citizens of the Space Age American rocket state, SUPRAD educators assumed responsibility for educating the scientists and technicians (and astronauts) needed to ensure their nation's prosperity. What this meant in practice was that SUPRAD educators promoted schools respectful of the individual, whether a teacher or student, a key belief of rocket state Americans being that individual genius would in the future (as it had in the past) revitalize their nation.[6]

Methodology

My interest in SUPRAD emerged from my study of educational park planning.[7] In brief, my investigation of educational park planning centred on mid-sixties Berkeley, California, where school superintendent Neil Sullivan tried for three years without success to build an educational park system.[8] While investigating educational park planning in Berkeley, I noticed that the same

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[6] Howard McCurdy posits the Mercury astronauts as Space Age iterations of an American archetype: "The bravery of the astronauts touched emotions deeply sealed in the American experience at that time. Young and courageous, each sat alone in the single-seat Mercury capsule, like the 'lone eagle' Charles Lindbergh crossing the Atlantic Ocean thirty-two years earlier. Facing personal danger, they fit the myth of frontier law enforcers, whose grit filled the substance of Hollywood matinees and television screens." (1997, p. 90).

[7] Educational park planning was the subject of my M.A thesis, which was also supervised by Joel Westheimer.

[8] See Brillinger (2016), pp. 82-117.

four names kept appearing in my sources—Harold Gores, Cyril Sargent, Medill Bair, and Harold Howe—rarely emerging together but always appearing in relation to educational park planning. Gores, I learned, helped design the Nova educational park, while Sargent (Gores's colleague at Educational Facilities Laboratories) assisted in planning the Northeast Bronx Educational Park. Medill Bair, I discovered, promoted a Hartford, Connecticut, educational park, while Harold Howe as U. S. Commissioner of Education described his department as "particularly interested in finding one or two great American cities that are adventurous enough to join us in planning the educational park of the future" (1966a, p. 11). The ubiquity of the four names was intriguing, but what really sparked my interest was learning that the four men—along with Neil Sullivan—were all in the late-fifties affiliated with Harvard University's School and University Program for Research and Development (SUPRAD), a school reform project with no obvious connection to the educational park movement.[9]

The educational park concept, I eventually learned, was born of SUPRAD educators' search for a suitable site for their programming, with an exemplary SUPRAD educational park defined not by its size, cost or student population, but by its use of teaching teams in nongraded classrooms. How did this discovery impact my research agenda? Archived at Harvard are the "Records of the School and University Program for Research and Development, 1957-1964," sixty-seven boxes of reports, studies, memoranda, correspondence, proposals, working papers, and photographs—an abundance of material detailing (among other things) the development of the educational park concept. I explored twenty-seven boxes of material, focusing on documents produced by SUPRAD's Committee on Teaching Teams, the program's key group charged with overseeing its foundational project (team teaching). SUPRAD, however, was more than just a team teaching project, so I also explored boxes containing (1) meeting minutes of SUPRAD's administrative board, and (2) SUPRAD annual reports.

"The general design of a case study is best represented by a funnel," Robert Bogdan and Sara Bikel write in words applicable to all qualitative studies, continuing:

> The start of the study is the wide end: the researchers scout for possible places and people that might be the subject or the source of data, find the location they think they want to study, and

[9] Another figure in this SUPRAD/educational park constellation was SUPRAD originator Francis Keppel, who in the 1960s promoted educational parks as ideal facilities for computer-assisted learning: "The very fact that the parks would be new suggests that they would be better fitted to take advantage of the computer technology than existing schools." (Keppel, 1967, p. 36).

> then cast a wide net trying to judge the feasibility of the site or data source for their purposes. . . In time, they make specific decisions on what aspect of the setting, subject, or data source they will study. Their work develops a focus. The data-collection and research activities narrow to sites, subjects, materials, topics, and themes. From broad exploratory beginnings they move to more directed data collection and analysis. (2007, p. 62)

The wide end of my study (to retain the funnel metaphor) was Space Age schooling, i.e., the relationship between Space Age American culture (with its respect for technology and attendant reverence for technocrats) and early-sixties American educational practices, broadly defined to include decisions about curricula, teacher training, and school design. The educational park was a first example of a Space Age school, and—modifying the design of my study as I learned more about my topic—I began to see SUPRAD as the exemplary Space Age educational endeavour, not just in its conventional (for the early-sixties) embrace of technocratic thinking, but also in its insistence on making the world anew, that is, on discarding the traditional grammar of schooling. While SUPRAD is too large a topic for one thesis to fully explore, it works well as what Bogdan and Bikel call an historical organizational case study.[10]

My analysis of SUPRAD documents was informed by Patricia Lina Leavy's notion of content analysis, which she defines as: "the systematic study of texts and other cultural products or nonliving data forms" (2007, p. 227). "Content analysis," Leavy adds,

> developed out of the assumption that we can learn about our society by interrogating the material items produced within the culture. In other words, we can learn about social life, such as norms, values, socialization, or social stratification, by looking at the texts we produce, which reflect macrosocial processes and our worldview. Furthermore, cultural artifacts do not simply reflect social norms and values; texts are central to how norms and values come to be shaped. (Ibid., p. 229).

How does content analysis work in practice? "[C]ontent analysis requires a sampling of data, which are then broken down into 'units of analysis' (such as lines of text, scenes of film, and so forth). The data are then coded, which means they are categorized into preconceived or inductively generated code categories, which may be very literal-specific or larger metacodes that are more conceptual in nature" (ibid., p. 231). Leavy's assertion that an object reveals

[10] "These studies concentrate on a particular organization over time, tracing the organization's development." (2007, p. 62).

something of the society precedes another claim: that a society's norms and values shape the texts that society produces. This latter argument—that "texts and objects that groups of humans produce are embedded with larger ideas those groups have" (ibid. p. 229)—is particularly germane within a Space Age context, where what Howard Segal calls technocratic utopianism ("the belief in the inevitability of progress and in progress precisely as technological progress" [1985, p. 1]) led to invention of a myriad high-tech objects, from teflon pans to air-conditioned educational parks, with each invention reinforcing a belief in the transformative power of technology.[11]

Content analysis is data driven, requiring "a sampling of data [which are] then coded, which means they are categorized into preconceived or inductively generated code categories" (ibid., p. 231). [12] In my case, data was sampled (i.e., sorted) four times prior to coding, first when I decided which archives to visit,[13] second when I selected boxes of documents to explore, third when I chose documents to copy, and fourth when I identified passages to code. Although Leavy associates categorization and coding, categorization in my experience occurs at each stage of the research process, with coding being only one—if the last and most precise—sorting phase.

Archival Research

The paucity of secondary source material on SUPRAD and its affiliated endeavours is balanced by an abundance of primary source material, readily sorted into two categories: (1) 1950s-1960s newspaper, magazine, and journal articles, and (2) archival material. If SUPRAD began as a program of limited scope (operating in three Massachusetts cities), it soon extended its reach, disseminating its programs and pedagogy as far afield as Florida, Virginia, California and elsewhere. As a result, documents bearing on SUPRAD's development are housed in many archives, the most important being:

Harvard University Archives, Cambridge, MA.

This is the key site for research on both SUPRAD and Operation Schoolhouse. There are sixty-seven boxes of SUPRAD material at Harvard, with most of the archived documents related

[11] AstroTurf is an example of a material object only imaginable in a society looking to find a technological solution to every problem. At the same time, the invention of AstroTurf validates a belief that such a solution will be found.
[12] Leary never defines "inductively generated code category," but I take it to be a category that emerges in the course of coding. (In contrast to a preconceived category.)
[13] Texas A&M has an Educational Facilities Laboratories archive, but I chose not to visit it.

to team teaching. The Harvard University archives also hold five boxes of material on Operation Schoolhouse, catalogued under the name "The Harvard-Boston School Planning Project." These latter documents, mostly donated by Robert Anderson (director of Operation Schoolhouse) tell most but not all of the story of Operation Schoolhouse. (The material is from 1966-1968, while the project ran through 1972.)

Rockefeller Archive Center, Sleepy Hollow, NY.

The Rockefeller Archive Center houses the records of the Ford Foundation, including documents bearing on SUPRAD, Educational Facilities Laboratories, and the Nova School—a trio of projects funded by the foundation. My study of this material reveals the three projects to be, in essence, three parts of a single Ford Foundation-sponsored project to revitalize postwar American education.

Arthur J. Morris Law Library, University of Virginia, Charlottesville, VA.

Frederick Ribble was dean of the University of Virginia Law School between 1939-1963, and after retiring accepted a position as trustee for the Prince Edward Free School Association, an organization Ribble would come to direct. Ribble's papers at the University of Virginia hold important material on the Prince Edward County Free Schools, including two boxes of material bearing on Neil Sullivan's time as superintendent of the schools.

John F. Kennedy Library, Boston, MA.

The JFK Library holds the bulk of Francis Keppel's personal papers (others are at the National Archives, see below), including most importantly for my research documents from Keppel's years (1962-65) as Education Commissioner, documents of great interest for what they reveal of Keppel's efforts to import SUPRAD ideas into federal education policy.

United States National Archives, College Park, MD.

The National Archives houses a collection (smaller than that in the JFK Library) of Francis Keppel's personal papers, with the bulk of the material related to Keppel's four years as Education Commissioner. In 1963, Keppel and his staff helped Frederick Ribble (and others)

establish the Prince Edward Free School Association, an undertaking chronicled in the National Archives' Keppel papers.

Amistad Research Center, Tulane University, New Orleans, LA.

Tulane's Amistad Research Center collects, preserves, and provides access to a range of materials linked to the African American experience. Among the materials at Amistad are the 1961-1974 records of the Berkeley Unified School District's Human Relations Office—47 linear feet of documents describing Berkeley's twenty year-long effort to fully desegregate its schools. The presence of BUSD material at Amistad testifies to the material's importance as recognized by both Tulane and Kathryne Favors, long-time director of the BUSD's human relations office, who donated the records.

Chapter Three: SUPRAD in Practice

In July 1960, Robert H. Anderson, then on sabbatical at the University of Wisconsin, prepared a handout for his Education 290 class. Headed "the Literature of Team Teaching in the Elementary School," the handout aimed to help students "recognize genuine examples of team teaching" (p. 1). Anderson, having acknowledged that the origins of team teaching were hard to pin down, noted: "Each organizational innovation has its roots in previous systems of deploying personnel and arranging the pupils' daily program. Undoubtedly certain threads run through the old Lancastrian Plan, or the Dalton Laboratory Plan, or the Winnetka Plan, or Wirt's work-study-play 'Platoon School,' or J.F. Hosic's Comparative Group Plan, or innumerable other grouping plans which have appeared during the past half-century" (ibid.). These embryonic team teaching projects, Anderson added, were unlike one another, with some focusing on "pupils groupings and classification" (ibid., p. 2), and others exploring "class and building organization and design" (ibid.), while still others considered "professional staff utilization, non-professional assistants to teachers, plans for teacher training and induction, teaching aids and devices" (ibid.). None of the nascent projects, in Anderson's opinion, exemplified genuine team teaching, which he identified as a recent and increasingly common ("a noteworthy trend or movement in school organization" [ibid.]) phenomenon:

> To the best of my knowledge, the original project in actual team teaching was begun in 1957 in Lexington, Massachusetts, as part of Harvard's School and University Program for Research and Development (SUPRAD). The document upon which Harvard based its original request for funds from the Ford Foundation was written in 1955-56 by a group of Harvard faculty, and although now virtually out of supply it remains the basic document out of which have sprung a number of projects not only at Harvard but elsewhere. (Ibid., p. 3)

The document referenced here is archived today at Harvard,[1] together with many hundreds of other documents in Harvard's SUPRAD collection. While Francis Keppel's "basic document" was indeed the catalyst for the late-1950s SUPRAD project, Keppel prepared the document in reaction to events in the mid-1950s, meaning the document, like SUPRAD itself, is best studied as both a response and a stimulus.

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[1] The document is archived in a folder labeled "Keppel's 'Basic Document.'"

Francis Keppel and the Origins of SUPRAD

"In December, 1954," we read in a 1956 report by the Committee for the White House Conference on Education,

> President Eisenhower appointed a 34-member Committee for the White House Conference on Education and charged it with responsibilities in carrying out "the most thorough, widespread, and concerted study the American people have ever made of their educational problems." To the Governors of 53 States and Territories, he expressed a hope that each would call a citizens' conference on education, and that the entire program would then culminate in the White House Conference on Education. All 53 States and Territories took part in the program, with more than 3,500 local, county, regional, and State conferences on education being held prior to the White House Conference in Washington November 28-December 1, 1955. (Committee for the White House Conference, 1956, p. 3)

Francis Keppel served as a delegate to both the New Hampshire citizens' conference and the 1955 White House Conference on Education, acquiring along the way a sense that Americans were losing trust in public education. As he wrote in his 1956 Basic Document:

> Americans in all walks of life are worried about the nation's schools. Citizens and educators alike have been talking of a "crisis." Reports have circulated widely on the shortage of well-trained teachers and the need for classrooms to meet expanding enrollments. Curricula and teaching methods have become matters for public debate. Many Americans are now persuaded that the nation allocates inadequate resources to its schools. (Keppel, 1956a, p. 1)

The project that became SUPRAD—the project described in the 1956 document—was Keppel's response to the "crisis" he knew Americans were talking about, a crisis Keppel saw as very real and alarming. Unsurprisingly, SUPRAD evolved over time, as new pilot projects were added to existing ones, with each project aimed at addressing one or another (perceived) imperfection in American education (teacher or classroom shortage; substandard curricula or teaching methods). Before discussing these projects, however, it's important to explore Francis Keppel's thinking as he drew up plans for SUPRAD, asking what he hoped to accomplish with his new program.

"It can be argued that the United States presents the ironic situation of a nation dependant on its scholars and specialists but not allowing them much voice in planning the future of their own field," Keppel told a 1956 audience of educators ("Educator Urges Scholar Role," 1956, p.

20) as he made the case for what the *Baltimore Evening Sun* called "re-establishment of relations between the scholar and the public school" (ibid.) SUPRAD's originating idea—one hinted at in its name—was that universities, specifically university faculties of education, should be in close contact with public schools, a key aim being, as one historian of Harvard's school of education defines it, "to disseminate promising school reforms" (Powell, 1980, p. 269). In Keppel's view, proposals for educational reforms would originate in universities, and then—because universities were working closely with school systems—be promptly implemented in experimental fashion to test their effectiveness. Keppel in his Basic Document, having referenced the 1955 White House Conference on Education delegates' conclusion that a "gap" exists in the United States between "educational ideals and educational realities," proposes

> that a group of nationally influential universities and school systems be given the chance to show how they can help to resolve the crisis, to close the gap. These institutions should be helped to devote their energies to the analysis of the problem as a whole, in contrast to the present piecemeal approach. Both problems and solutions could thereby be viewed from the standpoint of their long-run as well as their short-run implications. (1956a, p. 4)

As he proposes a program—or many programs—of school-university cooperation, Keppel anticipates arrangements akin to those "long in effect between medical schools and hospitals" (ibid, p. 7), arrangements characterized by "tough-minded research and unbiased evaluation of new ideas" (ibid.), through which "professional schools worthy of the name devote analysis to the aims of their profession, to relevant research, and to the training of personnel" (ibid., p. 8). In a sense, Keppel was brainstorming while writing his Basic Document, proposing what would in a half-dozen years be called a "moon shot," his ambition reflecting not a desire to beat the Soviets in a space race, but instead from a need to reassure Americans that they, or their children, would beat the Soviets (or *their* children) in a technological duel. (Or, if needed, in an arms race.)

As Keppel conceived it,[2] SUPRAD was designed to turn faculties of education into well-rounded—"[h]istory and philosophy, and the broad range of the arts, the social sciences, and the physical sciences must be called into play" (ibid., p. 8)—equivalents of medical schools, with public schools the analogues of teaching hospitals. Within Keppel's conception faculties of

[2] Keppel's project became the "School-University Program for Research and Development" after several other names had been mooted and rejected, e.g. "University-School Commission on Educational Research and Program Development." At the bottom of Keppel's list of possible names is "Program for University-School Cooperation in Research and Development." (SUPRAD, 1957a, p. 9).

education, like medical schools and other "professional schools worthy of the name" (ibid.), would devote their energy to three tasks: "[1] analysis of the aims of their profession, [2] relevant research, [3] the training of personnel" (ibid). Of these three tasks, the last, for Keppel, is the most important.

> There is every indication that in the next half century the need for skilled personnel in all fields will outrun supply. The schools are even now in a poor position to compete for well-educated and well-selected young men and women [. . .]. Even assuming that the problem of quantity of personnel could be solved, there is nothing in the present pattern of teacher recruitment which solves the problem of quality. In the present emphasis on numbers, it is all too easy to forget that a balanced teacher supply-demand situation solves only half the problem—that of quantity. (Ibid., p. 20)

Keppel at this time was not alone in recognizing an American teacher shortage. Indeed, two of the questions put to delegates at the 1955 White House education conference were "How can we get enough good teachers—and keep them?"—questions delegates addressed at length: "The prestige and status of teaching must be comparable to other professions with the community. . . The salary structure must be high enough and flexible enough to compete effectively with other fields bidding for quality manpower. . . The teacher's job must be so defined as to challenge and attract the interest of talented people" ("Texts of Reports," 1955, p. 22). As these answers (and the questions themselves) show, Keppel was not even alone in observing that not all teachers are equally competent, for if some teachers (or potential teachers) are highly proficient ("skilled personnel," for Keppel; "talented people," in the delegates' words), others are not, leading both Keppel and the delegates (remember that Keppel was himself a delegate at the 1955 conference) to reject the idea of supplying teachers willy-nilly. Talented teachers were needed, Keppel and the other delegates insisted, not just teachers.

Where Keppel *was* unique was in recognizing the futility of seeking to attract *only* skilled and talented people to the teaching profession. For Keppel, there would always be more teachers in the profession than "good" teachers, a problem he believed could be overcome. His suggestion (put to the Ford Foundation) was to organize in each school, for each subject area, a chain-of-command wherein teachers are slotted into ranks according to their capacity for and interest in teaching: "In summary, then, a staff might include fully trained and fully qualified teachers of varying levels of competence, teachers in training, and adults with little or no special training in

education serving as aides or part-time specialists" (Keppel, 1956a, p. 40). Keppel's disinterest in pedagogical traditions almost certainly reflected his background, for Keppel, notably, became Dean of Harvard's Graduate School of Education without ever being a certified educator at any level. "I'm just an amateur," Keppel told a reporter shortly after his appointment. "A greenhorn, what my father used to call an academic handyman. I am not a professional educator. In fact, I am not an educator, period" ("'Amateur' educator," 1949, p. 32). Although this self-deprecating self-description is accurate in that Keppel had never taught in a university or other school, it is also misleading because Keppel as a wartime secretary in the Joint Army and Navy Committee on Welfare and Recreation had helped design an ambitious program for enlisted men and women that used as educational media "motion pictures, radio, the drama, music, discussion groups, library services, lectures and organized instruction through correspondence and through class work" (Keppel, 1943, p 534). Keppel might not have been teaching classes on, for instance, the Battle of Britain, but he was involved in production of films, radio dramas, etc. on this and other topics, forcing him to consider—as first duty—how "information on the progress of the war, and on the causes for which Americans are fighting" (Keppel, 1943, p. 535) could best be conveyed to soldiers, sailors, and airmen. In his wartime work, Keppel's assumption was that educators—i.e., the people delivering lectures, etc.—had a crucial role in building "the kind of professional Army and Navy that could stand up against the human machinery which the Germans, the Japanese, and the Italians had been training for so many years" (ibid., p. 537). Francis Keppel's wartime experiences matter because they help explain why Keppel, when he thinks about best practices in teaching, begins with a military—i.e., chain of command—model in mind.

School-university cooperation, as Keppel envisioned it, wasn't only a team teaching project. That said, it was, for Keppel, *mostly* such a project.

> We propose that the schools undertake a structural reorganization which would create teams of teaching personnel, including a leader, one or more career teachers, subject specialists, a number of young and inexperienced teachers, and members of the community who can contribute to the work of the school. The leaders of such teams would be experienced, mature teachers of unusual talent ("master teachers"), paid on a higher salary scale. These are the kind of men and women who might be likely, under any appropriate type of personnel organization, to provide leadership and inspiration to their professional associates. In the team organization, such leaders could at times be in direct teaching

> relationship with the pupils, could handle many aspects of parental relations, and could give close supervision to the work of the instructional staff. (Keppel, 1956a, p. 38)

If, as Robert Anderson argues, "the original project in actual team teaching was begun in 1957 in Lexington, Massachusetts" (1960, p. 3), then this passage represents team teaching's originating text, i.e., the set of instructions followed—if at times loosely—by adherents of what Anderson called in 1960 "a noteworthy trend or movement in school organization" (ibid., p. 1). Implicit in Keppel's 1956 description of a teaching team is the idea of a chain-of-command, with a "master teacher" ranked highest, followed by career teachers, subject specialists, young teachers, and non-professional aides. With this proposed model Keppel aims to solve two problems at once, or rather solve one problem with two sides. In Keppel's view, the shortage of teachers meant, first, that many students were shortchanged by substandard instruction (bad teachers teaching badly), and second, that many teachers were disadvantaged by inadequate supervision (bad teachers are *allowed to* teach badly). A master teacher, in Keppel's model, not only teaches well (drawing on his or her maturity and "unusual talent"), but is also available to mentor less experienced and/or less talented teachers, raising in consequence instructional standards throughout a school. "For the teachers, there are a number of potential advantages in the team arrangement. Group planning would result in the sharing of ideas. The most competent teachers might directly influence more of their colleagues and much larger numbers of pupils than has been possible under the traditional organization. Each junior teacher could expect to receive far more effective direction because of close working relations with his seniors" (Keppel, 1956a, p. 49). In a team teaching arrangement, instructional competency, Keppel argues, is infectious, as junior teachers improve through exposure to proficient colleagues. The question then becomes: what do senior teachers gain from the arrangement given that, according to Keppel, they're tasked with additional duties ("could handle many aspects of parental relations, and could give close supervision to the work of the instructional staff" [ibid., p. 38]), including the largest responsibility of all: "They would be directly responsible for the quality of the work done in their division of the school work" (ibid). Considering these added responsibilities, why, in Keppel's view, would anyone want to be a master teacher?

"A young man who is thinking of teaching can look forward only to a low ceiling in salary, in responsibility, or in the use of his special skills," Keppel writes in his Ford Foundation proposal. "This is tantamount to saying that by retirement he will still influence the lives of the

same number of pupils in his classroom as when he began. . . Obviously this is not a personnel policy exciting to the energetic young man. The low salary ceiling is bad enough, but perhaps even worse is the lack of advancement, the lack of a sense of goal, and the absence of that increased responsibility and the opportunity to use special abilities which usually accompany merit and experience" (1956a, p. 20). In presenting elementary and secondary school teaching as unrewarding and uninspiring, at least in the long term, Keppel unfavourably compares such work to jobs in "business and law, government and industry, even higher education with its system of professorial ranks" (ibid., p. 21), arguing that these latter jobs, unlike elementary and secondary school teaching, provide "future possibilities" (ibid). For Keppel the greatest benefit of team teaching, as he envisions it, is that in allowing for slotting of teachers into a chain-of-command, it enables creation of "ranks" of teachers, each with its own status and salary. As traditionally practiced, K-12 teaching, for Keppel, is no place for an ambitious young person, who naturally wants his or her increasingly-honed talents to be rewarded by steady professional advancement. Keppel in fact sees such advancement as not only a good outcome, but a fair one. "The time has come to recognize the difference between those who make a life-time career in education and those who stay only a few years, or who teach part-time. Different programs of selection and training will become appropriate. At present, organizational patterns in the schools seem to treat all alike" (ibid., p. 20). The argument that it's both unwise and unfair to "treat all alike" will be at the heart of the SUPRAD project, as not just teachers but students are "individualized."

Of course, even granting Keppel is correct to argue that team teaching not only attracts better teachers but expands their field of action, why do universities—Harvard specifically—need to be involved? Can't team teaching programs be set up without the input of Ivy League professors? The answer, as Keppel perceived it, was evident in SUPRAD's name, the School and University Program for *Research* and *Development*. Keppel, recall, sees "professional schools worthy of the name" (ibid., p. 8) as serving three functions, of which the training of teachers is just one (if the most important). A team teaching program, to take Keppel's model instance of a university-guided K-12 project, would certainly train teachers—whether as "master teachers," "subject specialists," or something else—but such a program would also serve a research function, allowing for what Keppel calls "vigorous and sophisticated criticism of hypotheses and methodology" (ibid., p. 10). As Keppel explains in his original proposal:

> Any new program, we are convinced, must be accompanied by a determined effort to solve theoretical and methodological problems of research into the results of teaching. This requires cooperation of psychologists, sociologists, and anthropologists in the analysis of teaching problems and especially in the development of integrated theories of personality and learning. A group of scholars is needed not only to improve or invent instruments for evaluating the results of education, but also to design methods of analysis; to evaluate the use of staff by schools, to assess the reorganization of curriculum, the use of teaching devices, and to study the redesign of school buildings. (Ibid., p. 11)

In his handout on the history of team teaching, Robert Anderson acknowledges that prior to SUPRAD's launch in Lexington, team teaching had never been assessed. Would team teaching improve learning? Would it improve teacher morale? How would it impact grouping practices? These are the types of questions the Franklin School project was designed to answer.

Keppel argues that professional schools of education should also analyze the aims of education. "In the field of education, the study of the aims of the schools involves due regard to national and international developments. History and philosophy, and the broad range of the arts, the social sciences, and the physical sciences must be called into play. This is an area in which the American university has an honorable tradition: that of serving as the critic of society and as the originator of proposals for action. What should be the aims of the schools? What should they teach? What services should they render?" (ibid., p. 8). As a recent delegate to the 1955 White House Conference on Education, Keppel had absorbed many ideas about the aims of schools, both general—"School leaders should *help* foster all desirable characteristics in children" (White House Committee, 1956, p. 13)—and specific: "In this era of international stress, the United States has unusual demands for good scientists and engineers" (ibid., p. 12). As shown by his Ford Foundation proposal, Keppel had by the mid-fifties developed strong views about the aims of schooling ("Every sign points to an increased use of the schools both to prepare children for a more complex society and to serve the needs of the older generation in each American society" [1956a, p. 18]), but the proposal also reveals uncertainty about which subject areas—given the speed of societal change—schools of the future should prioritize. In brief, SUPRAD, for Keppel, was a research tool, and one thing he hoped the project would discover was what schools are *for.* "What is needed, we believe, is an effort to put the analysis of the goals of education nearer the center of thinking of American scholarship" (Ibid., p. 9)

Keppel's "Basic Document" is of interest both as a record of an influential educator's mid-fifties thinking about American schooling, and as a preview of how SUPRAD—when up-and-running—would operate. That said, the most noteworthy characteristic of Keppel's Basic Document is that on the most basic level, as a request for funding, the document was a success, with the Ford Foundation immediately pledging $290,000 towards the project's implementation ("New Program Links Harvard," 1957, p. 26). Prior to examining how SUPRAD operated at its late-fifties height, we should explore further Francis Keppel's hopes for the program. As Keppel first envisioned it, SUPRAD had three elements, which the Basic Document calls proposals A, B, and C. Proposal A, Keppel explains, "[recommends] the appointment of an Administrative Board for University-school programs under the chairmanship of a professor whose major work will be to coordinate the effort of the University in seeking solutions to public school problems" (1956a, p. 34). "In our opinion," Keppel adds,

> the most pressing problem is the development of new arrangements for the use of school personnel in the present crisis. The Board will be expected to plan an approach to this problem, initiate and carry on a suitable program, provide for an evaluation of the results of the action program, and report the results through the usual professional channels. (Ibid., p. 35)

In describing Proposal A, this passage highlights Keppel's main interest—"new arrangements for the use of school personnel"—which are also the focus of Proposal B. While Keppel's Proposal C is of some interest,[3] Proposals A and B clearly received the lion's share of Keppel's attention, with Proposal B the closest to Keppel's heart.

Sections of Proposal B have already been discussed, most importantly the section roll-calling the members of a teaching team (master teacher, etc.), as well as the section detailing the advantages of team teaching. And while these sections are important, the most interesting part of Proposal B describes—in brainstorming fashion—the implications a team teaching set-up has for a school as a whole, with explanations offered of how a team teaching arrangement opens up new possibilities in, for example, student grouping or school architecture. These sections, where Keppel thinks aloud, offer a first glimpse of what will become "SUPRAD pedagogy." SUPRAD

[3] Proposal C arrives as a compendium of data tables advancing Keppel's case that Harvard's graduate school of education won't survive without "substantial financial support over and above tuition income" (Keppel, 1956a., p. 60). Incorporating tables labelled "Expense," "Income," "Degrees Awarded," etc., Proposal C requests funds for such things as professorships, research centres, and researchers, asking for a total of $3.5 million over ten years.

pedagogy, to anticipate, neither begins nor ends with the theory and practice of team teaching. If, in a sense, SUPRAD pedagogy emerges from a belief that team teaching offers the best solution to America's educational crisis, it ends with an assertion that "present school architecture" (ibid., 31) is an obstacle to reform, not just because it impedes team teaching, but also because it groups students in counterproductive ways. Keppel's critique of conventional educational practices, a critique axiomatic to his pedagogy, is truly radical, calling for removal of a myriad established intra- and extra-school barriers: between teachers; between students of different ages; between classrooms; between schools and communities. For Keppel, adoption of a team teaching model necessarily leads to a variety of other beneficial educational changes, e.g.:

> If the teacher is no longer to be considered in relation to 25 or 30 pupils but as a member of a team in relation to perhaps 150 pupils, then the single "self-contained" classroom of the contemporary elementary school may not be the most useful basic building block for school design. Caudill has suggested the beginning of such an approach in the March 1954 issue of *Architectural Forum*. Clusters of classrooms separated by movable partitions and surrounded by perimeter corridors represent one such possible approach in elementary schools. Large instructional areas designed for 100 or more pupils at one time could be easily sub-divided for small group work in the secondary schools. (Ibid.)

William Caudill's 1954 article does indeed reject the self-contained classroom with fixed walls, recommending instead large spaces—Caudill calls them "blocks"—with "permanent interior partitions" (p. 112) that allow for division of a block into one, several or many classrooms. When installed in what Caudill calls a "split-level classroom" (ibid.), such movable partitions allow for new choices in student grouping and educational programming. "The split-level gives added horizontal dimensions for activities; the space divider gives added vertical dimensions" (ibid.). Caudill's article never mentions team teaching, but through pictorial depictions of 100 student classes and "interclass activity" (Ibid., p. 113) it makes a case for classrooms with "sufficient space for entire age-group assemblies or for interclass games" (ibid.). What's important is that Caudill's non-traditional school with large "blocks" and "folding walls" is ready-made for a team teaching arrangement, offering, in Francis Keppel's words, "Large instructional areas designed for 100 or more pupils at one time [that] could be easily subdivided for small group work" (1956a, p. 31). For Keppel, then, embrace of a team teaching arrangement necessitates adoption of an unconventional school design, albeit a design that, because already envisioned by

innovative architects like William Caudill, need not be invented *de novo*. Team teaching, as Keppel recognized early on, requires a new type of school, one able to accommodate various student (and teacher) grouping arrangements. As Harvard's SUPRAD program ramped up in the late-fifties, a number of these schools—aptly called "Schools for Team Teaching" in a 1961 Educational Facilities Laboratories (EFL) report—were built, not only in the SUPRAD towns (Lexington, Concord, and Newton), but as far afield as California, Colorado, and Arizona.

In addition to a "revolution in school architecture" (1956a, p. 31), Keppel's Basic Document anticipates both a proliferation of non-graded classrooms and the disappearance of what its author calls "administratively convenient groupings of 30 pupils moving intact from one classroom to another" (ibid., p. 46). Keppel associates the first of these developments with team teaching-facilitated changes in elementary education: "There would of course be a variety of ways the elementary school could be organized around the team idea. . . it might be possible to abandon the graded system below the 7th grade and to regulate pupil progress along the plan of ungraded systems already in use in about 30 communities" (ibid., p. 43). As this passage hints, nongraded classes were not new in 1956, but the notion of combining several grades into a *team-taught* class was new. How for Keppel might such an arrangement work? "One possibility is to regard the program in kindergarten and the first three (primary) grades as an entity, with the work of the intermediate grades also separately organized. Within each of these entities there might be one or more teaching divisions, and the divisions themselves could be organized in terms of grade levels, subject-matter areas, or some other basis" (ibid.). Reading Keppel's description of a multigrade "entity," one comes to appreciate the importance of large classrooms with partitions that can be open or closed depending on whether a single teacher is working with a single "division," or, alternately, a team is instructing an entire "entity." (Other arrangements are also possible.) Francis Keppel sees secondary educational patterns as similarly impacted by the introduction of team teaching. "It might be anticipated that the pupils would find themselves from time to time in classes ranging in size from 10 or 15 to 250 or where suitable, (for instance, via closed-circuit TV), in a class including the whole school. Any of these groups might in turn be taught by a single teacher or by suitable combinations of the personnel assigned for such purposes" (ibid., p. 46). Again, we see the value of transformable classrooms suitable for both small- and large-group instruction.

Keppel's Basic Document has much more to say about the implications of team teaching, touching for instance on the instructional benefits of organizing teachers around areas of the curriculum ("It may, under some circumstances, be wise to set up teams of teachers selected for their skills and interests in certain areas of the curriculum" [ibid.]), however his focus remains on how team teaching benefits teachers professionally:

> It seems possible that the team arrangement, by bringing teachers together in small working groups, might contribute to the job satisfactions of the profession. The security which teachers might derive from the possession and reinforcement of common goals and values, and the increased possibility of more satisfactory communication with colleagues, could continue to make the teachers more comfortable in their roles, and to make these roles assume greater importance. (1956a, p. 49)

It's important to remember that Francis Keppel's Basic Document is speculative not just in that it proposes an experimental project, but also in that the document credits the proposed project with a number of benefits of which none are guaranteed. Keppel saw team teaching as *unproven*. It might improve teacher morale and student performance, and there was only one way to find out.

SUPRAD as Research: Team Teaching

The best account of the SUPRAD program at its height, when its many projects were up-and-running, is a 55-page document, "A Description of Projects developed by and within the School and University Program for Research and Development," written by SUPRAD educators in October 1959, and likely intended for newcomers to the program (teachers; researchers; etc.). Characterizing SUPRAD as "a joint effort to examine some of the basic hypotheses of American education, to try them, to test them, to perfect them" (p. i), the document describes ten SUPRAD projects, treating some in a cursory way while discussing others in detail (three projects together receive forty percent of attention). As listed in the document's table-of-contents the ten projects are (page numbers indicate how much attention each project receives):

Teaching Machines	39
Use of Recordings in Teaching Foreign Languages	40
Junior High Grouping	41
Involvement of Laymen in Teaching Mathematics	42
Individualized Progress in Mathematics	43 (SUPRAD, 1959a).

No single school implemented all ten projects nor did a single school system. Indeed, SUPRAD relied on agreements between Harvard and three autonomous school systems, with the program jointly run and administered by the four bodies. As the 1959 document notes:

> SUPRAD is a joint enterprise of the school systems of Concord, Lexington, and Newton, and the Graduate School of Education. This fact is directly reflected in the membership of its decision and policy-making body, the Administrative Board, whose responsibility it is
>
> a) to establish policies for the total organization
>
> b) to approve all programs supported by SUPRAD funds
>
> c) to approve all budgets for SUPRAD programs, and
>
> d) to recommend personnel appointments for SUPRAD staff. (SUPRAD, 1959a, p. ii)

The membership of SUPRAD's Administrative Board offers more evidence of the program's cooperative nature, comprising four representatives from the school systems (specifically the school superintendents of Concord, Lexington and Newton, plus the Executive Secretary of the New England School Development Council, an association established at Harvard in 1946 but independent by 1957[4]), together with six representatives of Harvard's Graduate School of Education (dean, associate dean, and four professors of education). Although administratively unified, SUPRAD, as noted, was geographically dispersed, with projects distributed between Lexington (team teaching; teaching machines), Concord (social studies; language laboratory; laymen teaching mathematics; individualized progress in mathematics), and Newton (Newton Plan evaluation; recordings in teaching foreign languages; grouping project).[5] At its launch, then, SUPRAD included three laboratory school systems, all of equal importance because each hosted one of SUPRAD's key projects (i.e., team teaching; social studies; Newton Plan evaluation).

[4] Neil Sullivan, then school superintendent in Sanford, Maine, was appointed to the Council in September, 1957.
[5] SUPRAD's contract correcting project was shared between Lexington, Concord, Newton, and Quincy, MA. (whose school system was added to SUPRAD in 1959).

SUPRAD was nothing if not ambitious, involving three cities, dozens of schools, hundreds of teachers, and thousands of students. That said, Francis Keppel, in his 1956 Basic Document, foresaw an even more ambitious project, proposing to establish "several projects simultaneously, and at the same time to initiate research into (1) their implications in the local community (through the Center for Field Studies), (2) their effects in the classroom (through the Laboratory for Research in Instruction), and (3) the selection and training of personnel" (p. 53). As SUPRAD's launch date approached, the two research institutions mentioned here were sidelined, with their assigned activities allocated to other evaluative bodies (ensuring attention would still be paid to how SUPRAD projects impacted communities, classrooms, and personnel). These examples of continuity between Francis Keppel's Basic Document and SUPRAD are just a few of many examples, revealing the extent to which Keppel, following eighteen months of preparation, brought his vision to life. Because so striking, the continuity between planning and program raises an important question: Were SUPRAD's effects—on communities, classrooms and personnel—in line with Keppel's expectations? To answer this question requires looking closely at SUPRAD's most important projects, focusing not only on the hypotheses they were meant to test, but also on whether those hypotheses were supported.

Before doing this, however, we must briefly explore the premises of SUPRAD itself, identifying questions the program was—in the eyes of its initiators—designed to answer. "The program," we read in a 1959 description of SUPRAD, "was based on certain premises":

> 1) That if major changes were to be made in American education, they would have to be made through the cooperation of universities and the public schools. . .
>
> 2) That the effort must be continuous and that short-term or half measures would be inconclusive and wasteful.
>
> 3) That first attention should be given to the training, organization, and use of personnel in the schools. . .
>
> 4) That research and unbiased evaluation must undergird the enterprise
>
> 5) That the universities should concentrate on the recruitment and preparation of leaders, of men and women who will devote their professional careers to educational work.
>
> (SUPRAD, 1959a., p. ii)

Given these assumptions, it's clear that SUPRAD was designed to answer a number of specific questions (stated here in my words):

1. Can cooperation between universities and public schools produce major improvements in American education?
2. Does continuous effort at educational reform lead to educational improvements?
3. Does better training, organization and use of educational personnel lead to educational improvements?
4. Can relevant multidisciplinary scholarship contribute to educational improvements?
5. Can universities contribute to educational improvements by diligently recruiting and preparing career teachers?

Keppel and his colleagues hoped each of these questions would be answered affirmatively, confirming their belief that universities are essential to educational reform, both as sources of relevant scholarship and as teacher training centres. Because the SUPRAD project gave Harvard tremendous power within the school systems of Lexington, Concord and Newton, SUPRAD was a perfect testing ground for this belief. In Francis Keppel's words: "[Universities] must be able to work on these larger problems with all the power and resources necessary to direct research, to try out new ideas, to educate new kinds of personnel, to re-educate present personnel, and to evaluate and disseminate results" (ibid., p. 14). While SUPRAD educators may not have had access to unlimited power and resources, they had enough of each to take on these many tasks.

If SUPRAD as a whole was meant to test a number of hypotheses, so too were specific projects within SUPRAD. Francis Keppel saw team teaching as a solution to many of America's educational ills: the shortage of good teachers; teacher job dissatisfaction; the rigidity of graded classes; the prevalence of uninspiring egg-crate schools. For this reason, Keppel in his original proposal emphasized—almost to the exclusion of other projects—team teaching, paying most of his attention to "new arrangements for the use of school personnel in the current crisis" (ibid., p. 31). To a large extent, Keppel's interest in team teaching shaped SUPRAD, an endeavour which in "SUPRAD: A Description of Projects" was described as designed "to demonstrate and test methods of reorganization of school personnel" (1959a, p. i), a description placing SUPRAD's team teaching project front and centre. Likely because central to Keppel's vision of SUPRAD, the Franklin School team teaching project was assessed more rigorously than other SUPRAD projects, with outcomes evaluated in light of what a 1957 SUPRAD description of the project called "hypotheses to be tested":

1. Pupil achievement in the team teaching plan is equal or superior to that in a control school taught in classes of typical size by a single teacher.
2. Pupil adjustment in the team teaching plan is equal or superior to that in a control school taught in classes of typical size by a single teacher.
3. The team teaching approach with differentiation of roles, status and salary, results in an increase in the number of new and experienced teachers applying for positions at the experimental school. . .
4. The team teaching approach results in an increase in teacher competence and effectiveness.
5. The team teaching approach results in a positive change in attitudes toward and interests in teaching on the part of the team members. (SUPRAD, 1957j, p. 1)

SUPRAD's Franklin School team teaching project was meant to test hypotheses, and in doing so to either validate or invalidate Francis Keppel's ideas about how to improve American education. It is remarkable how unswervingly Keppel's mid-fifties musings on the "crisis" in American education led to SUPRAD in general and the Franklin School project in particular. This was the SUPRAD *modus operandi*: a Harvard researcher has a (potential) insight about schooling which becomes a hypothesis at which point the researcher secures a laboratory (e.g., a classroom) to test the hypothesis—the entire process aligned with Keppel's 1956 admonition: "Some of the basic assumptions of American education must be re-examined. Solutions to problems must be subjected to rigorous critique in laboratory and seminar, and to evaluation in the field" (1956a, p. 4).

SUPRAD as Research: The Newton Plan Evaluation

A second major SUPRAD project was the Newton Plan evaluation. The Newton Plan, which anticipated SUPRAD in many respects, was a wide-ranging reimagining of schooling formulated in 1954 by a group of English teachers at Newton High School. The teachers were determined, we read in a 1957 document, "to improve the quality of their instruction and to better utilize their personnel, space, and time" (Newton Plan Committee, 1957, p. 1), goals

Francis Keppel would certainly have supported.[6] "Primarily, the Newton plan is an attempt to improve instruction and retention," we read in words again anticipating Francis Keppel's hopes for SUPRAD. "Secondarily, it is a plan wherein time, space, and teacher energy are conserved, wherein a place of high prestige—and renumeration—can be found for the classroom teacher of great ability" (ibid., p. 2). Like Francis Keppel, the Newton Plan teachers were convinced "the best personnel were leaving the classroom (or never entering it in the first place) for financial reasons. A scheme to reverse this recent tendency had to be found" (ibid., p. 3); and like Keppel, the Newton Plan teachers rejected the traditional grammar of schooling, taking aim at fixed length, one-teacher thirty-student classes.

> They asked themselves key questions: Was there any evidence to show that all classes should be taught to groups of children numbering 20? 30? 250? 500? Must the school day be compartmented in periods roughly an hour in length? Or is it not conceivable that two hour periods would be better? Or all day classes in one subject area? (Ibid.)

Spurred on by these and other questions, the Newton Plan teachers, to quote the 1957 document, "carefully scrutinized the requirements of each course in Grades X, XI, and XII" (ibid., p. 4), eventually concluding that "roughly 30% of the material therein was of a nature that lent itself to presentation on a large and detailed scale" (ibid.). In brief, the Newton teachers decided that if instructional lecturing was effective in university settings, it should also be effective at Newton High School. "If one lecturer was prepared in great detail and was assisted by the best possible audio-visual equipment, his presentation would be vastly superior to that of the regular English teacher with four entirely separate classes every day" (ibid.). Acting on this insight (or potential insight, only evaluation could tell), Newton Plan teachers enacted a lecture-based instructional strategy: "Working within the familiar school day, with newly-purchased screens, a vu-graph, an electric typewriter, and photographic equipment, with the auditorium and two borrowed classrooms, the Committee gave [a] series of lectures to most of the students in the High School" (ibid., p. 5)

Just as the ensuing SUPRAD project was organized around team teaching, the Newton Plan cohered around lecturing. And just as SUPRAD's embrace of a team teaching approach led

[6] Prior to SUPRAD, Harvard's Graduate School of Education was contracted by the Newton school system to evaluate the Newton Plan, raising questions about whether and how the Newton Plan shaped Keppel's thinking about the project that became SUPRAD.

to a number of instructional, organizational and programming changes in SUPRAD schools, so Newton Plan teachers' use of instructional lecturing had wide-ranging implications at Newton High. One change at Newton High has already been mentioned—a new dependence on audio-visual equipment such as the vu-graph—but this change was probably inevitable regardless of what instructional plan the school employed. (A chicken-and-egg problem relates to whether the use of AV equipment led to or resulted from Newton High's use of instructional lecturing.) Other changes were more closely tied to adoption of lecturing. One was an occasional abandonment of graded classes in the face of more helpful modes of student grouping.

> If within a particular class in a particular curriculum, certain clear distinctions between students on a particular subject appear. . . the Newton Plan, a program that operates with large classes, has in practice the flexibility to compensate for individual differences in a narrow sense. (Ibid., p. 7)

This method of grouping by achievement—or preparedness—necessitated another change at Newton High, namely implementation of a rudimentary form of team teaching where teacher-lecturers took responsibility for some number of students in a class, the other students being another teacher's concern. Later, Newton High adopted a more developed type of team teaching in which "the High School engaged two so-called 'co-teachers' to help [Newton Plan teachers]. These two individuals were trained, though inexperienced teachers; one was assigned to each pair of Master Teachers. The co-teachers were used to cover class sessions which the Newton Planners could not attend; they carried much of the job of correcting papers, administrative details and so forth" (ibid., p. 15). Reading this, one discerns a situation where three teachers—two "masters" and a "co-teacher"—work cooperatively within a two level chain-of-command. Clearly the idea of teacher cooperation is coming to the fore, although many features of true team teaching (e.g., co-lesson planning) are absent.

Looking beyond what was essentially a pilot program, Newton Plan teachers recognized that a mature Newton Plan would require that Newton High change both its classrooms and its renumeration practices. The school's classrooms, it was argued, would need to be more varied in their sizes and functions: "As the Newton Plan is presently constituted, no radical change in the size and nature of the standard high school classroom is contemplated. However, new types of class groupings are under constant consideration by the Committee. They are considering the effect on a school if a third, let us say, of all the class sessions held were given in large lecture

halls. Would this, then, decrease the number of 'normal' classrooms? Would this make possible the use of smaller seminar-sized non-Newton Plan classes?" (ibid., p. 17). Implementation of a chain-of-command in which experienced teachers supervise less experienced colleagues would bring additional changes, most importantly in the teacher salary scale. "The Committee feels strongly that in order to attract the best teachers into the classrooms and to keep them there, adequate compensation must be provided for. If a superior teacher lectures to large numbers of students under the Newton Plan, he will be in a position of prestige similar to that of the noted University lecturer. A salary commensurate to that prestige and the responsibilities for large audiences that go with it is clearly called for. The position of a key Newton Plan lecturer would be sought after, a goal which they hope will be sufficient to attract and hold the best qualified personnel" (ibid., p. 19). As does Francis Keppel, the Newton Plan teachers envision a teacher chain-of-command headed by a well-qualified and well-compensated master teacher. While the Newton Plan teachers, at least in their 1957 description of the Newton Plan, never use the word "team," a team model is clearly implied.

SUPRAD's Newton Plan Evaluation Project, which understood the Newton Plan to be "a complex of instructional processes centering around the idea of having a single teacher present material to a relatively large number of students—two or more regular classes combined—in a large lecture room" (SUPRAD, 1959a, p. 34), was designed to test five hypotheses:

> (1) Students must accept a share of responsibility for their own education.
>
> (2) Until the pupil has mastered the fundamentals of a subject, his work with more subtle aspects is unreliable and often unrewarding.
>
> (3) The present uniformity of classroom size is unrealistic. . .
>
> (4) Since teachers vary in their talent, enthusiasm, and experience at teaching different topics, each pupil should enjoy the best work of several teachers.
>
> (5) Special audio-video equipment, too expensive for the average classroom, is economically justifiable for large-group classes. (Ibid.)

To the extent SUPRAD was allied to a coherent pedagogy, these hypotheses shed light on its core ideas. More will be said below about SUPRAD pedagogy, but for now it's worth noting that SUPRAD, above all, was aimed at demonstrating the importance of *differentiation,* SUPRAD's organizing belief (articulated at length in Francis Keppel's original proposal) being that each student, teacher, and instructional situation is unique. In a sense, the notion that each student has

"their own education" (ibid.) is a radical one, undercutting in a phrase the belief that many—or even two—students can or should receive the same education. Along the same lines, SUPRAD pedagogy holds that each teacher provides a unique learning experience, one characterized by a distinctive blend of strengths and weaknesses, helping explain why students are best served by exposure to several teachers.

SUPRAD as Research: The Concord Social Studies Project

SUPRAD's Concord Social Studies project was aimed at "understanding and improving the process of instruction" (SUPRAD, 1959a, p. 19), especially (but not exclusively) in social studies. The project had two aspects, one focused on "personnel relationships" (each teacher was assigned to one of three groups: "research group," "content validation committee," or "field evaluation and dissemination group"), the other concerned with improvement of instruction, including through use of teaching machines and other methods of individual learning. As with the Franklin School team teaching project and the Newton Plan evaluation project, an important goal was to test hypotheses, which explains why a 1959 description of the Concord social studies project includes a list headed "hypotheses to be tested" (e.g. "Changes in the student's ability to apply principles of critical thinking can be identified through content analysis of written and oral communications" [ibid., p. 29]). As it turned out, SUPRAD's Concord social studies project was most significant as a stepping stone towards implementation of what SUPRAD researchers called the "Concord Plan," a 1960 project defined in a SUPRAD report as "a large-scale experimental attempt to re-examine the whole program of the secondary school" (SUPRAD, 1960a, p. 1). Like the antecedent Concord social studies project, which explored "the difficulties of teaching effectively a critical understanding of contemporary political, social, and economic issues within the framework of the public schools" (SUPRAD, 1960b, p. 23), the Concord Plan was aimed at helping high school students better understand the contemporary United States:

> The Concord Plan is a design to accomplish certain changes in the educational program of the high school. Because of the school's single-minded concentration on preparation for college and vocation, it tends more and more to neglect those learning experiences through which the individual (1) comes to participate actively in the important events and the intellectual life of his era; (2) learns to observe and to strive to make sense of these events

> and ideas; (3) forms allegiances, commitments, and values; and (4) creates, that is, realizes himself through invention, discovery, and self-expression. (SUPRAD, 1960a, p. 2)

Designed to help the student "find new meaning and significance in the events around him" (ibid., p. 3), the Concord Plan comprised a wide-ranging overhaul of the American high school experience: "The Concord Plan is the first action phase or a proposal to carry out a large scale revision of the program of the high school in America" (ibid., p. 6). New courses were offered, delivered by teaching teams using innovative "instrumentalities of instruction. . . revolutionary technological inventions like the rapidly developing 'teaching machines'" [ibid., p. 8]), with the program operating on modified class schedules: "two or three meetings a week and making the students responsible for achieving perhaps one quarter to one third of the required learnings on their own" (ibid.). What hypotheses was the Concord Plan intended to test? Explaining the plan's reliance on individualized learning, with students responsible for up to one third of their own learning, Concord Plan researchers posited that "[to] restore to the pupil the moral obligation to learn on his own might not only lessen his dependence upon teacher, but could have a beneficial effect on the pupil's motivation for school work, helping him to achieve mature self-reliance and self-regulation in learning" (ibid., p. 9). Other Concord Plan hypotheses described other potential benefits of individualized learning: "[The] motivated pupils might very soon be able to teach themselves a new foreign language in the school's language laboratories in the evenings or on Saturdays" (ibid., p. 10).

SUPRAD's experimental nature is nowhere more evident than in its accumulation of hypotheses to be tested. Already in this chapter we have encountered a set of SUPRAD-wide hypotheses, a set of team teaching-specific hypotheses, a set of hypotheses bearing on the Newton Plan evaluation project, and two sets of hypotheses related to Concord social studies-oriented projects. All these hypotheses invite discussion because the SUPRAD pedagogy, as a distinct set of beliefs about best practices in education results from confirmation of certain of the program's hypotheses, *viz* what are the implications for schooling if one answers "yes" to such questions as: Can organized cooperation between universities and public schools produce major improvements in American education? Is student achievement in a team teaching school superior to student achievement in a traditional school? Does individualized instruction foster student achievement?

Because so sprawling, SUPRAD generated a host of hypotheses, many of which were tested with a degree of rigor. Hypotheses that were confirmed found their way into SUPRAD pedagogy, which, as we shall see, cohered around the concepts of differentiation and flexibility. Beliefs about team teaching, for instance, a practice based on differentiating teachers and aimed at facilitating flexible student grouping arrangements, were at the heart of SUPRAD pedagogy, influencing not just Francis Keppel's decisions, but Neil Sullivan's and Robert Anderson's as well. "[The Joseph Lee School," the *Boston Globe* reported in 1971, "which is ungraded. . . has team teaching and 'learning areas' instead of traditional classrooms" (Brody, 1971a, p. 22). Given team teaching's importance within SUPRAD pedagogy, and accepting that SUPRAD pedagogy emerged from tested and confirmed hypotheses, what evidence did SUPRAD researchers have that team teaching—to paraphrase one of their hypotheses—was equal or superior to teaching by a single teacher?[7]

Experimental Team Teaching and Student Grouping Practices

In April 1959, Ellis Hagstrom, coordinator of Lexington's Franklin School team teaching project, sent a memo to the project's director Robert Anderson, headed "The relation of research to development" and intended, in Hagstrom's words, " to make explicit some of the assumptions that seem to have guided the development and operation of the Teaching Teams Project at the Franklin School thus far, and also to report the discussions about the relation of research to development that have recently taken place among the members of the Resident Staff" (1959a, p. 1). Hagstrom's memo is important first for what it reveals of the primary purpose of the Franklin School project, and second for what it says about how Hagstrom and his colleagues planned to achieve that purpose. The chief aim of the Franklin School project, Hagstrom writes, "[is] to discover whether or not children are hurt by redeployment" (ibid.), i.e., by reorganization of teachers into teams. To achieve this aim, Hagstrom adds, "Testing programs designed to assess pupil achievement and pupil adjustment are currently being implemented to the fullest extent possible" (ibid., p. 2). So far so seemingly simple, but, as Hagstrom explains, nothing is simple when it comes to comparing pupil achievement at two schools (one experimental, one control) which differ in a myriad ways: curriculum; demographics; teacher effectiveness; class sizes; budget; etc. The greater part of Hagstrom's memo catalogs a number of variables that impact

[7] As noted above (p. 74), this is one of five hypotheticals related to team teaching.

pupil achievement, with Hagstrom explaining how difficult it is—as a researcher studying the value of team teaching—to control such variables. "In an attempt to get the kinds of data that would make it possible to hold the teacher variable constant," Hagstrom writes at one point,

> it might be possible to pre-test and post-test teachers on specified training programs or sequences. In addition to the teacher variable. . . other variables would include the size of the group of students involved, the method employed (that is, for example, lecture versus discussion), and the composition of the group (that is, grade-level or cross-graded group). (Ibid., p. 7)

Hagstrom's memo to Anderson is eight pages long, indicating the number and complexity of issues Hagstrom covers. How does one test the hypothesis that team teaching promotes student achievement? If it's unrealistic to compare a team teaching school to a non-team teaching school, then what? Compare a pupil's progress to the progress of another pupil at his or her school? But what if the entire school uses teaching teams (as did the Franklin school)? Hagstrom's frustration is palpable: "Concerning the investigation of class size, unless parallel content and methodology are used (controlled), the Project will not be able to isolate causal factors for any differences that may be discovered" (ibid., p. 3). In Hagstrom's view, too many variables are at play to allow for inferences about the value of team teaching. His conclusion: "There exists a lack of sufficient time and personnel to give the problem of research planning the attention it deserves" (ibid.).

SUPRAD existed, at least initially, to test hypotheses as a means of identifying useful instructional and organizational practices. If as Ellis Hagstrom argued, SUPRAD researchers had no way to reliably test hypotheses, then SUPRAD seemingly loses its value. But remember the heading of Hagstrom's memo: "The relation of research to development." From its inception, SUPRAD necessarily had two aspects, one concerned with testing of hypotheses (i.e., research), one related to adoption of innovative instructional practices (i.e., development), which meant individual SUPRAD projects (and SUPRAD itself) continued even when research was sidelined. In Hagstrom's words, "The Resident Staff feels that development is still very much of a priority concept. A great deal can be accomplished in the way of further developing and training the teaching staff, in the development of curriculum and instructional materials, and in the provision of those supplies and materials that will make implementation of some of the Project's goals more easily accomplished" (ibid., p. 3). SUPRAD, as its name tells us, was as much about developing instructional techniques as assessing them.

Like most SUPRAD projects, the Franklin School team teaching project evolved over time. In charting the project's evolution, one comes to grasp its complexity, even if it remained what Ellis Hagstrom calls a "pilot operation" (ibid., p. 2). Given Francis Keppel's interest in team teaching, it's no surprise that Harvard's SUPRAD archive holds many documents bearing on the Franklin School project, including memos, reports and surveys querying teachers on such topics as (to quote one report) "how teachers plan their lessons together and separately, how the lessons are actually conducted, the follow-up activities in which children and teachers engage, etc." (SUPRAD, 1958p, p. 1). Together the documents offer a wide-ranging, warts-and-all picture of the project, allowing one to appreciate the difficulties faced by teachers new to team teaching—a practice which, as Robert Anderson noted in an interstaff memo, many teachers found challenging:

> There was a very intense feeling about the necessity for having titles and differing levels of prestige within the team operation. Several asked if it would be necessary to have the title of team leader in order to actually be one. Mrs. Gay claimed that the absence of a title for her work in Newton is the key to her success. This led to a discussion of merit salary, the general feeling being that unless salaries are decided "fair and square" and the teacher knows <u>how</u> the administration decides a teacher is better or poorer than another, any merit system will be a failure. They all agreed that they would feel badly if another teacher was getting more than they, and none of them seemed willing to receive a higher salary than their colleagues because of the damage that could be done with their relationships to those colleagues. (Anderson, 1957b, p. 3)

Anderson's report runs counter to Francis Keppel's claims that teachers were hungry for prestige and salary differentiation, highlighting the value of Harvard's archived documents, which often reveal what happened when theory met reality; gaps between educational ideals and educational realities, Anderson and Keppel learned, take many forms.

As with the Newton Plan, where Newton High's use of teacher-lecturers led to a cascade of changes in the school, the Franklin School's introduction of teaching teams destabilized many features of traditional schooling: "The teachers in each team were asked to regard the total of children in their respective homerooms as the mutual responsibility of all. . . They were invited to experiment with many different kinds of class grouping and instructional techniques, utilizing the physical facilities and the instructional resources of the building in whatever ways seemed

appropriate and without regard to conventional definitions of optimum class size" (SUPRAD, 1959a, p. 2). In SUPRAD documents certain words come to the fore, including most importantly words evoking movement such as "dynamic" and "flexibility," as here: "Under team-teaching conditions, a number of more dynamic patterns of deployment and re-deployment become possible. For instance, children can be left in homeroom groups, homeroom groups (or portions thereof) can be combined in large groups, or children can be exchanged between homeroom groups. It is obvious that teachers can exchange locations and instructional assignments with equal flexibility" (ibid., p. 4). Assessing teacher feedback gleaned from surveys and meetings, SUPRAD educators conceded that the Franklin School's dynamism unsettled many teachers, ascribing this discomfort in part to the teachers' professional rigidity ("Teachers themselves hold rather doggedly to traditional beliefs and practices" [ibid.]), but more so to the Franklin project's wide-ranging rejection of the traditional grammar of schooling:

> Of the major frontiers now being explored, one involves new or accentuated developments in instructional *equipment* and teaching *procedures*. A second. . . has to do with the *structural reorganization* of the schools, major examples being the adoption of nongraded classes and the alignment of teachers into instructional teams. A third frontier is in the use of clerical aides, teachers' assistants, and other kinds of subprofessional or paraprofessional workers to supplement and support the professional teaching staff. (Anderson and Mitchell, 1960, p. 76)

Elsewhere in his report, Anderson explains that the Franklin School, in breaking with a number of traditional beliefs and practices, did so not because its leadership believed in improvisational schooling, but rather because that leadership was eager to implement an alternate pedagogy with a new set of structures and rules: "For individual professional autonomy it proposed to substitute a plan of shared responsibility and interdependence. It ventured to place some teachers in positions of greater influence and more attractive rewards. It created a large family unit of many children and a number of adults in the place of the small classroom unit, and encouraged a very flexible approach to instructional groupings and to instructional practices" (1958, p. 6). All these changes, it should be noted, followed upon adoption of a team teaching system, an arrangement that (as Francis Keppel predicted in 1956) soon led to abandonment of graded classes.

Robert Anderson issued his report on the Franklin School in October 1958, one year into SUPRAD, but already it was evident to Anderson and others that the Franklin School project had

to evolve, first because some teachers were resisting inclusion in a team ("People unaccustomed to each other, or in some cases with a long history of other kinds of association, quite suddenly found themselves enacting roles for which they had received little preparation" [ibid., p. 9]), second because, as Anderson noted in an August, 1958, memo the project was more challenging than had been expected: "When the broad outlines of SUPRAD were first sketched, and in the initial stages of the Franklin School Project, it was assumed that the University would provide the resources and the personnel for both the development and the research phases of the project. . . Once the Project had gotten underway, however, it became apparent that the University staff was not large enough to carry out either the consultative (developmental) or research (evaluative) functions with the necessary thoroughness. The Project itself was larger in dimension and more complex in operation than had been appreciated" (1958b, p. 8). By August, 1958, then, SUPRAD educators were considering changes to their core endeavour, the Franklin School team teaching project. What, if anything, was modified for the 1958-59 school year?

The most important area of change was in composition of teaching teams. Reporting in October, 1958, on the previous year's events at the Franklin School, Robert Anderson describes four teaching teams:

> ALPHA: 3 first-grade teachers ("Senior Teacher" in charge)
>
> BETA: 6 second- and third-grade teachers ("Team Leader" in charge)
>
> GAMMA: 3 fourth-grade teachers ("Senior Teacher" in charge)
>
> DELTA: 5 fifth- and sixth-grade teachers ("Team Leader" in charge). (1958a, p. 2).

In contrast, a 1959 Anderson working paper ("Team Teaching—Background and Issues") lists only three teams:

> ALPHA (1st grade): One team leader and three "regular" teachers.
>
> BETA ([grades] 2, 3): One team leader, one senior teacher, and four "regular" teachers.
>
> OMEGA ([grades] 4, 5, 6): One team leader, two senior teachers, and five regular teachers. (Anderson, 1959b, p. 7)

How to explain these changes? Within the SUPRAD team teaching chain-of-command, the team leader—"a specialist in a content area that compliments the areas of his senior teacher associates, [and who] also exercises certain general administrative and coordinating functions" (SUPRAD, 1959a, p. 5)—is, as the name indicates, in charge of a teaching team, directly above the senior teacher ("an experienced teacher who has acquired special competency in a particular subject

matter area or in a particular skill or methodology" [ibid.]). What happens in the summer of 1958 is that the team leader cohort, which had the year before shared leadership positions with senior teachers, takes command of all teams (GAMMA has been subsumed into OMEGA), with two consequences, (1) two teams now have a three-level chain-of-command, and (2) all teams are now led by individuals closely (or more closely than senior teachers) connected to the SUPRAD project. Team leaders, we read elsewhere in the document, are relieved of teaching duties on a 1/3 basis, freeing every team leader to assume responsibility "for identification of pupil needs and readiness, and for assignment of pupils to groups; for directing the continual re-examination and development of the curriculum; and for the training and supervision of junior and less-experienced personnel on his team" (ibid., p. 6). Given these responsibilities, the team leader is clearly a proxy for (absent) Harvard researchers, directing on those researchers' behalf the day-to-day operations of the Franklin School project. That this change—which gave SUPRAD educators more power within the Franklin School project—was made is not surprising, for the Franklin School project was very complicated, something Robert Anderson and his colleagues had learned as early as July 1957, several months prior to beginning of the project, when they began surveying teachers in the run-up to SUPRAD's launch. An undated document, probably from August 1957, includes dozens of questions teachers were asking about their roles within a team teaching arrangement, e.g.:

> (Teacher-teacher relationships): Will there be a conflict in the teaching philosophy of the various team members? Will the various personalities blend together as a team? Who makes the final decisions?
>
> (Teacher-pupil relationships): Will pupils be in a state of confusion because of the number of teachers with whom they come into contact? What about the "immeasurables"—the warmth, love, and security so much a part of the "traditional" schools? Will these be absent?
>
> (Teaching of subjects): Who's going to teach what? Do we specialize? Does a teacher beginning a certain unit follow through or may another teacher continue? How will teachers know where other teachers left off?
>
> (Harvard-Newton Summer School, 1957a, p. 3)

These questions hint at teacher confusion regarding fundamental aspects of team teaching, most importantly teacher responsibilities vis-a-vis colleagues, students, planning, and discipline. What

stands out most clearly is that Lexington teachers—a few months if not weeks from involvement in a team teaching project—had little notion of their future responsibilities. "What is the reason for this program of which I am part?" one teacher asks. "And what, as a teacher, is my place in it?" (ibid., p. 5). From early on, SUPRAD researchers were aware of the challenges Lexington teachers faced, with one researcher writing in the "Lexington Log:"[8] "It is recognized, too, that an organization radically different from the time-honored system of self-contained classroom (of 30 or so pupils under a single, autonomous teacher) might raise many new instructional, administrative, and personnel problems that need careful and penetrating analysis" (Harvard-Newton Summer School, 1957b, p. 7). In retrospect, further "careful and penetrating analysis" would have been helpful before the launch of the Franklin School project,[9] the absence of such analysis necessitating changes as the project unfolded, some related to team composition, others related to curriculum or personnel. None of this is or was surprising; as Robert Anderson wrote in December 1959:

> Although the first year of operations was recognized as an imperfect demonstration of the project's goals, it was generally agreed by the Project's steering committee that an effort would be made to achieve as much continuity (e.g., in personnel) and stability (e.g., in policies and operational procedures) as possible. A relatively charitable view was held of some of the shortcomings that had been identified in 1957-58 in various individuals struggling with the unfamiliar problems of team membership and so forth, and the opportunity was offered to capitalize upon lessons learned in the interests of forward progress. (Anderson, 1959a, p. 2)

If in theory adoption of a team teaching system was fairly straightforward, in practice such a procedure was tremendously complicated, rife with unforeseen obstacles, many but not all reflecting impacted teachers' natural resistance to wholesale change. "The following morning I encountered Mel Collard in the office and discovered that his morale was extremely low," Robert Anderson writes of one Franklin School teacher. "He was anxious for a heart to heart talk and he indicated to me that the entire balloon had been burst and that the morale of the group

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[8] A 1957 memo describes the "Lexington Log" as "a running account of the preliminary stages of planning, investigation, and experimentation for the Lexington Program during the Harvard-Newton Summer School" (Harvard-Newton Summer School, 1957b, preface).

[9] "The first year of the project was seen as an 'exploratory year,' during which participants hoped to discover whether a hierarchical pattern of team organization was feasible" Wade Robinson, SUPRAD's assistant director, wrote in 1960 (SUPRAD, 1960b, p. 2).

was at a very, very low point" (Anderson, 1957b, p. 1). As Anderson and his colleagues came to appreciate, many Franklin School teachers were less than thrilled about participating in an experiment. Despite changes to the Franklin School project, this reluctance never disappeared.[10]

The other important area of continual change in SUPRAD programming was that of student grouping practices, which began to be modified once SUPRAD educators realized that (in one educator's words) "[one] of the apparent advantages of the teaching team organization is that it makes possible the redeployment of pupils, not only into classes of varying size but into groups of various composition organized for specific instructional purposes" (Danielson, 1959, p. 1).[11] Already by early 1959, SUPRAD educators familiar with the Newton Plan were sharing hypotheses related to large group instruction, resulting in documents with titles such as "Interim Summarization of Discussions Concerning Large Group Instruction"—a document that asked a myriad questions bearing on the benefits and drawbacks of lecturing, e.g.:

> In what ways do large group activities differ from small group activities?
>
> Are there any activities uniquely large group?
>
> How great a loss is the loss of close pupil interaction?
>
> (SUPRAD, 1958h, p. 1)

That the document in question answers none of these questions hints at the document's purpose as an airing of hypotheses rather than a statement of findings, a status confirmed in another of its key sections, "Attempted Categorization of Presumed Advantages of Large Group Teaching," which offers a list of fifteen postulated advantages, ten accruing to students and five to teachers. Importantly, the document in question is one of at least eight 1959 SUPRAD documents in the Harvard archives concerned with student grouping procedures, indicating that a key aspect of SUPRAD's evolution was increasing focus on best practices in student grouping, a development that, again, emerged organically from SUPRAD's experiments in team teaching.[12]

In April 1962, Paul Perry, SUPRAD's assistant to the director, prepared an updated description of SUPRAD, outlining changes enacted since the project's launch in 1957. Perry

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[10] In another confidential document, Robert Anderson acknowledged in 1958 that a team teaching program was "admittedly a great deal of extra work for teachers, at least at this stage of the game." (1958c, p. 3).

[11] Hope Danielson was SUPRAD's Associate Project Coordinator and one of few high-ranking female SUPRAD educators. Danielson joined SUPRAD at its inception as a doctoral student "studying the behavior and attitudes of teachers under 'team-teaching' conditions." (Anderson, 1958, p. 12).

[12] As one 1959 document explains: "Team teaching makes it possible to instruct elementary school children not only in groups of various composition. . . but on occasion in groups two to six times the usual class size." (Danielson, 1959b, p. 1).

explained that while the Lexington team teaching project was essentially unchanged from its initial form, both the Newton Plan Evaluation and the Concord Plan project had evolved, with the Newton project now prioritizing a study of student grouping practices in junior high schools (the main hypothesis being that students, to reach their full potential, "might require instruction in various groups and in various subjects for periods of time longer or shorter than the traditional forty or fifty minute class period" [p. 10]) while for its part the Concord Plan project had been reoriented towards, in Perry's words, "[developing] a description of that elusive process called 'critical thinking' and [teaching] junior high school pupils to use this process in analyzing and understanding social, political and economic issues" (ibid., p. 11). In tracking SUPRAD's development since its 1957 launch, Perry calls attention to the program's significant additions, a 1960 project aimed at testing "techniques developed by Professor B. F. Skinner of the Harvard Psychology Department for use with so-called 'teaching machines'" [ibid., p. 6]), and a 1961 project "exploring the possible application of modern data processing techniques to problems of public education" (ibid, p. 7). Summing up SUPRAD as it stood in 1962, Perry, sounding less than boosterish, wrote: "Whatever the failures or accomplishments of the SUPRAD approach to educational research, one thing is clear: these activities are expensive, time-consuming, and sometimes frustrating for all concerned" (ibid, p. 12). Perry's ambivalence is understandable, for SUPRAD since its launch had not only failed to transform American schooling (Keppel's Basic Document had claimed the planned program would lead to "major changes in the policies and organization of American public education" [1956a, p. 4]), it had lost much of its impetus, adding only modest projects while failing to expand beyond its initial geographic area.[13]

Evaluation of SUPRAD Programming

SUPRAD was designed as a Deweyan experimental project whose programming and practices would be evaluated both in isolation and in relation to what a 1958 EFL report called "standard operating procedures" (p. 11). "A group of scholars," Francis Keppel argues in his original SUPRAD proposal,

> is needed not only to improve or invent instruments for evaluating the results of education, but also to design methods of analysis; to evaluate the use of staff by schools, to assess the

[13] The city of Quincy, Massachusetts (thirty kilometres from Newton) was added to SUPRAD in 1959.

> reorganization of curriculum, the use of teaching devices, and to study the redesign of school buildings. (Keppel, 1956a, p. 11).

"Tough-minded research and unbiased evaluation of new ideas must undergird the enterprise," Keppel writes elsewhere in his Basic Document (p. 7), revealing both his Deweyan orientation and his belief that SUPRAD would be a hothouse of new ideas. That said, SUPRAD's evaluative function was first directed not at assessment of brand-new ideas, but rather at evaluation of an existing idea, the notion of the "teacher-lecturer" as realized within the Newton Plan. A part of SUPRAD from the very beginning, the Newton Plan Evaluation Project (discussed above pp. 74-78) was meant to test five hypotheses, the most important being whether or not "the present uniformity of classroom size is unrealistic" (SUPRAD, 1959a, p. 34). In brief, the Newton Plan Evaluation Project assessed "the idea of having a single teacher present material to a relatively large number of students. . . in a large lecture room" (ibid.), an undertaking entirely in line with Francis Keppel's vision of SUPRAD as undergirded by "evaluation of new ideas" (1956a, p. 7). All this raises a question: How in SUPRAD was evaluation to take place, whether of the Newton Plan or another project? (In 1958 the Newton Plan was itself incorporated into SUPRAD making the Newton Plan Evaluation Project a SUPRAD project aimed at assessing another SUPRAD project.) As one of SUPRAD's three major projects, the Newton Plan Evaluation Project offers an early example of how Francis Keppel and his colleagues arrived at conclusions about the value of their own and others' school reform efforts.

In 1959, SUPRAD's Newton Plan Evaluation Committee released its report for the period 1958-1959, allowing us to discern not only the committee's opinion of the Newton Plan, but how it arrived at that opinion. "The objectives of the evaluation," we read,

> were fundamentally twofold: first, to determine whether learning in the large lecture groups was greater, less, or the same as that in the conventional instructional setting; second, to ascertain the attitudes of the teachers and students in Newton High School towards this instructional innovation. (SUPRAD, 1959f, p. 1)

Three areas, then, were to be inquired into, listed later in the report as (1) teachers' attitudes, (2) students' attitudes, and (3) students' learning outcomes (p. 2).[14] To understand why assessment

[14] Parents later became a source of information. In March, 1962, two SUPRAD educators (Grace Kaczynski and John Bahner) floated the idea of soliciting "reactions of parents to the team teaching organization" (SUPRAD, 1962a, p. 3), explaining: "We would be seeking the parents' general reaction to team teaching, their specific 'sore spots,' their general understanding of team teaching (i.e. how good a job we have done in informing them), and what

of teachers' attitudes was seen as particularly important requires revisiting SUPRAD's original purpose, identified in Keppel's Basic Document as "attracting to the [teaching] profession due proportion of the ablest young men and young women of each generation" (1956a, p. 59). With attraction of able young people its primary goal, SUPRAD was necessarily interested in teacher attitudes towards its programming, a SUPRAD maxim being that any program objectionable to teachers would drive away talented teacher candidates. Before moving on to discuss the Newton Plan evaluators' other areas of concern (student attitudes; learning outcomes), it's important to catalog the evaluative instruments the evaluators used to assess teacher attitudes—instruments never specified in the 1959 report but identifiable from descriptions of the evaluators' activities. "Miss Kenney," the report states, describing the work of one evaluator, "engaged in a number of activities during the year" (1959f, p. 4):

> (4) She interviewed a number of Social Studies Department teachers with regard to their reactions to Newton Plan, its place in the Department, and its possible contribution [. . .]
>
> (7) She was a participant observer in the English Department and kept a log of her observations [. . .]
>
> (8) She interviewed teachers of the English Department with regard to their reactions to Newton Plan and suggestions for its development [. . .]
>
> (10) She was available for general consultation to all members of the Newton High School staff. (Ibid.)

Three evaluative instruments are mentioned here—interviewing teachers, observing teachers and responding to teachers' questions—with the first instrument (interviewing teachers) presented as directly aimed at ascertaining teachers' reactions to Newton Plan. What did these instruments—interviews in particular—reveal about teachers' attitudes? To answer this question we need to look not at the 1959 Newton Plan report, but at another report, written by Robert Anderson and focused on events at Lexington's Franklin Street Elementary School.

Headed "Some observations by RHA on events during the six weeks" (1957b, p. 1) the "highly confidential" (ibid.) report details Robert Anderson's experiences at the Franklin School in the early weeks of the school's team teaching experiment, describing among other things

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does the parent think other parents think about team teaching" (ibid.). Another SUPRAD memo reveals that by May, 1962, Grace Kaczynski had developed "a 15 item questionnaire for parents and has discussed this new version with Ethel Bears. We anticipate sending it out within two weeks to Franklin Street parents". (SUPRAD, 1962b, p. 1)

Anderson's "heart to heart" (ibid.) talk with one disaffected teacher ("Mr. Collard") who, in Anderson's telling, represented other Franklin School teachers unsettled by a team teaching arrangement. Mr. Collard, Anderson writes, "indicated to me that the entire balloon had burst and that the morale of the group was at a very, very low point" (ibid.). Why the disenchantment? Primarily because teachers had lost a measure of autonomy, with the principal (Ethel Bears) and the superintendent (Harold Gores) making decisions of the teachers' behalf:

> [Mr. Collard] was irritated that Mrs. Bears had gone along 100% with the Superintendent; that the Superintendent was deciding details (like furniture and room arrangement) that the staff felt it should decide; that the teachers had clammed up during the meeting and that the Superintendent had carried the ball too long; (ibid.)

The importance of these comments, and of Anderson's Franklin School interviews in general, derives—paradoxically—from their affirming that SUPRAD's team teaching program was working as intended. In the minds of SUPRAD educators, one benefit of team teaching was that it allowed for increased supervision of teachers, offering as a result opportunities to correct poor teaching habits. In Francis Keppel's words (1956): "Each junior teacher could expect to receive far more effective direction because of close working relations with his seniors. The seniors in turn could expect better supervisory service from the principals and other administrative officers, whose span of control would have been reduced to a workable number" (1956a, p. 49). Smooth sailing in theory, this intrusive supervision made waves in practice. Learning of Mr. Collard's dissatisfaction with team teaching, Anderson arranged a meeting with nine Franklin School Master Teachers, asking each teacher to complete a questionnaire prior to the meeting. The questionnaire, Anderson writes,

> asks them to explain the Lexington Plan, describe its major strengths and weaknesses, and predict whether it will succeed in Lexington. It also asks them to indicate whether such a plan could succeed in the school where they are teaching and indicate whether or not they would like to be part of any such project. (1957b, p. 2)

In this case the evaluative instruments were a group discussion and a questionnaire, both aimed at uncovering teacher attitudes toward team teaching. The findings are discussed below, but at this point it's worth emphasizing the effort put into discerning those attitudes.

Less effort was invested in ascertaining student attitudes toward team teaching. As a member of the team evaluating the Newton Plan, Miss Kenney not only interviewed, observed,

and consulted with teachers, she also "collected empirical data on students' attention in Newton Plan Lectures and in regular classroom activities for purposes of comparison" (1959f, p. 5)—an evaluative procedure whose efficacy is hard to determine. (How was empirical data collected?) As noted, SUPRAD was a teacher-oriented program, meaning student attitudes were not terribly important, which isn't to say they were ignored.[15]

SUPRAD educators were understandably interested in assessing learning outcomes, i.e. in determining whether (to cite one hypothesis) "Pupil achievement in the team teaching plan is equal or superior to that in a control school taught in classes of typical size by a single teacher" (SUPRAD, 1957j, p. 1).[16] How did SUPRAD educators assess learning outcomes? Again Miss Kenney's actions during Newton High School's 1958-1959 school year offer a clue:

> (1) She negotiated, set up, and put into operation a research design, including control groups, to investigate the learning outcomes of students in the 10th grade Newton Plan English program;
>
> (2) She conducted the fall testing program for the Newton English Department, including the pretests for the research;
>
> (3) She met regularly with the Social Studies Department to assist them in their efforts to clarify their Newton Plan aims and build into the program some provision for evaluation. (SUPRAD, 1959f, p. 4)

There is vagueness here in that the 1959 report describes neither Kenney's research plan nor her testing regimen. Still, there clearly was a plan and a regimen, revealing SUPRAD educators' interest in learning outcomes. This interest is also evident in Floyd Rinker's 1958 article on the Newton Plan, where Rinker—again without going into specifics—includes testing among the instruments used to evaluate the plan:

> Some evaluation of Newton Plan was carried out during the year. Students and teachers, asked to give their opinions, praised with reservations. A majority was interested in what was happening; some were frankly skeptical; a few made loud protest at the changes.

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[15] A 1962 SUPRAD memo identifies a need to ascertain students' feelings toward various learning environments: "Our focus in this area is on producing a clinically valuable instrument for measuring the emotional health and school adjustment of pupils to various school settings." (SUPRAD, 1962a, p. 1).

[16] It's worth noting that SUPRAD educators seem not to entertain the possibility that pupil achievement in the team teaching plan might be inferior to that in a control school.

> Testing and testimony clearly indicated that the program should continue and that it must test other procedures and extend to other departments. (1958, p. 72)

Here we begin to see findings ("Testing and testimony clearly indicated that the program should continue") whose emergence raises another question: What did SUPRAD educators—through use of their various evaluative instruments—learn about the success or failure of their program?

Over time inquiry, observation, and consultation all proved to be effective information-gathering instruments, whether the topic being explored was teacher attitudes, student attitudes, or learning outcomes. "[F]indings may be very briefly summarized as follows," we read in the 1959 Newton Plan Evaluation report, which continues:

> (1) The teachers have a number of reservations or at least unanswered questions about the Newton Plan; these center around two areas, the objectives of the program and its relation to the regular classroom instruction by the regular teachers;
>
> (2) The students, too, have a number of reservations; these center around the relation of the large group lecture to the regular classroom activities and the advisability of continuing the program; (SUPRAD, 1959f, p. 6)

Immediately after presentation of these two findings, a third finding arrives, the product not of inquiry or observation, but of standardized testing:

> (3) There is very little difference, in terms of learning outcomes, that can presently be measured, between students who participate in Newton Plan and those who do not participate in the program. (Ibid.)

This is a key finding, especially for advocates of SUPRAD programming. But how was it arrived at? What tests were administered? What did those tests measure? The tests, it turns out, were the Science Research Associates (SRA) arithmetic and reading indexes, which together measure a number of competencies: addition and subtraction of whole numbers; multiplication and division of whole numbers; fractions; decimals; percentages; picture-word association; word decoding; phrase comprehension; sentence comprehension; and paragraph comprehension. Widely used in the 1950s and 1960s, the SRA indexes generate findings like those presented in a 1962 Robert Anderson memo:

> Achievement Testing: SRA Achievement Tests have been administered (as part of a town-wide testing program) by the staffs and analyzed by R&D staff members Kaczynski, Wetmore and Bahner. Two methods of analysis were deployed: (1) achievement scores

> were contrasted to national norms with adjustments made for the I. Q. of the pupils involved (similar comparisons were and will be made to town-wide norms); (2) growth studies were portrayed for the various groups. Results were at least as favorable as previous results, with some indication (still to be confirmed) that advanced team teaching pupils show greater-than-anticipated growth. (Anderson, 1962, p. 2)

Anderson presents these findings in service of a funding request, characterizing them as evidence "the [team teaching] project has proceeded essentially according to plan and hopefully continues to merit the support and confidence of the SUPRAD Board" (ibid., p. 1). By 1962, then, Robert Anderson and his colleagues had embraced standardized testing in assessing their programming, albeit—as another 1962 memo shows—with some reservations:

> We have taken a new tack this year. Because measures of adjustments and comparisons of team-teaching schools and non-team teaching schools have been relatively unproductive, this spring we have concentrated on identifying particular situations in the school program which might be contributing to the maladjustment of individual pupils. (SUPRAD, 1962b, p. 1)

What this new tack meant for evaluation was increased emphasis on "discussions, interviews, and questionnaires involving the R & D staff and the school staffs" (ibid.), a qualitative approach SUPRAD educators evidently preferred to the testing-dependent approach favored by funders.[17] What did SUPRAD educators learn through use of discussions, interviews, and questionnaires? A great deal, with a 1959 report on the Franklin School hinting at the type of findings SUPRAD educators took note of:

> (1) "The children in the Franklin School were in no way confused or caused to be emotionally disturbed by the new program."
>
> (2) "Instructional outcomes during 1957-58 appear to have been no less than they would have been under a traditional system."
>
> (3) "It seems altogether justified, on the other hand, to claim that pupil enthusiasm has increased."
>
> (4) "It is possible to instruct elementary school children, at all ages and grade levels, in groups two to six time the usual class size on appropriate occasions."

[17] In the early-sixties, SUPRAD educators also administered the California Achievement Test and the Minnesota Teacher Attitude Inventory.

> (5) "Relatively little evidence was gathered either to support or to refute the contention that hierarchical structures of the kind found at Franklin School. . . promote better morale or greater incentive to superior performance." (Hagstrom, 1959b, p. 7)

SUPRAD educators gathered information for many reasons: to improve their project; to advance scholarship; to bolster budget requests; to make the case for dissemination of their pedagogy. In January, 1962, five years into SUPRAD, Robert Anderson sent a progress report to SUPRAD's administrative board making the case that SUPRAD should continue. In his report, Anderson, having touched on the "magnitude of SUPRAD's monetary investment" (1962, p. 6), adds: "The burning question of prior years, 'Has it been worth it?', remains no less pertinent as the end of the fifth year approaches" (ibid.). Anderson's answer to the burning question, unsurprisingly, was, yes, SUPRAD had been worth it, not least because it had led to widespread adoption of the Franklin School team teaching model:

> As one of the first examples of the school-university concept at work, the project has unquestionably made a contribution of incalculable importance. . . Our correspondence and the state of the literature suggest that there are now over 1,100 schools in which some form of "team teaching" or related organization is being used. (Ibid., p. 7)

Anderson's case for SUPRAD, then, rests not on learning outcomes[18] but on dissemination of SUPRAD programming and practices, as Anderson argues that imitation is not only flattery but affirmation. Was SUPRAD pedagogy untested? No, but it was unproven, at least as a guarantor of improved learning outcomes—casting doubt on the wisdom of non-SUPRAD educators who took on trust the value of SUPRAD programming. That said, if these educators were jumping the gun, so were the many parents eager to enroll their children in SUPRAD-inspired schools.

[18] Anderson admits he is unable to make such a case: "Though it may by extremely significant that little evidence of disadvantage or unworkability has appeared, it has been of little comfort to parents and participants alike that the data have offered so little affirmation of the validity and efficiency of teaching in teams." (1959g, p. 6).

Chapter Four: The Foundations of SUPRAD Pedagogy

In March, 1962, Alvin Eurich, director of the Fund for the Advancement of Education,[1] received a memo from his assistant, Ronald Gross, who had been asked to assess a request for funding submitted by officials at the South Florida Education Center, an embryonic "educational park"[2] which Eurich had visited six months earlier. In his memo, Gross candidly described and evaluated the South Florida project's educational specifications as detailed in a document that Gross, in his memo to Eurich, called "a bold, stridently self-confident blueprint" (ibid.). Hedging his bets to some degree, Gross informed Eurich that while the emerging project showed great promise—"If successfully implemented the Center would constitute an outstanding showpiece of educational experimentation" (ibid.)—it was something of an educational "catch-all" (ibid.) that, in Gross's words, "includes practically every fashionable educational innovation":

> The actual program will include large-group instruction, team teaching, flexible scheduling, independent study, small-group instruction, "middle" group instruction, elimination of grade classification of students at the high school level, and many other similar reforms. (Ibid.)

Despite Gross's misgivings ("Why. . . the somewhat dubious tone of this comment? Mainly, because of a certain lack of underlying control evident in this report" [ibid.]), the Fund for Advancement of Education embraced the South Florida Education Center, granting the project $150,000 in 1963, $385,000 in 1964, and more in later years.[3] How can we explain the Fund's generous support[4] for a project its own high-level employee called a catch-all of educational programs? Gross's memo offers a clue, for in the memo Gross credits the South Florida centre's adoption of various "fashionable" educational innovations to, at least in part, the Fund itself. In brief: if in his memo Gross doesn't directly mention SUPRAD, he does allude to the program, reminding Eurich of an earlier round of Fund support for the South Florida project: "Clearly, our travel grant to the Broward County educators has resulted in a blueprint which incorporates an

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[1] Established by the Ford Foundation in 1951, the Fund for the Advancement of Education was designed, in the words of a 1972 Ford Foundation report, "to encourage useful changes within education." (Ford Foundation, p. 8).
[2] Beginning in March 1960 the South Florida project was labeled newspaper articles an "educational park," but as late as March 1962 the project's head, Arthur Wolfe, was calling himself director of the "South Florida Education Center."
[3] By June 1966 the Ford Foundation had given the center—now called the Nova School—over $700,000.
[4] $385,000 in 1964 is $3.9 million in 2024 dollars.

extraordinarily large number of the most promising instructional and architectural innovations in American education" (ibid.). The grant referenced here, offered in Fall of 1961, was of $4500 and allowed South Florida officials to visit four Massachusetts school systems seen by the Fund as implementing "unique methods of teaching and scheduling and. . . new developments in plant planning" (Strickland, 1961, p. B1). Where were the school systems, and what was to be studied? The *Miami Herald* of August 25th, 1961, provides a summary:

> **Concord**—Programmed instruction, teacher aides and social studies.
>
> **Newton**—Teacher interne training program, locally supported junior college, large group instruction, teaching aides and flexible scheduling.
>
> **Wayland**—Team teaching, staff utilization and learning resource centers.
>
> **Lincoln**—Non-graded elementary schools. (Ibid.)

Of these four school systems, two—Concord and Newton—were parts of SUPRAD from the start, while a third, Wayland, had been brought into SUPRAD in 1959 when the "Wayland Project," aimed at designing a new senior high school ("a prototype of the best in American high school education" [SUPRAD, 1959k, section IV])—was launched.[5] The fourth school system, Lincoln, is an example of a system influenced by but not part of SUPRAD (Lincoln is midway between two SUPRAD towns, Lexington and Concord, about 8 kilometres from each), meaning that even Lincoln's most SUPRAD-like school—the Hartwell school (opened 1960) with its nongraded classes and teaching teams—is just that: a "SUPRAD-like" school.

The recommendation that South Florida officials visit these four school systems was almost certainly made by Harold Gores, director of the Ford Foundation's Educational Facilities Laboratories and a former superintendent of Newton schools, who, along with Alvin Eurich and two other Ford Foundation representatives, had in July 1961 visited the South Florida site to assess its suitability for a Ford Foundation grant. As these various visits and return visits suggest, in the early-1960s the Ford Foundation saw SUPRAD schools as having something to offer all schools, design and programming suggestions at a minimum, but—if we take seriously Gross's use of the word "blueprint"—more than that. This chapter explores not SUPRAD pedagogy itself but rather its ideological base, looking first at what Francis Keppel—SUPRAD's originator—took from John Dewey, second at what Keppel, like other Americans, derived from his Space

[5] Wayland Senior High School, purpose-built for team teaching and individualized instruction, opened in 1960. SUPRAD educator Cyril Sargent was among the school's educational consultants.

Age surroundings, whether that be trust in expertise or excitement about the future. If SUPRAD pedagogy was always a work-in-progress, by 1963, when the South Florida Education Center (now called the Nova School) opened, SUPRAD pedagogy was developed enough to provide educators with what the *New York Times* called "a prototype for education of the future" (Evans, 1963, p. E7). This development had much to do with Francis Keppel's faith in John Dewey and other progressive educators.

SUPRAD and Progressive Education

A close relationship exists between SUPRAD pedagogy and turn-of-the-20th century educational progressivism as practiced by John Dewey and his followers. Lawrence Cremin, having characterized progressive education as "the educational phase of American progressivism writ large" (1962, p. viii), describes progressive education as embracing four key tenets, the first three being:

> First, it meant broadening the program and function of the school to include direct concern for health, vocation, and the quality of family and community life.
>
> Second, it meant applying in the classroom the pedagogical principles derived from new scientific research in psychology and the social sciences.
>
> Third, it meant tailoring instruction more and more to the different kinds and classes of children who were being brought within the purview of the school. (Ibid.)[6]

Setting aside the first of these tenets, which any reasonable educator would adopt, progressive education was distinguished by its embrace of two complementary principles, (1) that schooling should be informed by experimentally-tested advances in the understanding of human behaviour, (2) that one such advance holds that each student and teacher is unique, learning or teaching in a singular way. What these principles mean in practice is that sound educational practices originate as hypotheses to be investigated in the classroom, the investigator's goal being to see whether a given practice demonstrably benefits students and/or teachers. Arguing the same point, a 1968 Educational Facilities Laboratories report, *Educational Change and Architectural Consequences,* remarks:

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[6] A fourth key tenet holds that progressive education "implied the radical faith that culture could be democratized without being vulgarized, the faith that everyone could share not only in the benefits of the new sciences but in the pursuit of the arts as well." (Cremin, 1962, p. ix). While SUPRAD educators certainly shared this belief, they didn't make it a centrepiece of their pedagogy.

> In every area of educational practice today, a striking variety of options has opened up. Suddenly all "standard operating procedures" are on trial, not under the rubric of some all-encompassing philosophy, but under the pragmatic goad of new demands and the pressing need for workable alternatives. . . John Dewey's insistence on the central importance of understanding the child and his development is no longer in dispute, despite the mistakes and misinterpretations of his followers. Educators have moved on to recognize the parallel importance of understanding and capitalizing on individual differences among *teachers*. (1968, p. 11)

The notion of 'classroom as laboratory' was central to both progressive pedagogy and SUPRAD, with, for instance, John Dewey calling his research facility (established in 1896 at the University of Chicago) the "Laboratory School," while SUPRAD educators named their school architecture offshoot "Educational Facilities Laboratories." Given Dewey's precedence *vis-à-vis* SUPRAD, it's worth exploring the source of Dewey's faith in what Cremin calls "new scientific research," if only because that faith will be transferred to Francis Keppel and his SUPRAD colleagues.

Influenced by such late-19th century philosophers as William James and Charles Sanders Pierce, John Dewey was a philosophical pragmatist sharing a pragmatist's beliefs that (in John Childs' words),

> Thought is intrinsically connected with action; theories and doctrines are working hypotheses and are to be tested by the consequences they produce in actual life-situations; moral ideas are empty and sterile apart from attention to the means that are required to achieve them; reality is not a static, completed system, but a process of unending change and transformation. (1956, p. 3)

The pedagogical consequences of Dewey's pragmatism (which Anne Durst, author of a book on Dewey's Laboratory School, describes as an "experimentalist" school of thought "grounded in the testing of ideas in real life" [2010, p. 14]), were, as Dewey himself acknowledges, profound: "An education based upon the pragmatic conception would inevitably turn out persons who were alive to the necessity of continually testing their ideas and beliefs by putting them into practical application, and of revising their beliefs on the basis of such application." (Dewey in Durst, 2010, p. 20.) The Chicago Laboratory School, Anne Durst explains,

> served as a community in which to test philosophical ideas, and these ideas in turn, shaped the experimental and democratic structure of the school. Both ventures were rooted in

> Dewey's desire to replace tradition with a new school of thought; as he wrote of the school, he wanted to "break out of the treadmill." (Ibid.)

One important consequence of progressive educators' interest in "new scientific research in psychology and the social sciences" (Cremin, 1962, p. viii) was that these educators (to again quote Lawrence Cremin) "tailor[ed] instruction more and more to the different kinds and classes of children" (ibid.) This increased focus on differences among and between students makes sense given early-20th century psychologists' fascination with the individual mind (as seen for instance in their use of IQ tests), which was one manifestation of Progressive Era social scientists' wide-ranging interest in classifying social phenomena of all kinds. On the latter point, the Progressive Era was (like the Space Age) a transformative period in the United States, when arrival of new immigrant groups meant introduction of new ways of life, resulting in what historian Jackson Lears calls "an atmosphere of experiment [and] the conviction that life contained more surprise and possibility than previously imagined" (in Durst, 2010, p. 100). John Dewey's insistence that instruction be tailored to different kinds and classes of children, then, was common sense given that the typical classroom, maybe for the first time, contained a variety of such kinds and classes. (Dewey's Laboratory School certainly did.[7]) In sum, given that pragmatists, in Dewey's words, were interested in "objects already given or presented, existentially vouched for" (1916, p. 309), an educator in Progressive Era Chicago (or another large American city) had to be cognizant of the diverse student body in his or her classroom, compelling that educator to ask how instruction could be shaped to meet each student's needs.

SUPRAD educators would later ask these same questions not because they taught in an immigrant community (SUPRAD communities were anything but diverse), but because their pedagogy incorporated many Deweyan beliefs, including those touching on the distinctiveness of each student. "The turn of the century brought with it the beginnings of a reaction against regimented instruction," a 1960 EFL report explains, continuing:

> From about 1890 to the 1920's the size of the class was reduced to 40, 35, or 30 children. The change was influenced by a number of factors—the falling birth rate, the slowdown in population growth, and the rise in church-related school enrollments. But basically it sprang from public acceptance of changed educational outlooks and standards. which had come in turn from new knowledge of child growth and recognition of individual

[7] In 1891 Chicago forty-one percent of residents were foreign born. (Durst, 2010, p. 99).

> differences. The germination of the ideas spread by Pestalozzi, John Dewey, and William James, had stimulated a freer approach to education, entirely redirecting the elementary schooling of children. The concept of the pupil as the passive recipient, the sponge soaking up information in preparation for adult life, was discarded. (1960, p. 22)

This passage is found in a sweeping (148 page) document which in the course of surveying how different nations (Sweden, Brazil, Japan, etc.) fund school construction, examines the evolution of school design in the United States, describing how "As America changed, so did the schools, keeping step with the development from an agricultural economy to an industrial, urbanized society" (ibid., p 20). In SUPRAD educators' eyes, John Dewey played an important role in the modernization of American schooling, a role a 1960 Educational Facilities Laboratories (EFL) text describes in detail:

> Observation and investigation now took the place of memorization. Discussion, evaluation, and self-expression now superseded the mere regurgitation of facts. This opened the doors to new subject matter. . . The multiplicity of subjects and of activities of the youngsters involved led to breaking the class into small groups for part of each day. . . Such varied and mobile activities made a great demand on space. Not only was more space needed, but it was also necessary to have moveable furnishings as well to allow for changing activities during the day. (Ibid., pp. 22; 24)

Evident from this document (*The Cost of a Schoolhouse*) is that EFL's interest in "Yesterday" (a chapter title in the document) reflects its attentiveness to "Tomorrow" (another chapter title). In brief, EFL educators valued Deweyan pedagogy not for its past relevance but for its future applicability, seeing Dewey's ideas—especially regarding the importance of experimentation and the need for tailored instruction—as credible enough to warrant further investigation, ideally in more controlled settings than were available in the early-1900s. Discussing the work of Jerrold Zacharias, who developed a Space Age physics curriculum, and Jerome Bruner, who organized a pedagogy around the findings of psychologists and other social scientists, Francis Keppel writes: "Those who cheer, with great good cause, the new problem-solving approach to physics by Dr. Jerrold Zacharias or the new approaches to learning by Dr. Jerome Bruner often fail to realize that they have brilliantly developed what John Dewey conceived a generation ago" (1965b, p. 6), a remark identifying Dewey as not only an inspiration to Keppel but also a model researcher. "Laboratory School teachers," we read in Anne Durst's study of Dewey's educational enterprise,

"worked in close collaboration with many different departments of the University of Chicago" (2010, p. 143). SUPRAD researchers, too, relied on collaboration with primary and secondary school teachers, suggesting that these researchers adopted not only certain of John Dewey's beliefs about schooling, but also his approach to testing those beliefs, an approach in which "schoolmen and the interested public" (EFL, 1968, p. 11) work together to identify "what works best in the accomplishment of specific instructional goals" (ibid.). Pedagogically, then, we find SUPRAD educators adopting both Deweyan ideas about education and Dewey's method of testing those ideas. Yet Dewey's influence on SUPRAD pedagogy extended beyond these two areas, with SUPRAD educators also borrowing a number of Dewey's instructional practices. "From 1896 to 1903, John Dewey and his associates operated the Laboratory School of the University of Chicago," SUPRAD educator Robert Anderson remarks in *Teaching in a World of Change*, adding:

> American education will forever profit from some of the ideas underlying that noble experiment. Dewey's work was in large measure a rebellion against rigid graded structures (as, indeed, were most of the other reform movements), but it may surprise the present-day educator to learn that Dewey was among the first to argue for team teaching! Dewey's phrase was "cooperative social organization," and it was his intention that intellectual association and exchange should be a major factor in the lives of pupils and teachers alike. (1966, p. 77)

Anderson is not wrong to suggest that Dewey's Laboratory School housed experiments in both nongraded classes and team teaching, although in each case the experiment was less ambitious than those conducted by SUPRAD educators. Dewey's version of team teaching, for instance, although it did anticipate several SUPRAD practices—specifically teacher specialization and collaborative planning—lacked the co-teaching component in which teachers deploy in teams assigned to a single classroom. This is clear from Anne Durst's description of the Laboratory School's proto-team teaching procedures:

> As the Laboratory School community found, generalists at the elementary level cannot be sufficiently expert in the wide range of subject matter taught in today's schools. It is unlikely that our educational system will undergo a large-scale reorganization and adopt the specialist model in all elementary schools, but a version of this model is possible. If all teacher education candidates are required to major in a content area that they expect to

> teach, then elementary schools could be organized in such a way as to capitalize on the varied expertise of their teachers, and hiring could be done based in part on the content specialties of prospective candidates. (2010, p. 137)

For anyone familiar with SUPRAD practices, these descriptions (of hypothetical 'Deweyan' practices) read as pointers to later SUPRAD programs. That SUPRAD educators took note of Dewey's rudimentary team teaching program is evident from Robert Anderson's citing of a relevant Dewey observation: "It is the absence of cooperative intellectual relations among teachers that causes the present belief that young children must be taught everything by one teacher" (Dewey in Anderson, 1966, p. 77).

"Pedagogy," writes Robin Alexander," is the act of teaching together with its attendant discourse of educational theories, values, evidence and justification" (2008, p. 47). With this definition in mind, it's possible to appreciate how much SUPRAD pedagogues borrowed from their Deweyan predecessors, from theories about the importance of tailoring instruction to meet the needs of individual students to "justifications" premised on the pace of social transformation and the resulting need to continually test educational practices to ensure their effectiveness. One aspect of pedagogy unmentioned by Anderson relates to best practices in school design, and here, too, SUPRAD educators were influenced by John Dewey and his colleagues. "Observation [in progressivist schools]," we read in EFL's *The Cost of a Schoolhouse* (1960), "led to the study of elementary science and home geography; discussion developed an interest in the study of language usage as distinct from formal grammar; counting and measuring led to a whole new study of numbers and primary arithmetic" (1960a, p. 22). This survey of the "multiplicity of subjects" (ibid.) taught in a Deweyan school precedes a discussion of the design implications of such an instructional potpourri, with a key conclusion being that progressivist schools evolved to be more adaptable: "Such varied and mobile activities made a great demand on space. Not only was more space needed, it was necessary to have mobile furnishings as well to allow for changing activities during the day" (ibid., p. 23). What is striking here is that while the EFL authors are describing a progressivist school, they could just as easily be describing EFL-designed school like those depicted later in their report:

> Many schools are now [i.e., the early-sixties] being designed to provide instructional spaces of varying size from individual study spaces to the small, round-the-table, seminar space, to lecture-discussion rooms that double, triple, or even quadruple the standard

> classroom. But the desire now expressed by a number of schools to achieve malleable space that can be shaped at once and at will must await the development of a retractable partition which will give acoustical privacy. (1960a, p. 128)

To the extent a "retractable partition" is a type of "mobile furnishing," an EFL-designed school shares with a Deweyan school (as described by EFL authors) a design conducive to varied class sizes and rapid rearrangement of space, necessary features of a school meant for individualized learning. One thing this suggests is that just as the Space Age shares traits with the Progressive Era (rapid technological and social change; unpredictability), so SUPRAD pedagogy—although original in many respects—was built on Progressive Era foundations.

Francis Keppel and the Origins of SUPRAD Pedagogy

Francis Keppel conceived of the SUPRAD project while a New Hampshire delegate at the 1955 White House Conference on Education, a five-day meeting described by the *New York Times* as a "powerful searchlight turned upon America's vast educational system" (Fine, 1955, p. 69). "In a true sense," the *Times* added,

> this is a "grass roots" movement never before undertaken in the United States. During the last twelve months forty-eight state-wide conferences, scores of regional and thousands of local meetings have been held. Citizens of all stripes—housewives, farmers, bankers, labor leaders, lawyers, doctors, merchants, educators—have joined together at the sessions. (Ibid.)

Upon his return from the conference, Keppel readied a detailed (70 page) proposal[8] for the Ford Foundation, explaining how the Harvard Graduate School of Education—if funded by the Ford Foundation—could help "close the gap" between what the White House Conference Committee (quoted by Keppel) called "educational ideals and educational reality" (Keppel, 1956a, p. 2). "In our judgement" Keppel writes in his proposal,

> the universities must see to it that old facts are recast in new frameworks. Some of the basic assumptions of American education must be re-examined. Solutions to problems must be subject to rigorous critiques in laboratory and seminar, and to evaluation in the field. (Ibid., p 4)

[8] Keppel's "Basic Document."

Keppel's proposal presented Harvard as uniquely able to take on these tasks. "The [Harvard] Center for Field Studies will bear major responsibility for initiating the plan in schools. The Center is already experienced in studying the community and school settings into which any new policy must be introduced. The staff will have to be augmented for what we envisage, but the cadre of personnel necessary for this enterprise is already at Harvard" (ibid., p. 56). SUPRAD, then, was Keppel's means of fostering cooperation between Harvard and public school systems, specifically the nearby systems of Lexington, Newton, and Concord, with Harvard's role being to ask (and provide answers to) a series of questions: "What should be the aims of schools? What should they teach? What services should they render? What should be their role in the selection and guidance of pupils? What should be their relation to the wider community?" (ibid., p. 8). As Keppel explained in his proposal, a school-university program is needed

> not only to improve or invent instruments for evaluating the results of education, but also to design methods of analysis; to evaluate the use of staff by schools, to assess the reorganization of the curriculum, the use of teaching devices, and to study the redesign of school buildings. (Ibid., p. 11)

The launch of SUPRAD, Keppel and Paul Perry[9] noted four years into the project, was sparked by their own and other educators' awareness of shortcomings in American educational practices: "The problems that have led to the present programs centered at Harvard are familiar to educators and to laymen alike. The quality of American schools, while excellent in many areas, still falls short of what it could be and should be. Too few highly qualified college graduates, especially men, enter the teaching field. Of those who do, not enough stay as 'career' teachers because of the low salaries and status of teachers in many communities, the sense of stagnation often felt in teaching jobs, and the lack of a visible and attainable sequence of professional advancement" (1961, p. 175). Although it mentions "problems," this passage focuses on a single problem: the lack of high-calibre individuals drawn to the teaching profession ("especially men" is a telling archaism). Keppel's solution to the problem was team teaching, which allowed for a teaching hierarchy along the lines of a military chain-of-command—an improvement which, in Keppel's view, facilitated a number of other improvements. "The Harvard Graduate School of Education," Keppel and Perry acknowledged, "has not invented any freshly minted approach to the improvement of American education. The various programs that make up its approach have

[9] Perry was SUPRAD's assistant director.

roots that go back for many years" (ibid., p. 174). As this suggests, Keppel did not conceive of SUPRAD as a source of new educational practices, but rather as a laboratory where existing practices could be tested, refined, and—if proven effective—shared with the nation.

Francis Keppel had first conceived of SUPRAD in 1955,[10] not coincidentally the same year many Americans—including President Eisenhower—began speaking of a "crisis" in public education. Beginning in 1955, as Walter McDougall notes, Eisenhower "sponsored brick-and-mortar bills. . . to help states cope with the baby boom" (1985, p. 161). However, these bills, McDougall adds, failed to win congressional support: "Confusion among reformers, resistance on principle to governmental meddling in the classroom, and thorny issues raised by parochial schools and desegregation all contributed to deadlock" (ibid.). With the 1957 launch of Sputnik, however, much of this resistance melted away, as (to again quote McDougall) "educational lobbies and their bureaucratic allies unabashedly exploited the panic and denounced U. S. schools as second rate" (ibid.).[11] Because so impassioned, these late-fifties denunciations give the impression that Sputnik ushered in an educational revolution when in reality the Soviet success inspired reform rather than transformation. In effect, what happened after Sputnik was that many school reform proposals which had been gathering dust received a fresh hearing—among them a set of proposals advanced by Francis Keppel, who was nothing if not in tune with the mid-fifties zeitgeist.

Keppel's mid-fifties Ford Foundation proposals[12] are important for three reasons. First, they follow on Keppel's time as a delegate at the White House Conference on Education and so speak to widespread Cold War concerns about the quality of American schools. Second, they reflect Keppel's experiences as a Space Age citizen excited by new scientific and technological possibilities. Third, they anticipate the late-fifties SUPRAD program and so offer a first glimpse at an embryonic SUPRAD pedagogy. While listed separately here, and although each is worthy

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[10] As early as June, 1955, Francis Keppel was warning in speeches of an impending teacher shortage: "[Keppel] listed as one of the grave problems facing education the grave shortage of teachers. 'For at least a decade,' he said, 'we must be prepared for a serious shortage and may have to cut our program to fit the cloth available.'" ("News Digest," 1955, p. 2).

[11] A key bureaucratic ally was Admiral Hyram Rickover, whose 1959 bestseller *Education and Freedom* urged Americans to ask more of public schools. "[We] must bring excellence to American education. Let us stop fooling ourselves by counting school desks without considering what the children sitting in those desks are being taught. Many of our children are merely parked in the schools. They merely have a good time there. Few get a twentieth-century education." (P. 38).

[12] Francis Keppel's Basic Document was one of several proposals Keppel submitted to the Ford Foundation in the mid-fifties.

of concentrated attention, these three claims are best studied together, as pointers to a yet more important reason to explore Francis Keppel's mid-fifties writings, namely that in concert they speak to Keppel's sense that the educational policy-making process—the process resulting in changes in how schools operate—needed to be reformed so new voices could be heard and new ideas could be considered. Whose voices and what ideas? In answering these questions, Keppel's mid-fifties writings promoted a radically new pedagogy.

Published four months after the White House Conference on Education, Keppel's March, 1956, article "The Search for Common Ground" argued for inclusion of schools of education in the educational policy-making process, making the piece something of a SUPRAD *ur*-document. "No formula is available for the proper balance and mixture of the forces which should influence educational policy," Keppel's article begins, continuing:

> What seems appropriate today may seem unwise tomorrow. The schools are so closely linked with society that development in one area will affect other areas. The requirements of national defense may call for rapid preparation in some specialties, while at another time the reduction of working hours may call for a more leisurely teaching of cultural subjects. The problem here is not what the precise policy shall be, but rather how decision on that policy should be reached. (1956b, p. 5)

Already in this first paragraph, Keppel makes three claims later central to SUPRAD pedagogy, arguing (1) that the future is unknown making educational policy making exceedingly difficult, (2) that schools have national as well as local responsibilities, and (3) that the educational policy-making process needs to be reformed. Of interest for what they reveal of Keppel's developing pedagogy, these claims are also important for what they say about Space Age America. The mid-fifties, as Keppel notes, was a time of great uncertainty, when nothing—political, technological, economic—appeared stable. While this instability unsettled many Americans, John F. Kennedy, in a speech accepting the 1960 democratic nomination for president, welcomed it, associating the unknown not with fear but with discovery:

> I stand tonight facing west on what was once the last frontier. From the lands that stretch three thousand miles behind me, the pioneers of old gave up their safety, their comfort and sometimes their lives to build a new world here in the West. . . Today some would say that those struggles are all over—that all the horizons have been explored—that all the battles have been won—that there is no longer an American frontier. But I trust that no one in this

> vast assemblage will agree with those sentiments. For the problems are not all solved and the battles are not all won—and we stand today on the edge of a New Frontier. (Kennedy, 1960)

This speech has been quoted at length because Kennedy expresses so well the Space Age sense of an excitingly undetermined future: "I tell you the New Frontier is here," Kennedy continues, "whether we seek it or not. Beyond that frontier are the uncharted areas of science and space, unsolved problems of peace and war, unconquered pockets of ignorance and prejudice, unanswered questions of poverty and surplus" (ibid.).

Francis Keppel, too, took a keen interest in uncharted areas, unsolved problems and unanswered questions, although in the educational sphere rather than the political, technological or economic. Much of Space Age Americans' uncertainty and excitement about the future was related to technological advances which seemed to turn space travel and other science fiction fantasies into real possibilities. "Technological innovation," Sean Topham writes in *Where's my Space Age* (2003), "brought a sense of rediscovery in the most everyday activities. It was as if we all had another chance at childhood, an opportunity to start over using a new set of rules, and remake the future" (p. 57). Keppel in "The Search for Common Ground" is less convinced than Sean Topham's Space Age Americans that an unknown future necessarily means a *better* future, arguing only that uncertainty—given the state of the world—is something a Space Age educator must contend with: "There are almost a limitless number of factors—family, quality of teaching, environment, the tone of the school, the state of the nation, to name only a few—which combine to make the task of choosing subjects and of teaching children a matter of the utmost intellectual and moral difficulty" (1956b, p. 8). Keppel's mid-fifties concern about educational planning in uncertain times, however, had been by the early-sixties replaced by a Kennedyesque faith in the power of knowledge, as Keppel (now U. S. Commissioner of Education) strikes a more confident note:

> To plan for tomorrow, we must realize that the accelerating expansion of knowledge, the growing complexity of the world, and the rapid advance of technology demand an excellence in today's education sufficient to cope with work and conditions that do not yet exist and cannot yet be clearly defined. This requires more than an increased storehouse of knowledge, much of which soon becomes obsolete. It requires a new approach to learning

> in order to provide for continuous renewal of information, continuous re-revaluation of outlooks, and continuous improvement of actions and reactions. (Keppel, 1963a, p. 5)

Here we find Keppel openly linking a set of beliefs—e.g., about the need for schools to provide increased and continually "renewed" information—to Space Age conditions, where knowledge expands as the world becomes increasingly complex and technology rapidly advances. Earlier it was noted that the early years of the American Space Age (1958-1963) were marked by non-stop experimentation, and in Keppel's speech we see how such experimentation impacted society at large and educators in particular (as knowledge expanded and technology advanced). For Keppel and other SUPRAD educators, planning for tomorrow's world was (to quote Keppel's "In Search of Common Ground") "a matter of the utmost intellectual and moral difficulty" (1956b, p. 8), the difficulty arising from the world's unpredictability and researchers' attendant need to continually revise their thinking.

A second point Keppel makes in "The Search for Common Ground" is that schools, because "so closely linked with society that development in one area will affect all areas" (ibid., p. 5), have responsibilities beyond the merely local: "The requirements of national defense may call for rapid preparation in some specialties, while at another time the reduction of working hours may call for a more leisurely teaching of cultural subjects" (ibid.). As noted above, the Eisenhower administration, beginning in 1955, sponsored a series of "brick-and-mortar bills" (McDougall, 1985, p. 161) to help schools cope with overcrowding, part of a broad effort to, in Walter McDougall's words, "channel federal dollars into curriculum, teaching, and equipment" (ibid.). If the Eisenhower administration's brick-and-mortar bills met with some success, while the latter efforts failed (for a number of reasons), Eisenhower's attempts to improve schools spoke to his belief that schools needed to serve the nation, whether by producing scientists and technicians, or, more elusively, by preparing young people to, in Eisenhower's words, "discharge their functions as a citizen of America" ("Text of Remarks," 1955, p. 25). The idea that schools should serve the nation was taken for granted at the 1955 White House Conference on Education, where a committee tasked with addressing the question "What should our schools accomplish?" prioritized in its answer a number of national needs:

> In this era of international stress, the United States has unusual demands for good scientists and engineers, in addition to other specialists. There is a necessity for broad understanding of the meaning of citizenship in the United States. America must have citizens who know

> something of other nations and are equipped to understand their own Nation's role in international affairs. These special needs can be assigned a high priority by schools which are pursuing the broad list of objectives currently demanded by the people. (Committee, 1956, p. 12)

Perhaps unsurprisingly given his presence at the 1955 White House conference, Francis Keppel in the mid-fifties embraced not just the idea that local schools had national responsibilities, but also a particular understanding of where those responsibilities lay, arguing in "The Search for Common Ground" that a vexing problem facing schools was how to balance local and national concerns: "The problem centers on. . . how best to fuse national interests with local responsibility in providing equality of opportunity, in setting standards, and in meeting national personnel requirements" (1956b, p. 6). The challenges involved in balancing a school's local and national responsibilities crops up again in Keppel's 1956 SUPRAD proposal, where Keppel affirms that such challenges were a key topic discussed at—if not the reason for—the 1955 conference on education: "The problem of the schools are the problems of the American people. By long tradition, the management of school policies has been kept largely in the hands of local boards of education, and it was the purpose of the White House Conference of 1955 to inform the people and their government on the nature of these issues and on ways to solve them" (1956a, p. 1). It goes without saying that the purpose of the 1955 conference was not *only* to wrestle control of schooling from local boards of education, nor was this SUPRAD's only purpose, but Keppel and his SUPRAD colleagues clearly felt that wholly local control of schooling had disadvantages, not least when it came to encouragement—even acceptance—of innovation: "The American school system is decentralized, and the school system, under local control and with limited supplies of higher skilled personnel, has little capacity for internal experimentation" (ibid., p. 15). From its beginning SUPRAD was seen by its originators as expansionistic program which once up and running would impact school systems throughout the United States, the goal being to develop an updated version of what David Tyack calls "the one best system," that is, a "uniform system of education" (1974, p 41). Like the U. S. Congress which in passing the 1958 National Defense Education Act declared "the security of the nation requires the fullest development of the mental resources and technical skills of its men and women" (in Advisory Commission, 1981, p. 25), Keppel in the mid-fifties came to believe education was too important to be left to local boards

of education, insisting that SUPRAD, or something like it, was needed to bring American schools up to date.

Keppel, moreover, touches in passing on what was in the 1950s a contentious topic in educational policy making: equal educational opportunity. Discussing the challenges inherent in balancing national and local interests, Keppel offers as a first example of where interests might come into conflict "[provision of] equality of opportunity" (1956b, p. 6)—mid-fifties shorthand for school desegregation. Desegregation of all social domains (educational, residential, athletic, employment, etc.) was for many Space Age Americans *the* pressing issue, reflecting a Space Age tendency to equate racial and other types of progress, the foundational belief being that racial prejudice belonged to the airship age, while racial tolerance was—or should be—characteristic of the rocket age. Allying the Kennedy administration with this belief, Vice President Lyndon Johnson remarked in a 1962 speech ("The New World of Space"): "Because the Space Age is here, we are recruiting the best talent regardless of race or religion, and, more importantly, senseless patterns of discrimination in employment are being broken up" (in Paul and Moss, 2015, p. 72). A key word here is "senseless," which presents Space Age thinking (e.g. regarding race relations) as sensible, that is, as guided by reason. Evident from Johnson's 1962 speech is that Space Age thinking was linked with racial tolerance, whether in schools or the workplace, not only because such tolerance was moral, but also because it was seen as *reasonable* in that, given a need to find the best person for a job, it makes sense to include all people in the pool of potential hires. Speaking at a 1963 conference on space, science and urban life, Bernard Haber, an executive at North American Aviation, characterized his industry as fully committed to Space Age hiring practices:

> [The] aerospace industry has been in the forefront of the movement to provide equal employment opportunities to all Americans, regardless of race or creed. My own company has, for instance, several thousand Negroes employed at various levels of responsibility. (NASA, 1963, p. 198)

These self-congratulatory words ally rocketry, already associated with technological progress, with social progress, conflating two types of innovation in a manner Keppel and his SUPRAD colleagues would approve of. SUPRAD's own alliance with racial progress was strengthened in 1963 when SUPRAD educator Neil Sullivan was hired as superintendent of the Prince Edward County Free Schools, where he immediately implemented a team teaching, nongraded program,

explaining in doing so that such a program was "cut out to help the children of Prince Edward County" ("Free School Officials," 1963, p. A1).[13] Recruited to Prince Edward County by Francis Keppel (then U. S. Commissioner of Education), Sullivan was one of many SUPRAD educators who believed their pedagogy promoted equal educational opportunity.

Francis Keppel's "In Search of Common Ground" also speaks to Keppel's interest in educational policy making. "The problem here is not what the precise policy should be," Keppel writes, "but rather how decision on that policy should be reached" (1956b, p. 5). Although Keppel is here referring to a single issue ("whether other than local influences or restraints can be brought to bear on school boards without endangering their initiatives and responsibilities" [ibid.]), he wants to advance a more general claim: that the educational policy-making process is itself flawed, in large part because it ignores the views of "scholars" (ibid., p. 6), the people most likely to provide informed (and influential) analysis:

> The collegiate and university groups, by the very nature of their specialties, are in touch with a wide variety of regional and national interests. . . Compared to the educator who deals only with the problems of the local primary and secondary schools, college personnel are in a better position to apply influence at the several levels of government and of private enterprise. (Ibid.)

Keppel here describes a system of a certain kind, a technocratic feedback loop, where experts consult with other experts to jointly develop educational policies. The problem with *not* having such a loop, for Keppel, are two-fold: first, local educators with limited knowledge have too much influence; second, knowledgeable scholars have too little influence. Of these two issues, the second is for Keppel the more important, primarily because university and college groups are in his view the groups who should have the *most* influence on educational policy making. In his 1956 Basic Document, Keppel identifies school-university relationships as one way to align local and national interests:

> Changes in public school systems resulting from the work of faculty members in the universities, under current arrangements, take place slowly. New insights or new analyses of the aims of education meet with conflicting values in the schools and may not have a significant impact upon practice for many years. . . The university must assume a new role

[13] The Free Schools were set up to educate African American students in Prince Edward County, Virginia, who had been denied formal schooling for four years after the county closed public schools to nullify a desegregation order.

> and undertake new functions, those of direct participation and responsibility for programs of social action, if dramatic gains in closing the gap between educational ideals and educational realities are to be met. (1956a, p.14)

Keppel's frustration reflects his sense that despite scholars having much of value to contribute to conversations about educational policy, their insights and analyses are either ignored (perhaps because at odds with local values) or accepted to no purpose (perhaps because obsolete due to a long lag between acceptance and action-taking). In any case, Keppel is convinced that scholars—experts themselves and in touch with other experts—are needed participants in discussions about schooling.[14]

Space Age Technocracy

The launch of Sputnik in October 1957 invited an American response, and one duly arrived two months later with the launch of Vanguard, a 22-metre-tall rocket carrying a 3.5 pound satellite. However, Vanguard never reached orbit—or even the Cape Canaveral skyline. As Dale Carter explains:

> On 6 December 1957 [Vanguard] successfully completed its countdown, rose some four feet off the launch pad, then sank back down and exploded in front of 'swarms of newsmen' and an expectant nationwide television audience. Vanguard, already reduced to the status of rearguard by the Soviet satellites, was lampooned by the press and redubbed 'Flopnik,' 'Kaputnik,' or 'Stayputnik'. (1988, p. 129)

This episode deserves mention because it alerted—with a bang—Americans to the challenges of space exploration, highlighting the experimental nature of rocketry in general and American rocketry in particular. Between Vanguard's failure in December, 1957, and the successful launch of Freedom 7 (the first Mercury mission) in May, 1961, space crazed Americans experienced a rollercoaster ride of emotional highs and lows, as several uncrewed rockets disintegrated upon re-entry. To Americans' great comfort, Project Mercury was led by a squadron of scientists and technicians, most of whom seemed capable of solving the thorniest problems—all of which is to say that Francis Keppel was not alone among Space Age Americans in calling for empowerment

[14] What types of discussions does Keppel have in mind? "Concentrated effort could be put on analysis of aim, on the development of new curricular and teaching methods, on basic research into the understanding of the development of character or the influence of social and economic forces on educational policy." (1956a, p. 17).

of the credentialed. Indeed, what Keppel took on trust in the mid-fifties about the university—"[It] must assume a new role and undertake new functions" (1956a, p. 14)—was believed by many Americans about *all* high-level agencies and organizations.

In March of 1963, a conference on "Space, Science, and Urban Life" brought together educators, engineers, and government officials to explore ways to apply "space age techniques" (NASA, 1963, p. 1) in the management of large cities. Co-sponsored by NASA and the Ford Foundation, the three-day conference focused on two questions: (1) Can a national program of space exploration be applicable to the daily tasks of the men and women who live and work in our central cities? (2) How might new knowledge, developing in these days of scientific and technological revolution, be used to seek answers to the critical issues facing expanding urban populations? (ibid., ix). Among the conference's discussants was NASA Director James Webb, who (unsurprisingly) answered the first question with an enthusiastic "Yes" before arguing that "new understanding and knowledge" can be a mixed blessing:

> Man is no longer rooted to terra firma, to his native land, or to his city block, either in the literal sense or in his understanding of the powerful forces of the universe of which he is a minuscule part. . . And while he may fear these changes in relation to his own ability to adapt himself to their consequences, he anticipates them with some eagerness, as well, because he is surrounded by ever present evidence of the benefits he has already received from the scientific and technological progress of the past. (Webb, 1963, p. 94)

In arguing that Space Age science and technology have rendered obsolete a slew of old concepts, Webb echoed a central theme of the 1963 conference: that a new age required new ideas in all areas of life. As Wayne Johnson, Oakland's city manager explained: "It is imperative that we depart from time-worn traditions and concepts and adopt space-age techniques to cope with the problems of our space-age cities" (ibid., p. 1). And who, in Wayne Johnson's view, is best able to navigate the brave new world of the Space Age? Arguing that Space Age solutions are needed to solve Space Age problems, Johnson identifies technologists as best able to develop or discover such solutions: "For some years now, the preponderance of the Nation's scientific talent has been directed to solving problems of national defense and space research. It is our hope that we can direct a good proportion of this scientific information to solving our urban problems" (ibid.). As this passage suggests, Johnson's vision is of a technocratic society in which America's scientific and technical experts shift their collective attention from national defense and rocketry to urban

issues. The idea that technological expertise is free floating and universally applicable was taken for granted by many Space Age Americans

Writing in 1965, William Carleton characterized the United States as a "technocracy," defined as a "technicalized, cybernetic, computerized society increasingly run by scientists, engineers, and technicians. . . a new elite [consisting of] strategically placed scientists and administrators in the leading universities, the national foundations, the big corporations, and government" (p. 496). Although superficially a democratic nation, the United States, Carleton argued, was in fact governed by this new elite, an ever-expanding group empowered by Space Age deference to expertise:

> The whole trend of the technocratic society is away from vital decision-making by electoral, party, and parliamentary processes and toward decision-making by administrators flanked by specialists and technicians. Technological questions are complex, the very kind thought most to be in the province of "the experts." Americans are so biased in favor of technological "progress," no matter the social and esthetic implications, that they may not always be counted on to make discriminating choices, even if choices were submitted to them. (1965, p. 494)

NASA, with its legions of scientists and technicians tasked with solving complex problems, [15] was for Space Age Americans both a microcosm of and a model for a well-managed technocratic society, exemplifying what was possible given training and know-how. In Walter McDougall's words, "NASA's destiny was to serve as a prototype for reallocation of national power for social and political goals" (1985, p. 382). "To LBJ," McDougall adds, explaining NASA's importance to the president and his advisors, "the space program was a model of the role government should play in society, and the role technology should play in government" (ibid., p. 406). In Space Age America it was a common trope that a nation that could send a man to the moon should be able to feed its citizens or protect its rivers or (especially) educate its children. Speaking at the 1963 conference on space, science and urban life, MIT's Jerome Wiesner made the case that NASA had much to teach educators:

> It is surprising that scientists and engineers, who have employed team effort on so many projects—for instance, radar—have taken so long to realize that team effort might pay off in education as well. NASA is attempting to assist in this whole educational process,

[15] Each Mercury capsule had 40,000 functioning parts. (Carter, 1988, p. 164).

> particularly at the higher educational level, both by generating additional manpower (in part to pay back the society for the people it is employing), and by stimulating efforts of institutions to understand 'spillover.' Much of the research and development carried out in connection with the space program can be employed to advantage in nonspace and non-military fields. (NASA, 1963, p. 70).

Francis Keppel, too, was interested in "spillover" from the military to the educational sphere, most obviously in his promotion of teaching teams complete with a chain of command and a clear division of labour. Keppel's "Basic Document"—i.e., his original SUPRAD proposal—makes plain his vision of teaching teams as quasi-military units, explaining at one point that the proposed teaching teams would among other things "test the value of a team plan in which teaching personnel at differing levels of ability and training are assigned under the direction of a leader to those tasks for which they are best fitted" (1956a, p. 24). Keppel's first publication, written in 1943 when he was a secretary in the Joint Army and Navy Committee on Welfare and Recreation, described a number of military programs aimed at educating soldiers and sailors about the dangers of fascism and importance of democracy, and in that article we find Keppel wrestling with a series of challenges related to importing educational concepts—teachers, lessons, classes—into a military setting. With Keppel's Basic Document, an inversion occurs, as Keppel imports a military model into an educational setting, with his 1956 proposal including descriptions of "teaching divisions" guided by a "'cabinet' of top-ranking personnel" (1956a, p. 42). The importance of Keppel's militarized vision of schooling lies in its congruence with technocratic principles, specifically those principles related to finding top-down, large-scale, technology-based solutions to social problems. "Technocratic methods," Walter McDougall remarks, "became widespread in the military emergency during and after World War II. But technocratic *ideology* captured the country only after Sputnik, when a new willingness to view state management as a social good and not a necessary evil turned a quantitative change into a qualitative one" (1985, p. 436). In *Top Down*, her study of the Ford Foundation, Karen Ferguson describes Henry Ford II—the original automaker's grandson—in words that could be applied to Francis Keppel:

> He belonged to an elite formation of corporate, government, military, university, media, and philanthropic leaders, which played a pivotal role after the Second World War to perpetuate the nation's unprecedented prosperity and to expand its international

> dominance. . . They believed wholeheartedly in a boundless and beneficent corporate capitalism undergirded by the Keynesian security state and a technocracy of trained experts to manage the nation's social, economic, and political modernization. (2013, p. 5)

In "The Century of Technocracy," William Carleton describes a very similar collection of elite actors (Carleton's group includes "scientists and administrators in the leading universities, the national foundations, the big corporations, and government" [1965, p. 496]), suggesting that Francis Keppel and other members of the post-war liberal establishment were not only members of what Ferguson calls an "elite formation," they were also exemplary technocrats, i.e., men and women whose "whole bent" (to again quote Carleton) "is toward an unquestioning acceptance of technocratic values [including] more emphasis on methodology, tools, techniques, expertise, and to an even more minute subdivision of research" (ibid., p. 497). The idea of a technocratic social order clearly displeases Carleton ("We seem to be headed for new caste societies, for hierarchies based on brains and training, for stratifications more invidious than those of the old aristocratic societies" [ibid., p. 496]), but most Space Age Americans embraced the idea, idolizing scientists and engineers while promoting a view Lawrence Tribbe describes in *No Requiem for the Space Age,* "[which insists on] technocratic rationalism as the foundation of a progressive society, on the essential value of bureaucratization, and on the necessity of technocratic experts to translate reason into positive action" (2014, p. 163). Such a view, Tribbe adds,

> transcended the merely technocratic, fostering a broader cultural atmosphere infused with the belief that the only valid avenue to knowledge and truth was science; that largely equated progress with technological advancement (which would, proponents believed, inevitably benefit "all mankind"); and which viewed life, society, the world, and the universe as ultimately knowable via science, technology, and reason and considered all of these elements (life and society included) free to be manipulated for human benefit. (Ibid., p. 19)

When Francis Keppel in "The Search for Common Ground" writes, "The problem here is not what the precise policy should be, but rather how decision on that policy should be reached" (1956b, p. 5), he is not only advocating for input from scholars ("[who] by the very nature of their specialties, are in touch with a wide variety of regional and national interests" [ibid.]), he is also promoting a particular way of thinking, wide-ranging, well-informed and humble enough to recognize its own limitations: "The scholar's knowledge is complex and detailed. Those of us

who are ignorant of the hard fight for scholarly facts, and of the danger of easy generalization in difficult subjects, should not be restless in the face of cautious learning" (ibid., p. 7). This notion of a scholar—as a particularist interested in miniscule differences—recalls Carleton's description of a technocrat as someone devoted to "an even more minute subdivision of research" (1965, p. 497), not least because in both cases an individual embraces detail and complexity. Moreover, both these individuals (to expand the comparison) are much like NASA engineers as described by NASA administrator Robert Seamans: "We identified more than 10,000 separate tasks that had to be accomplished to put a man on the moon. Each task had its particular objectives, its manpower needs, its time schedule and its complex interrelationship with many other tasks" (1975, p. ix). One suspects that in Francis Keppel's ideal world, NASA administrators would fix America's schools. As it turned out the work was left to another type of technocrat: the Harvard professor.

At its simplest, SUPRAD pedagogy is a mix of educational practices and ideas justifying those practices. Therefore, if SUPRAD pedagogy includes team teaching, it also includes many ideas about team teaching—ideas about why, for instance, team teaching benefits students, or about why it's a good staffing arrangement for schools in a technocratic society. Now that we're familiar with the foundations of SUPRAD pedagogy, it's time to investigate the pedagogy itself.

Chapter Five: SUPRAD Pedagogy

In the previous chapter SUPRAD pedagogy was approached obliquely as (1) an extension of Deweyan ideas about the importance of experimentation and particularism, (2) a vestige of Francis Keppel's pre-SUPRAD beliefs about teachers, and (3) a reflection of Space Age thinking about expertise. Now it's time to tackle SUPRAD pedagogy head on, examining what SUPRAD educators hoped to export to far-flung places such as Berkeley, California. A good place to begin is with discussion of SUPRAD's original goals. Writing in 1960, Francis Keppel and two of his Harvard colleagues (Judson Shaplin and Wade Robinson[1]) traced SUPRAD's evolution, opening their article with a list of the project's three major aims:

> A. to work out *career patterns* for teachers, specialists, and administrators in order
>
> to improve recruiting of able personnel,
>
> to clarify present roles in the schools,
>
> to develop new roles and responsibilities,
>
> to change teacher-training programs to prepare for new circumstances;
>
> B. to work out improved relationships between university *scholars and schools* in order to close existing gaps; and
>
> C. to work out ways in which colleges and school systems could combine with the university in providing the facilities for continued *research and development* projects.
>
> (Keppel et al., 1960, p. 242)

These aims—which Keppel and his co-authors date to 1953[2]—are foundational to SUPRAD pedagogy, not because they are necessarily parts of that pedagogy themselves, but because they establish the pedagogy's parameters, stipulating that SUPRAD pedagogy must include practices that (1) reorganize schools to the benefit of teachers and administrators, (2) nurture relationships between individual scholars and individual schools, and (3) build bridges between universities and school systems. Because so imprecise, these stipulations could have led to implementation and testing of any number of educational practices, and so to formation of a myriad pedagogies,

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[1] Shaplin was SUPRAD's director, with Robinson his assistant.

[2] "Some seven years ago, with the aid of the Fund for the Advancement of Education, work was begun to coordinate the efforts of liberal arts colleges, school systems, and the Harvard Graduate School of Education, to recruit and train able personnel, to improve the quality of teaching and administration, and to provide arrangements which would permit experimentation with organization and personnel arrangements in the schools." (Keppel et al, 1960, p. 242).

but they were ultimately realized in a single pedagogy—SUPRAD pedagogy—which, in Keppel and Perry's words, was centred on "establishment of a formal organization to link [universities and school systems] in a working arrangement for research and development that would benefit the parties concerned as well as American education in general" (1961, p. 176). As one among many Space Age school reform efforts, SUPRAD originated in a belief that American schools were adrift, with teachers recruited, trained and deployed ineffectively. How did Francis Keppel propose to get schools back on course? What ideas about best practices in teaching and learning did he hope to enact?

The project later named "SUPRAD" was unveiled on May 2, 1957, when the Harvard news office announced a Harvard-initiated project aimed at building "[c]loser relations between public school systems and private universities to strengthen policies and programs in American education" (SUPRAD, 1957m, p. 1). The project's ambitions, the press release noted, were wide-ranging:

> [The Administrative Board] indicated that "attention should be directed, in consultation with the teaching staffs of the schools, to the training, organization, and allocation of personnel. Since every proposed change in personnel arrangements leads at once into questions of what is taught as well as how it is taught, matters of curriculum and teaching method must be considered as well. An attack on this problem will lead inevitably into other essential concerns of policy and operation in the school system and the community it serves." (Ibid., p. 2)

Six weeks later, on June 12th, SUPRAD's[3] administrative board met for the third time (previous meetings having been on April 2 and May 2) to consider various proposals, a catch-all process in which board members assessed a number of promising ventures. "Agenda Item III," recorded in the meeting's minutes under the heading "Organizational Structure," turned on discussion of committee assignments, with Harold Gores, superintendent of Newton schools, asking (to quote the minutes) "whether the Committee on School Architecture should be disbanded in view of the fact that no extended research may be done on the acoustics problem" (SUPRAD, 1957n, p. 5).[4] Gores's question prompted a (transcribed) discussion focused not on dissolving the architecture

[3] At some point between May 2 and June 12, 1957, SUPRAD acquired its name.
[4] First discussed at the April 2nd board meeting, the "acoustics problem" hinged on engineering challenges inherent in developing flexible yet soundproof partitions for classrooms.

committee, but rather with a school reform procedure the committee (following Harold Gores) called "dejuvenilization," which—if it were implemented—would involve making high schools, particularly for older students, more like colleges and universities. The idea of dejuvenilization, we read, "evoked considerable interest and an extended discussion followed" (ibid.), with some of the "major ideas" in the discussion being:

> . . . does a technical consultant on school equipment know enough about adolescents, in the human development sense, and about the educational program, to really think through the problem of equipment
>
> . . . the problem has all sorts of dimensions to it. We ought to consider immediate needs and long term possibilities. We should consider approving funds for a consultant on the narrower question of equipment and then consider how to approach the broader questions of total school environment. (Ibid).

"Questions such as this," the transcript continues, "suggest that the matter of school equipment and housing should be considered in the light of philosophical, sociological, psychological, and financial considerations. This, in turn, suggests that scholars in these areas should be involved in any broad approach to the problem" (Ibid.) As this discussion shows, SUPRAD educators early on had a holistic view of schooling in which even school architecture—let alone instructional practices or curricula—had to be considered in a broad context, one including, at the minimum, philosophical, sociological, psychological, and financial considerations. In its wide scope, this view of the learning process anticipates Shah and Campus's notion of pedagogy where "teaching techniques and classroom practices" are informed by "material, institutional, discursive, and axiological norms and negotiations" (2021, p. 13.). With this similarity in mind, it becomes clear that already by their third meeting SUPRAD's administrative board was interested not only in instructional and personnel procedures (what Shah and Campus call "teaching techniques and classroom practices"[ibid., p. 13]), but also in the rationales underpinning those procedures, whether those rationales are rooted in theories of human development or beliefs about the impact of a built environment. Within a month of SUPRAD's official launch, then, SUPRAD educators were developing—or planning to develop—a distinctive pedagogy. In developing that pedagogy, what types of people were SUPRAD educators looking to for ideas?

Much of the last chapter focused on SUPRAD's technocratic origins, discussing, for instance, Francis Keppel's call for post-secondary educators (like himself) to play a central role

in educational policy making. Here, as SUPRAD educators ponder the "fundamental questions" bearing on dejuvenilization, we hear even louder calls for involvement of experts, as suggestions are made to consult school equipment specialists or scholars in one or another field (sociology, philosophy, etc.) for advice on school architecture. (Remember the discussion was spurred by consideration of the "acoustics problem".) In developing their pedagogy, SUPRAD educators clearly took a technocratic approach, eschewing the un- or under-educated to seek out scholars and technicians. Like many aspects of SUPRAD, this approach reveals the program to be an exemplary product of Space Age America.

The Accordion Plan

Perhaps the best introduction to SUPRAD pedagogy is found not in any document produced by a SUPRAD educator, but instead in a thirty-two page description of a late-1950s educational program developed for schools in Weston, Massachusetts, a town midway between Newton and Lexington (12 kilometres distance from each).[5] Called the "Accordion Plan"[6] by the Weston School Committee, the program caught Francis Keppel's attention, prompting Keppel (in July, 1959) to share a summary of the plan with Robert Anderson, who subsequently shared the summary with other SUPRAD educators. Importantly Anderson, in a note to Joseph Young, secretary of SUPRAD's administrative board, labeled Weston's proposed plan an "application of the Trump Report to a specific system" (Anderson, 1959i, p. 1), a characterization pointing us to yet-another building block of SUPRAD pedagogy, namely the Trump Report. Published in 1959 under the title *Images of the Future*, the Trump Report took its informal name from its author, J. Lloyd Trump, Director of the National Association of Secondary School Principal's (NASSP's) Commission on the Experimental Study of the Utilization of Staff in the Secondary School, a Ford Foundation-financed commission established "to stimulate imaginative research and developments aimed at improving organization and staffing in secondary schools" (Trump, 1959, p. 5). Staffed by among others Matthew Gaffney, a member of SUPRAD's administrative board, the NASSP commission on staff utilization promoted a number of SUPRAD practices, most importantly team teaching, revealing a degree of cross-pollination between Trump's pedagogy and SUPRAD's. This cross-pollination matters because it highlights Robert Anderson's short-

[5] Implementation of the Accordion Plan was funded by a $100,000 Ford Foundation grant. (Forman, 1962, p. A7).
[6] The name derives from the many types of flexibility the plan allows for. (Forman, 1962, p. A7).

sightedness (or humility) in calling the Weston program an "application of the Trump Report" rather than, for instance, an application of SUPRAD ideas as presented in the Trump Report. In any case, Weston's proposed program is so freighted with SUPRAD ideas—particularly about teacher deployment and instructional programming—that the Accordion Plan document, whether by design or not, is a useful *precis* of SUPRAD pedagogy.[7] The Accordion Plan, the document explains, has four key elements:

1. Flexible Class Size: We would break the lock-step relation of one teacher to every thirty students, each in his block in a row of egg-crate spaces. . .
2. Flexible Grouping: Students would be grouped and regrouped in sections of varying sizes in accordance with the abilities and maturity of the students, the skills of the teachers, the needs of the material being studied and the mode of presentation selected by the teachers, as was the choice of class size. . .
3. Cooperative Teaching Techniques and Differentiated Staffing: Instead of putting one teacher into a classroom with his group of 20-30 students and leaving them alone until they come out in June, teachers in the same course or in related course would pool their teaching talents in various ways. . .
4. Creative programming: The school day and week would be programmed to permit these more creative ways of using the school resources to assist the students, even if a considerable part of the curriculum might still be presented in the traditional manner. (1959, p. 2)

These four elements are important parts of SUPRAD pedagogy, providing the organizational-instructional foundation on which the pedagogy's ideology rests. Neil Sullivan, for instance, in a 1963 letter to Francis Keppel, boasts about the Free Schools' implementation of a program much like the Accordion Plan: "Actually, there was no other organization for Prince Edward County. It had to be nongraded; it had to be interage; it had to be narrow range; it had to be team teaching; it had to be large-group, small group instruction" (p. 1). Here Sullivan, although unfamiliar (to my knowledge) with the Accordion Plan, mentions three of the plan's four elements, flexible

[7] Introducing the Accordion Plan, the Weston School Committee acknowledges its SUPRAD origins: "Three meetings of the Committee, open to the entire faculty, were held with outstanding educators in this vicinity who have wide experience with similar programs: Dr. Matthew Gaffney of the Harvard Graduate School of Education; Dr. Henry Bissex, Newton Plan Lecturer, Newton High School; and Dr. Edward Anderson, Superintendent of Schools of Wayland." (1959, p. ii). In 1959, both Newton and Wayland were SUPRAD towns.

class size ("large group, small group instruction"), flexible grouping ("nongraded. . . interage. . . narrow range"), and cooperative teaching techniques ("team teaching"). While this overlap will suggest to some readers that both the Accordion Plan and SUPRAD pedagogy sprung from a single source (e.g., the Trump Report), SUPRAD's nongraded program had been developed—if not fully implemented—by 1958, a year before publication of either the Trump Report or the Accordion Plan report. As we've seen, flexible class sizes and flexible grouping arrangements both emerged from team teaching experiments (notably SUPRAD's Franklin School project), indicating not that Weston educators were borrowing from SUPRAD, but rather that SUPRAD pedagogy was by the early-sixties entering the (Massachusetts) mainstream.

SUPRAD Pedagogy as a New Grammar of Schooling

"Pedagogy," Robin Alexander argues in *Essays on Pedagogy* (2008), "is the act of teaching together with the ideas, values and beliefs by which that act is informed, sustained and justified" (p. 4). Perhaps the best-known example of a full-fledged pedagogy is David Tyack and William Tobin's "grammar of schooling," which they define as "the regular structures and rules that organize the work of instruction" (1994, p. 454). The grammar of schooling, for Tyack and Tobin, shapes "standard organizational practices in dividing time and space, classifying students and allocating them to classrooms, and splintering knowledge into 'subjects'" (ibid.). As Tyack and Tobin note, many grammars of schooling can exist at any one time, with, to take an obvious example, elementary schools and high schools organized differently. With elementary schools, Tyack and Tobin write, "People are accustomed. . . to elementary schools that are divided into *grades* in whose *self-contained* and *coeducational* classrooms pupils are taught several basic subjects by a *single teacher*" (ibid.). High schools are organized very differently. "In secondary schools," Tyack and Tobin note, citing one difference, "students have some degree of choice of what to study" (ibid.). These and other standard organizational practices can be distinguished from the values and beliefs that inform, sustain and justify them. Indeed, only by identifying relevant "sociocultural" (Shah and Campus, 2021, p. 14) material can we appreciate what Tyack and Tobin (*pace* their reference to "traditional grammar of schooling" [1994, p. 466]) might call "traditional pedagogy." As Tyack and Tobin observe, the traditional grammar of schooling has proven durable enough to resist a number of reformist efforts. One explanation for this durability

is that it aligns with deep-rooted beliefs about "the character of a 'real school'" (1994, p. 456). In Tyack and Tobin's words:

> [The] coherence of educational institutions results in large part from the conformity of institutional forms with general public beliefs. . . congruence between cultural beliefs and organizational forms provides legitimacy and public support and helps to explain similar institutional forms in schools in very different kinds of communities. (Ibid.)

In exploring ideas that shaped the traditional grammar of schooling, Tyack and Tobin reference nineteenth-century Americans' embrace of efficiency, which led educators to "concentrat[e] the work of a teacher on one grade [which] permitted a more precise sequencing of the curriculum and classification of pupils by proficiency. As a result, one teacher could teach all children in the classroom the same subjects, in the same way, and at the same pace" (ibid., p. 458). Efficiency, of course, was just one value embraced by proponents of the traditional grammar of schooling, but its relationship to the grammar exemplifies what Tyack and Tobin call "congruence" (ibid., p. 456) between cultural beliefs and organizational forms. To sum up: a pedagogy is a fusion of beliefs about (1) best practices in teaching and learning, and (2) why those particular practices are indeed better than others (for students, teachers, the community, etc.). In Robin Alexander's words, "pedagogy connects the apparently self-contained act of teaching with culture, structure and mechanisms of social control" (in Shah and Campus, 2021, p. 14). With all this in mind, we can return to the Weston document alert to passages promoting a particular teaching practice by reference to one or another belief about students, teachers or the world at large, searching out—to paraphrase Robin Alexander—values and beliefs by which the teaching practice is informed, sustained or justified. The place to begin is with the conclusion of the Weston document:

> We feel that if the Accordion Plan is adopted and developed in Weston along these general lines, it would help to bring about an increased level of student achievement, an enriched curriculum, a better functioning Faculty, and an over-all improvement in the performance of the Weston schools. (Weston School Committee, 1959, p. 32)

These are bold claims and so should be treated with skepticism. That said, it's worth delving into the beliefs underpinning the claims, investigating exactly *how* implementation of the Accordion Plan was supposed to improve Weston schools (the main claim). Three reasons are provided, (1) increased student achievement, (2) an enriched curriculum, and (3) a better functioning faculty.

But how (to rephrase the question above) would the Accordion Plan enable these improvements? Most of the Weston document is dedicated to answering this question.

A first point to make is that the Weston School Committee advances a holistic vision of schooling in which all elements in a school (students, teachers, curricula, etc.) either contribute to or detract from something the committee (informally) calls "school achievement"

> The test of our school's achievement is the extent to which the children learn the body of general knowledge and skills that comprise our curriculum, and the degree to which each child approaches his maximum potential for growth and achievement. Teaching and methods of instruction now being used should be judged by this test, as must new proposals for reorganizing the school program. (Ibid., p. 3)

Here we find a downplaying of curriculum, a quasi-dismissal at odds with the above-referenced claim that an "enriched curriculum" is one reason to adopt the Accordion Plan. Following upon the committee's downplaying of curriculum, however, if not a result of it, is a heightening of the committee's concern for students and teachers, with students the focus of attention: "The test of our school's achievement is the extent to which the children learn the body of general knowledge and skills that comprise our curriculum" (ibid.). Pedagogically, then, what the Accordion Plan stresses is a particular kind of student learning, not learning about community values or how to get along with peers (as is emphasized, for instance, in life adjustment education), but learning of curricula, with their collections of facts and skills. With great subtlety a pedagogical model has been constructed in which a school's "achievement" (the primary goal) is a function of student learning of facts and skills which is itself a function of (1) teaching practices, (2) methods of instruction, and (3) the school program.[8] If none of this sounds particularly radical, it's because the Accordion Plan is innovative not in its goals (school achievement; student achievement) but in the practices and methods used to reach those goals. Nonetheless, the goals are important, not least because they help explain other aspects of the Weston pedagogy.[9]

[8] "The first question we ask ourselves about new ideas for organizing the teaching-learning situation is whether it is likely to make a significant gain in the students' learning and growth." (Weston School Committee, 1959, p. 4).
[9] "[P]edagogy cannot be disembedded from the wider educational system. So, in order to address what is an effective pedagogy, we must be agreed on the goals of education." (Murphy, 1996, p. 35).

Maximizing Student Learning

As noted, the Accordion Plan has four key elements: flexible class size, flexible grouping, cooperative teaching techniques, and creative programming. In reading the Weston Committee's descriptions of these elements, one discovers that each element has an instructional component, an organizational component, and a programming component, with, for instance, implementation of flexible class sizes seeing teachers embrace new instructional practices (e.g., lecturing) which are themselves tied to adoption of both new organizational arrangements (e.g., large groups) and new programs (e.g., an "enriched curriculum"). These diverse impacts underscore the holistic nature of the Accordion Plan, where again a change in one aspect of schooling touches on all other aspects. Elsewhere in the Weston School Committee document the interconnectedness within the Accordion Plan is linked to Weston educators' prioritizing of what might be called ease of learning, i.e. presentation of material in ways that maximize student learning:

> Our feeling is that the arrangement of classes, the size of classes, the grouping of students, the allocation of teachers and instructional assistants, and programing—all the aspects of organizing teaching and learning—should be determined by the particular needs of the course material being studied, in the context of the student body and teaching staff we then have. How can we help the students best to learn the significant material being considered? (Ibid., p. 4)

What's most noteworthy here is less the Weston educators' primary goal (maximizing student learning) but the educators' sense that no one, themselves included, knows how best to achieve this goal—explaining all the "how" questions. The Accordion Plan, for Weston educators, held promise precisely because it allowed "how" questions (like those above) to be answered in many ways, with each answer emerging from anticipation of a learning experience involving specific content taught by a specific teacher to specific students. Is the teacher a subject-matter expert and the students keenly interested in the field? Small group instruction might work best. Is the teacher a practiced lecturer used to presenting introductory material? Large group instruction might be appropriate. The important point is that the Accordion Plan allows for many types of educational encounters, avoiding situations where a teaching practice or instructional method doesn't meet "the particular needs of the course material." Remember that two of the four key elements in the Accordion Plan emphasize flexibility, hinting at the plan's reliance on what

might to a traditional educator seem like adhocery. But does the passage below suggest a failure to plan properly or rather the successful implementation of a flexible plan?

> Within a course, however, it might seem desirable to group and regroup the students as the year progressed, both for large-group lessons and small-group sections. (a) For large group lessons, the teacher may at one time want the entire body of 90 students taking the course to participate, but at another time he may feel that a different style of presentation would be needed for sub-groups within the class, say of 40 and of 50 students. (b) For small-group sections, the interests and abilities of the students in different aspects of the course may make it more effective to change the sections than to have the same group of 15 students study together throughout the year. (c) For independent and project work, we already have adopted the concept that the team membership can vary from project to project. (Ibid., p. 12)

To the extent SUPRAD educators—and SUPRAD-influenced educators like the Weston School Committee—embraced a concept, that concept was *flexibility*. Indeed in the eyes of the Weston committee both cooperative teaching and creative programming (e.g., unfixed daily and weekly class schedules) were inevitable byproducts of flexible class size and flexible grouping, with the committee remarking in the first instance "The concept of flexible class size and sectioning that we have been discussing has implications for the Faculty" (ibid., p. 14),[10] and explaining in the second instance:

> For flexible class size, we need to be able to bring together at one time all the students taking a course, without disrupting recitation and seminar sessions in other courses; and we need to be able to schedule small group sessions with the staff available to lead them.
>
> For flexible grouping and regrouping, we need to be able to have the small-group sessions meet so that we can shift a student from one section to another. (Ibid., p. 25)

Given that cooperative teaching and unfixed scheduling are two more examples of flexibility (in staffing and programming respectively), it's clear that flexibility in one area of schooling facilitates flexibility in other areas, whether because in any holistic system everything impacts everything or due to some quality in flexibility itself. In any case, the Accordion Plan, to the extent it reveals SUPRAD's ideological foundations exposes those foundations as shot through

[10] The passage continues: "We shall discuss two matters under this topic: (1) Cooperative teaching techniques, and (2) Differentiation of instructional staff according to function." (Ibid., p. 14).

with flexibility—not in the sense that they're soft and wobbly, but instead in that wherever one probes one finds flexibility posited as an essential ingredient in effective schooling. Accordion pedagogy is not SUPRAD pedagogy, first because it wasn't developed by SUPRAD educators, second because it's less complete than SUPRAD pedagogy. (The Weston School Committee's lack of interest in 1950s ideology is telling.) That said, Accordion pedagogy offers a good introduction to SUPRAD pedagogy, incorporating a number of SUPRAD practices and ideas which are presented in streamlined fashion. Before asking how and why SUPRAD pedagogy differs from Accordion pedagogy, it's essential to highlight the fundamental point of similarity: like Accordion pedagogy, SUPRAD pedagogy prioritizes flexibility; a key aspect of SUPRAD pedagogy from the beginning, this prioritization over time becomes a defining characteristic.

Francis Keppel's particular interest was in team teaching, which he saw as a solution to America's most pressing educational problem: a teacher shortage. Unlike, for instance, the Weston School Committee or other SUPRAD educators, Keppel never promoted team teaching as a technique for facilitating flexible class sizes and grouping arrangements, likely because these types of flexibility weren't part of his school improvement agenda. Nevertheless, Keppel in his Basic Document planted the seed of the idea—later central to SUPRAD pedagogy—that use of teaching teams allows for new student grouping patterns, arguing that when teaching teams jointly teach "divisions" (ibid.) of 150-300 students, this team arrangement opens up a world of scheduling and grouping possibilities:

> The division might, in effect, be subdivided into class groups whose size would be determined by the nature of their abilities and needs at a particular moment rather than by some administratively convenient groupings of 30 pupils moving intact from one classroom to another. The flexibility offered by the curriculum-planning division organization would permit the teaching team to schedule classes for the particular task to be performed, and to schedule senior teachers, part-time teachers, teaching aides, and specialists for these tasks. It might be anticipated that the pupils would find themselves from time to time in classes ranging in size from 10 or 15 to 250 or where suitable, (for instance, via closed-circuit TV) in a class including the whole school. (Keppel, 1956a, p. 46)

This speculative passage ("The division might. . . ", etc.) anticipates two important components of SUPRAD pedagogy, first the idea that one type of flexibility facilitates other types, second—

and more importantly—the belief that flexibility is an attribute educators should strive to impart in all aspects of schooling, e.g., teacher deployment, student grouping, scheduling, and school design. An earlier chapter quoted Francis Keppel on the difficulties of educational planning in an unpredictable world ("What seems appropriate today may seem unwise tomorrow" [1956b, p. 5]), and to the extent SUPRAD pedagogy reflects a cultural climate, that climate is one of broad uncertainty about the future in which educators hedge their bets, often through use of "flexible planning."[11] What does SUPRAD pedagogy say about best practices in flexible planning?

Flexibility is the Key

A good place to start is with a 1959 paper by Robert Anderson, director of the Franklin Street team teaching project, called "Team Teaching—Backgrounds and Issues" and prepared for a meeting of the Advanced Administrative Institute. Asking in his paper a series of questions about traditional ways of schooling (e.g., "How valid are the assumptions and premises upon which the 'self-contained classroom' arrangement is based?" [1959b, p. 1), Anderson presents team teaching as a useful device for examining educational orthodoxies: "Team teaching, which is a relatively new concept in school organization, offers a fresh opportunity for ascertaining what some of the real answers to these questions may be" (ibid., p. 2). At the heart of Anderson's paper is a critique of schooling by habit, i.e. of educational planning that never looks beyond orthodoxies. "[M]illions of youngsters have invaded the schools and each community has been required to make critical decisions about the number and type of new classrooms to be built, the number and quality of teachers to employ, and the kinds of experiences children will have in the schools. Most of these fateful decisions, we must report unhappily, have been based upon assumptions or established habits that now seem to be faulty or unsound to at least some degree" (ibid., p. 4). If not by habit, then, how, would Anderson build and operate schools? Anderson answers this question in a section headed "'Flexibility' is the Key" (ibid.). "One problem of nearly all school organization in the past has been its inflexible commitment to one or the other of alternatives presumed to be mutually exclusive," he writes, continuing:

> You had either a self-contained classroom plan or a departmentalized plan, but rarely both. You planned class groups to be either "homogeneous" (allegedly, at least) or

[11] "Flexible planning. . . can be compared to a path formed by a network of many stepping stones leading across a pond: the stepping stones provide safety, but the path is not fixed and is only hinted at." (Fraefel, 2023, p. 16).

> heterogeneous, but rarely both. Either all teachers were on a deplorable salary schedule (the usual case), or a moderately good scale, or on a truly attractive one (there are a dozen or so), but rarely has it seemed possible or wise to have several scales in effect in the same employing district. All classrooms were planned to be 750 square feet or 900 square feet or some other size, and rarely did anyone deliberately design a building whose classrooms would vary substantially in size. These are but a few examples of the inflexibility with which the problems of program, staffing, and space have been approached. If team teaching has any lasting virtues, once adequate research has taken its full measure, one of the surest wills be its inherent flexibility. (Ibid., pp. 5-6)

Robert Anderson has been quoted at length because in arguing why "flexibility is the key" he also explains why inflexibility is *not* the key, observing that in traditional schooling every choice a teacher or administrator makes precludes other possibilities. In contrast, a team teaching plan, for Anderson, expands possibilities, something Anderson presents as an unadulterated good. It's important to note that Anderson never explains in so many words *why* flexibility is beneficial, instead assuming his readers/audience will share his view that, for example, differentiation in teacher roles (and salaries) is advantageous.[12] To point this out is not to argue that Anderson is wrong to criticize rigid teaching or grouping practices, but instead to highlight Anderson's taking for granted that flexible schooling is necessarily better schooling. And how, for Anderson, does team teaching promote flexible schooling?

> Whenever a large group of children is being taught by a single teacher, who presumably has a special background in that subject, it becomes possible for the remaining teachers to engage in several activities: help with the large-group lesson; work with a small number of children in remedial activities; engage in lesson planning, parent-teacher conferences, etc. Thus the total staff finds it possible within the teaching day to accomplish a number of things that are difficult for the teacher in the self-contained classroom to do. (Ibid., p. 8)

Flexibility in this scenario takes many forms: teachers adopt a number of roles and engage in various activities; students perform a range of tasks in groups of various sizes. However

[12] Early on, SUPRAD educators began hearing from Franklin School teachers unhappy with their school's hierarchical team teaching arrangement. Surveys of teachers, a 1957 SUPRAD memo reveals, uncovered "very intense feeling about the necessity for having titles and differing levels of prestige within the team operation. Several asked if it would be necessary to have the title of team leader to actually be one. . . none of them seemed willing to receive a higher salary than their colleagues because of the damage that could be done with their relationships to those colleagues." (Anderson, 1957b, p. 3).

reasonable Anderson's faith in the benefits of flexibility might or might not be, there's no arguing against his claim that team teaching opens up new possibilities. Was this expansion of possibilities necessarily good? SUPRAD educators certainly thought so.

While promoting flexibility in all areas of schooling, Anderson pays particular attention to flexibility in two areas: teacher deployment and student grouping.[13] These emphases were in line with the thinking of other SUPRAD educators, who early on realized that adoption of new teaching patterns facilitated new student grouping arrangements, an insight which shaped their planning for the budding Franklin School team teaching program:

> [A] staff might include fully trained and fully qualified teachers of varying levels of competence and carrying differentiated responsibilities on either full-time or part-time basis; teachers-in-training; and adults with little or no professional training in education serving as resource persons or aides. The work of all these persons would be coordinated and directed by the team leader, himself under the immediate supervision of the building principal, and the program would involve a comparatively large number of children housed in a flexible school building where groupings ranging from very large to very small are possible. (Harvard-Newton Summer School, 1957, p. 5)

Here are envisioned three types of flexibility, bearing in turn on teachers, students and buildings. As SUPRAD evolved it was the second type—flexibility in student grouping—that received the lion's share of attention, as one working paper after another explored ways of organizing pupils. A representative document, from January 1959 and headed "Grouping for Learning Within the Teaching Team Organization," opens:

> One of the apparent advantages of the teaching team organization is that it makes possible the redeployment of pupils, not only into classes of varying size but into groups of various composition organized for specific instructional purposes. It is believed such flexibility increases the possibility that instruction will meet the range of variability found in the elementary school. (Danielson, 1959a, p. 1)

Flexibility, however, was not without its challenges. An ongoing problem for SUPRAD educators, the same report reveals, was "determin[ing] the purposes or criteria for grouping,

[13] Anderson touches in passing on flexibility as a feature of school design: "The next bold-step in team teaching must be the creation of radically different buildings to house the new program." (1959b, p. 12).

taking into consideration this range of variability" (ibid., p. 2), with various methods proposed for grouping of students:

> 1. Organized around generalized ability and attainment in the language arts and arithmetic areas. . .
> 2. Based on special difficulties—academic or adjustment—of pupils. . .
> 3. Based on special difficulties and expected to be of a temporary nature, e.g. sub-groups.
> 4. Relatively stable groups organized around special abilities and interests, e.g. French, instrumental music, glee club.
> 5. Interest groups of a temporary nature based on the expression of interest alone. [Etc.]. (Ibid. p. 2)

These and other arrangements (three more are described) demonstrated for SUPRAD educators the cascading consequences of flexibility, where flexibility in one area of schooling impacted other areas, sometimes to a disconcerting degree. As SUPRAD Director Judson Shaplin noted during a 1959 SUPRAD retreat: "The team allows the flexibility of assignment to regroup the children and provides the administrative unit which has the flexibility to allow the regrouping to proceed in any way which you decide by research or other methods" (1959, p. 5). SUPRAD pedagogy, then, incorporates two complementary beliefs: (1) that flexibility is beneficial in all areas of schooling, and (2) that different kinds of flexibility are mutually reinforcing.

If Francis Keppel was the first SUPRAD educator to take a keen interest in flexibility, Harold Gores was the second, proposing at the initial meeting of SUPRAD's administrative board that SUPRAD "explore ways by which we might bring greater flexibility into school construction" (SUPRAD, 1957e, p. 2). Gores's proposal was approved, launching SUPRAD educators on a multi-year mission to design and build schools that embody (to quote a 1968 EFL document) "flexibility, variety, variability, pedagogical receptiveness" (p. 41). For SUPRAD educators, flexibility in school design took many forms, from schools with variously sized and /or shaped classrooms (recall Robert Anderson's pining for "a building whose classrooms would vary substantially in size" [1959b, p. 5]) to schools whose transformable classrooms could be subdivided by moving a partition ("the variety of class sizes suggests the need for flexible partitions" [SUPRAD, 1957f, p. 18]) to "open plan" schools with no self-contained classrooms ("two classrooms face each other across an open space which can be used as a common area or divided to suit the special needs of a particular grade" [EFL, 1960b, p. 5]). A flexible school, for

SUPRAD educators, was a precondition of flexible programming: “In the conventional school with rigid walls, the unalterable shape and size of the academic spaces has a powerful, almost determining, effect on the educational program,” a 1962 EFL report remarks, adding: “Where the arrangement of space cannot be altered to conform to the desired arrangement of teachers and students, new and different arrangements tend not to occur” (p. 32). This was a SUPRAD precept—that not only were various types of flexibility complementary, so were different kinds of rigidity. Hence the need for a wide-ranging *pedagogy* that promoted many types of flexibility, not least in school design, the goal being (in Gores’ words) “flexibility in the arrangement of spaces in accordance with the requirements of the situation of the moment” (Gores, 1957, p. 3).

Circling back to Francis Keppel’s Basic Document, one finds Keppel associating team teaching with flexibility in grouping and flexibility in scheduling, with the two presented as equally important. A flexible schedule, for SUPRAD educators, might, like a flexible grouping arrangement, take many forms: classes of various lengths; an extended or shortened school day; year-round school. SUPRAD’s first venture into flexible scheduling occurred in Newton where junior high principals, intent on “organizing a junior high school in such a way as to utilize effectively the values of both so-called heterogeneous and homogeneous methods of grouping” (Newton Public Schools, 1959, p. 2), decided “to design a schedule which will permit the wide range of flexibility inherent in such proposals” (ibid.), a decision that entailed “remov[ing] the teacher from the standard 40-minute 30-pupil arrangement and redeploy[ing] him according to his particular talents and to the diverse requirements of this proposal” (ibid.). Once enacted this plan saw impacted schools “lengthening the school week by 270 minutes and redesigning schedules into 60 periods of 30 minutes” (ibid., p. 6), a reconfiguration that caused more trouble than expected: “The difficulties of scheduling to permit almost continual regrouping were greater than had been anticipated” (ibid.). Again we find different types of flexibility complementing one another, underlining once more that a change in one area of schooling often imposes changes in other areas. As it developed over time, SUPRAD pedagogy increasingly cohered around promotion of flexibility in (1) teacher deployment patterns (2) student grouping arrangements, (3) school architecture, and (4) scheduling. As noted above, construction of “flexible schools” makes sense given uncertainty about the future. But how aware were SUPRAD educators that their pedagogy was a response to a volatile Space Age?

Flexibility in Grouping

In October, 1964, SUPRAD educator Neil Sullivan, recently arrived in Berkeley following a year-long assignment as superintendent of the Prince Edward County Free Schools, published a long article in the *Saturday Review*, "Making History in Prince Edward County," that detailed his efforts to provide schooling to African American children whose schools had been closed in the face of a Virginia court's desegregation order. Included in Sullivan's article is a list of four "recommendations to Southern educators in order that the quality of education being offered the children of this region may be improved" (1964a, p. 521), of which the third recommendation is particularly important for understanding SUPRAD pedagogy: "Move from a strict formal graded structure to a nongraded organization" (ibid.). Promotion of a "nongraded organization" does not feature in SUPRAD pedagogy, but, as we've seen, endorsement of flexible grouping patterns does, opening the door for many (and frequent) calls for schools to adopt nongradedness.[14] That said, what's particularly important in this context is less Sullivan's endorsement of nongraded schools than his justification for that endorsement, also found in his Prince Edward County article, and indicative of SUPRAD beliefs about best practices in Space Age education:

> [As an] advocate of the nongraded system, I favor this method because the graded structure, inherited from the late middle ages in Germany, fails to meet the needs of our "space age" children. Educators have recognized the inadequacies of the chronological age, lock-step graded structure, but have been unwilling to take the steps to effect the required change. We need flexibility in our schools. We must remove ceilings and permit the child to reach for the sky. (Ibid., p. 532)

Sullivan's endorsements of nongradedness in particular and flexibility in general rest on two beliefs, first that Space Age children must be allowed to reach their full potential, second that Space Age schools should nurture "soft" skills that have broad applicability. Like many Space Age educators, SUPRAD educators had a keen interest in the "unusually gifted student" (Keppel, 1957c, p. 1), that is the pupil who—in Keppel's Cold War framing—"will provide the perception and resourcefulness necessary for [America's] continued leadership" (ibid.). SUPRAD educators

[14] E.g., "Teachers have found that by ignoring grade-level designations within their teams, they have more flexibility in their grouping procedures and they are more likely to provide each individual child with the experiences which are most appropriate for the child at any given time of the school year." (Bahner, 1963, p. 1). This claim comes from a letter from John Bahner, director of SUPRAD's Lexington team teaching project, to a student at the University of Massachusetts.

saw flexible grouping patterns as the best way to ensure that "gifted" students were continually challenged, in large measure because such students' classes were organized homogeneously by achievement level. As "The Nova Plan for Instruction"—a 1964 pamphlet distributed by Nova High School—explains:

> In the nongraded method of progression, each student is motivated to develop his maximum capabilities. He studies not within the framework of a grade but, as previously noted, within a series of achievement levels for each subject. Each level is only slightly advanced over the one below and since each must be mastered in turn, no one can fail and no one is required to repeat an entire year's work in any subject. (Wolfe et al, 1964, p. 21)

As did the SUPRAD educators responsible for the Nova Plan for Instruction, Francis Keppel perceived flexible grouping arrangements as appropriate for all students, writing: "The gifted student, however, is not the school's sole obligation; attention must be given to all levels of ability" (Keppel, 1957, p. 1). Read alongside both Neil Sullivan's claim that he wanted *all* Free School students to "reach for the sky" and the Nova Educators' assertion that their program offered "encouragement and challenges to all," Francis Keppel's recognition of a school's multiple obligations highlights SUPRAD educators' belief that flexible grouping patterns maximize all students' potential. What does this belief reveal about SUPRAD pedagogy?

Among the more illuminating documents in Harvard's SUPRAD archive are three items detailing the planning and outcome of a 1959 "retreat" attended by members of the Franklin School committee and convened, in Robert Anderson's words, "to hammer out some of the basic guide lines that the project needs, to reconcile once and for all some of the divergencies that slow up the project (Anderson, 1958c, p. 1). Held over two days at Harvard's faculty club, the retreat focused on what SUPRAD director Judson Shaplin called "basic fundamental goals" (Shaplin, 1959, p. 1), avoiding discussion of what Shaplin labeled "granule types of refinement" (ibid.) to instead explore (Shaplin again) SUPRAD's "grossest implications" (ibid.). A key artefact of the retreat is a 43-page transcription that records not only group discussions, but also two lectures, one by Judson Shaplin, the other by David Tiedeman (Harvard professor of education and a member of SUPRAD's administrative board).

SUPRAD educators, Shaplin begins, "are interested in the ramifications in this whole thing[15] for a) the improvement of instruction or b) for more efficient instruction without necessary improvements" (1959, p. 1). In prioritizing instruction ("I'll make this instruction, instruction, instruction," Shaplin adds), Judson Shaplin publicly breaks with Francis Keppel, whose keenest interest—beyond building university-school relationships—was career patterns, i.e., reforming the teaching profession to attract more and better-trained teacher candidates.[16] Shaplin, then, wants to either improve instruction or make it more efficient (with or without improving it). And how does he plan to reform instruction? By removing what he sees as the key obstacle to effective instruction: "the autonomous generalized teacher." "I would say the major discontent is an instructional one and it's based on the discontent with the present picture of the autonomous generalized teacher. The role of the teacher who is in his or her own classroom who represents all talents and does the whole job" (ibid.). A teacher, Shaplin continues,

> can't be easily good at reading, at arithmetic, at a whole bunch of things—they can't be equally sophisticated at teaching concepts of democracy or what you will. This is the generalized model within American education at the elementary school level. The teacher as one who can do all things and be all things and also a father or mother figure to the child and everything else. (Ibid., p. 2)

What disturbs Shaplin about "this whole complex" (ibid.) is its damaging detachment from reality, "damaging" because the jack-of-all-trades teacher necessarily provides only satisfactory instruction, not because such a teacher is untalented but because too much is asked of them. "We want to create specialists within teaching. Everything I say refers to specialists within teaching—within instruction" (ibid.). SUPRAD pedagogy coheres around two concepts, differentiation and flexibility, and here we find Shaplin promoting the former. That Shaplin sees the concepts as complementary is evident from his discussion of student grouping:

> We are basically discontented with another condition of the present organization of the elementary school. This is the whole concept of heterogeneously grouping children by grade level. This project is a fundamental reorganization of that. We have called it

[15] Although the retreat's attendees were all members of the team teaching-focused Franklin School committee, attendees discussed all aspects of SUPRAD, underlining the extent to SUPRAD's team teaching faction drove the SUPRAD project.

[16] "We shall touch upon several crucial problems," Keppel writes in his Basic Document, "and develop more fully the one that seems to require first attention: the use of teaching personnel." (1956a, p. 7).

> redeployment or regrouping or what you will. There's a basic rationale here that makes great sense and I ought to be able to improve instruction by regrouping or we ought to be able to do just as well with a more efficient and a less time consuming, less personnel consuming method. This redeployment is also within our team concept. The team allows the flexibility of assignment to regroup the children, provides the basic administrative unit which has the flexibility to allow the regrouping to proceed in any way which you decide by research or other methods. (Ibid., p. 5)

From teacher specialization Shaplin derives many ancillary benefits, not just organizational and instructional but related to curriculum as well: "One of our problems has been that we haven't really had specialization as yet. Therefore we haven't had the opportunity for the specialists to develop the programming of curriculum. We are in an infant stage here. This is one of our problems. What does the program of curriculum look like for large group sessions? What does the programming look like for small groups in skill groups? What is individual programming?" (Ibid., p. 6). As Shaplin's lecture indicates, SUPRAD pedagogy posits both differentiation and flexibility as multifaceted, such that, for instance, teachers are seen to differ not just in their roles (master teacher, senior teacher, etc.) but also in their areas of expertise and teaching strengths (lecturer, small-group specialist, etc.), with "flexibility", too, perceived as a multivalent attribute as, for example, a student group expands or contracts in size depending on how students are grouped (by age, interests, achievement level, etc.). Read carefully, Shaplin's lecture offers an excellent synopsis of SUPRAD pedagogy. That said, it can't cover everything.

David Tiedeman's lecture opens with a diagram wherein "pupil progress" is measured in relation to (1) material, (2) presentation, (3) pupil, and (4) time. In Tiedeman's telling, each of these elements within a learning situation can be either "right" or "wrong" for a given student, with "right material" being shorthand for an appropriately challenging task, "right presentation" denoting instructional practices suited to the material, "right pupils" signifying correctly grouped students, and "right time" referencing an appropriately scheduled (frequency or duration) lesson. However rudimentary Tiedeman's diagram might be, it alerts us to the key elements in a learning situation, revealing as a result areas where flexibility may or may not play a role:

> The kind of combination that we are trying to achieve in all instances and at all times is right material, right presentation, right pupils, and right time. This is the kind of thing that we want to maximize. . . One of the things we have said is that if we are to get that

> combination of material, presentation, pupil and time, we have to remove this restraint which is on us. (Tiedeman, 1959, p. 1)

Flexibility, for Tiedeman, is freedom to remove or degrade a restraint, whether curricular, instructional, organizational or temporal, the goal being to offer a lesson in the best possible way. In Tiedeman's words: "If we get this into focus then we can ask ourselves what kind of organization is best. It may be that the one teacher to 30 kids arrangement would do it as well if those teachers had this kind of focus as we are giving the team teachers. It's only when you have this thing in focus that you really begin to ask questions about: does one organization get it better than another organization" (ibid., p. 2). For SUPRAD educators, differentiation and flexibility are means to an end, that end being (in David Tiedeman's words) "pupil progress." With this in mind, it's possible to see that SUPRAD educators were both like and unlike their non-SUPRAD peers, sharing those peers' interest in improving learning outcomes while rejecting their beliefs about how best to achieve those outcomes. Moving away from discussion of broad pedagogical principles, the next chapter explores SUPRAD educators' attempts to design and build schools ready-made for a variety of learning situations.

Chapter Six: EFL and the Nova School

In 1954, the year *Sports Illustrated* published its first issue, Harold Gores was Newton school superintendent, a position he had held since 1949. Newton schools in the 1950s—Newton High in particular—were adventurous in their programming,[1] something Gores encouraged, both privately and publicly.[2] A good example of 1950s Newton schools' boldness was Newton High's 1956 launch of the "Newton Plan," a program housed in the English department that identified topics suitable for "large-group classes" (Rinker, 1958, p. 71)—i.e., lectures—to be scheduled in an auditorium and delivered by a teacher/lecturer. As Floyd Rinker, one of the Newton Plan's originators, explained in a 1958 article:

> Selected for the first year was subject matter believed suitable for teaching by new methods and in a setting [unlike] the conventional classroom. Essential skills and common learnings were favored, so that experiments might be made in cross-curricula and cross-year assignments. Newton Plan English classes varied in size from 60 to 425, according to subject-matter and the lecturer's preference. (Ibid.)

Immediately celebrated as an instructional advance, (a 1957 *Boston Globe* article called Rinker's program "an effort to bring the very best of Newton's faculty to as many students as possible" [McPartlin, p. 24]), the Newton Plan acquired new importance in fall of 1957, when educators involved in the newly-launched SUPRAD project decided to evaluate the plan, a possible first step towards full-scale endorsement of large-group lectures. SUPRAD educators' awareness of and interest in the Newton Plan is easily explained given that Harold Gores was a member of SUPRAD's administrative board, a position which allowed him (board minutes reveal) to help shape the SUPRAD agenda:

> Mr. Gores mentioned several proposals that were receiving some consideration in Newton: attention to the junior high school, including the important element of how to group

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[1] Writing in 1960, Harold Howe, principal of Newton High, celebrated his school's "complexity," boasting: "[This] complexity is reflected in multiple curricula, in a wide variety of specialized services, and in a constant process of change directed toward improving the quality of education available to students. . . The ventures have involved faculty, administration, and student in new patterns of organization, novel methods of instruction, and fresh approaches to curriculum in a variety of subject fields." (P. 122).

[2] In 1957 teachers at Newton High School created what the *Boston Globe* called a "TV course in humanities for high schools," filming a series of lectures to be shown on WGBH TV in Boston. The course, described in the *Globe* as "one of the most far-reaching educational programs of our time" (Morgan, 1957, p. K16), was welcomed by Gores, who sat on its executive committee. (Ibid.).

> children at this level; the teaching of typing via television; the use of closed-circuit television to link schools so that fewer teaching personnel might be employed to give instruction in areas such as calculus where a city could not afford instructors for all its high schools. The chairman said that these kinds of examples would be excellent to include in a document outlining activities for SUPRAD for years ahead. (SUPRAD, 1957h, p. 5)

As a member of SUPRAD's administrative board, Gores focused with particular fervor on school design, proposing during the board's first meeting that SUPRAD educators "explore ways by which we might bring greater flexibility into school construction" (SUPRAD, 1957g, p. 1), an airy proposal that Gores brought down to earth through discussion of an as-yet-undevised "good, flexible sound barrier" (ibid.) that would divide a large classroom into two or more small ones. It is clear from Gore's remarks that both his wide-ranging interest in school design and his narrow interest in acoustic barriers emerged from his experiences with the Newton Plan, a venture made more challenging, Gores explained in a May 1957 memo to SUPRAD colleague Joseph Young, by shortcomings in Newton's High's design:

> The modern school program places a number of demands on a classroom. There are situations when it must accommodate large groups and others when it must accommodate small groups or even an individual student. Too often the physical limitations of classroom space do not permit these variations and instead we are forced to think in terms of standard groups meeting in standard-sized cubicles regardless of the particular learning experience. There is a need, then, for flexibility in the arrangement of spaces in accordance with the requirement of the situation of the moment. This need is even more complex, however, in that in order to be truly functional a space divider that achieves this desired flexibility must also be sound resistant. (Gores, 1957, p. 3)

Harold Gores's interest in school design resurfaced one month later, in June, 1957, in relation to what Gores called "dejuvenilization," a term he defined by noting how "not only the curriculum but the physical surroundings can convey to high school students an expectation of adult or child behavior, depending on whether these elements (curriculum or plant) were closer to their counterparts in the elementary school or in the adult world" (SUPRAD, 1957n, pp. 3-4). The implications of dejuvenilization, Gores suggested to his SUPRAD colleagues, invite further study:

> A question was raised regarding the appropriateness of retaining consultants under SUPRAD for school equipment matters. Dr. Gores said advice was being sought in these areas because of a very broad concern about the relationship of the physical plant of a school to attitudes of high school students to education. . . he said such an investigation was most appropriate for a program such as SUPRAD. (Ibid.)

Judging from his comments as a member of SUPRAD's administrative board, Harold Gores's primary interest—both as superintendent of Newton schools and as SUPRAD educator—was school design. To cite another example, on November 7th, 1957, Gores told his administrative board colleagues "we should be considering what schools will be like in ten to twenty years from now. The relationship between city planning and education should be studied. The preparation of our administrators should be geared to meet these problems" (SUPRAD, 1957h, p. 6). Reading further in the November 7 board minutes, one senses that Gores's keen interest in school design set him apart from his administrative board colleagues. For instance, Francis Keppel's response to Gores' suggestion that SUPRAD focus on school architecture was dismissive: "The chairman said this was one of the roles of the Center for Field Studies" (ibid.).[3] If Harold Gores was indeed alone on SUPRAD's administrative board in perceiving assessment of school designs as integral to SUPRAD's mission,[4] it helps explain why in May, 1958, Gores left SUPRAD to join the Ford Foundation's Educational Facilities Laboratories (EFL).

Harold Gores and Educational Facilities Laboratories

Under Harold Gores' leadership, EFL focused on promoting schools ready-made for innovative programming. We know this from EFL's numerous publications, grants, and design recommendations, (EFL often served as a consultant on school construction projects.) Although decidedly varied, EFL's preferred school designs had one thing in common: they were all aimed at giving educators more options, whether in teacher deployment, student grouping practices, or

[3] Opened in 1949 and directed by SUPRAD educator Cyril Sargent, Harvard's Center for Field Studies "provide[d] opportunities for research and training to the Faculty and advanced students in educational administration and in other related fields. Studies are conducted in outlying communities, usually through a contract or other form of agreement, leading to the development of educational services in school systems." (Center for Field Studies, 1949, p. 1). These studies differ from what Gores was proposing.

[4] Within months of its formation in June, 1957, SUPRAD's architecture committee was disbanded. "The committee was formed for the purpose of discussing problems of school architecture as they related to the construction of new buildings in the three cooperating communities," committee chairman Charles Brown wrote in a note announcing the committee's dissolution. "It soon became evident that this would not be possible." (Brown, 1957, p. 1).

scheduling.[5] EFL's focus on flexibility in relation to teacher deployment, etc. is clear when one looks at the schools EFL funded, promoted, or helped design. EFL promoted innovative school designs in three ways: in reports (e.g., profiles of "significant schools"), through grants (e.g., in 1966, the Berkeley Unified School District received an EFL grant for an educational park study), and as consultants. Between 1959 and 1977, EFL published at least 32 reports, with the majority issued in the first half of the 1960s. (Ten were issued in 1960 alone.) While no single EFL report reveals all the organization's positions, some offer a good sense of what the organization hoped to achieve. For instance, in 1961 EFL released *Schools for Team Teaching*, a key entry in EFL's Profiles of Significant Schools series because (1) its discusses in detail the fairly new practice of team teaching, and (2) it describes the ways a school must physically change for a team teaching program to succeed. Profiling ten innovative schools, the report presents EFL's case that changes in instructional programming and/or teacher deployment necessitate changes in school design. A team teaching program, the report explains in its introduction, provides a number of advantages, a key one being the freedom it allows teachers in planning and delivering lessons:

> The children are organized into their different groups according to the educational task, and this organizing and reorganizing can take place at any time and in any way the teachers feel will advance the program. . . A team works much more freely, crossing subject lines, combining subjects when appropriate, and in general tailoring the program to fit the children's abilities. (EFL, 1961, p. 11).

As *Schools for Team Teaching* shows,[6] EFL was in the early-sixties interested enough in the practicalities of team teaching to discuss them at length. That said, the report also reveals EFL's real concern as being less the practice of team teaching itself than the relationship between team teaching and school design.

> There are many possible ways of organizing teachers into teams and many possible ways of grouping children to improve the instruction they receive. But all of the methods now being tried out in experimental team teaching programs are severely handicapped when

[5] For example, air conditioning made possible summer classes in Southern schools.

[6] The document is credited to Evans Clinchy, an editorial associate at EFL, but like most EFL reports was a team effort. (Clinchy thanks three researchers for providing "the facts and figures" in the report.) After leaving EFL, Evans Clinchy worked with Robert Anderson on Operation Schoolhouse. Clinchy's involvement with Operation Schoolhouse is confirmed in a 1967 letter from William Ohrenberger, Boston's school superintendent, to Boston's director of public facilities, which reads in part: "The Office of Public Development, under Director Evans Clinchy, will prepare the educational specifications and space requirements for all of the buildings listed above" (1967, p. 2); "all of the buildings listed above" were the fourteen Operation Schoolhouse projects.

> forced to function in the typical school building designed with two rows of classrooms of equal size separated by a long narrow corridor. (Ibid., p. 12).[7]

Why is the typical school building incompatible with a team teaching program? In brief, because its classrooms are non-transformable spaces of the same size:

> Team teaching programs all appear to require school space that provides several fundamental things not available in many schools today: The space must be able to accommodate groups of various sizes, anywhere from 100 students down to one or two children studying by themselves. The space must allow the rapid shifting of group size and the rapid changing of the participants of any group. (Ibid.)

Having described the school space most appropriate for a team teaching program, *Schools for Team Teaching* reports on ten schools that offer such space, focusing in each case on the shapes and configurations of classrooms, with—as one might expect—close attention paid to movable partitions that allow for reconfiguration. One school is treated as a model team teaching school. Completed in 1961, Lexington's Grove Street Elementary School was the first school to emerge directly from the SUPRAD project.[8] "In 1959," we read in *Schools for Team Teaching*, "when it came time to add an elementary school to the town's system, Lexington decided that the team experiment was successful enough to warrant a school designed to serve it" (ibid., p. 40). The Grove Street school was Harold Gores's dream: a school shaped not by the dictates of tradition but by introduction of new programming.[9] What, then, was new about Grove Street Elementary?

In EFL's view, a school purpose-built for team teaching must, among other things, (1) "be able to accommodate groups of various sizes", and (2) "allow the rapid shifting of group size and the rapid changing of the participants in any group" (1961, p. 12). To meet these needs, the designers of Grove Street Elementary provided for five types of classroom, two types for large

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[7] This was is the much-derided "egg-crate" design. The earliest reference I can find to conventional schools having an "egg-crate" design is in the Weston Public Schools' 1959 Accordion Plan. "We would break the lock-step relation of one teacher to every thirty students, each in his block in a row of egg-crate spaces." (P. 1). In 1958, Harold Gores referred to conventional schools as "egg boxes" (p. 23), a name that didn't catch on.

[8] The "educational consultants" on the Grove Street project were Cambridge Consultants, Inc., a firm co-directed by Cyril Sargent, former head of Harvard's Center for Field Studies and an EFL consultant. Cambridge Consultants also helped design Wayland Senior High School (opened 1960), another school purpose-built for team teaching, and a school also profiled in an EFL report: "For the intimate atmosphere the new program was designed to create, the typical high school seemed institutional and impersonal. A series of uniform classrooms was not a workable system for large, medium, and small group classes." (EFL, 1960b, p. 6).

[9] In 1968 EFL published *Educational Change and Architectural Consequences*, described by its authors as an "effort to give those concerned in planning schools the widest choice of options in designing new facilities or redesigning old ones." (EFL, 1968, p. 7).

groups,[10] two for small groups and one for individual study, with one large group space and one small group space divisible by movable partitions into either two (the large group space) or three (the small group space) individual classrooms.[11] Even this cursory description indicates Grove Street Elementary's dissimilarity from "the typical school designed with two rows of classrooms of equal size" (1961, p. 12), a dissimilarity shaped by Grove Street's need to accommodate the varied class sizes consistent with a team teaching approach. "Team teaching," we read in *Schools for Team Teaching*, "is still in an experimental stage of development. Therefore schools designed for team teaching programs are experimental" (ibid., p. 4). As its name suggests, Educational Facilities Laboratories was created to encourage experimentation in school design, whether by funding, promoting or helping design innovative school buildings, and while the experimental nature of Grove Street Elementary helps explains EFL's interest in the school, that interest also reflects Grove Street being a SUPRAD school with a design shaped in part by Gores himself. Evidence of a continuing relationship between Harold Gores and SUPRAD is found in several SUPRAD documents from 1959, one year after EFL's founding, when Gores—quite naturally—maintained an interest in SUPRAD. In February, 1959, for instance, Joseph Young, SUPRAD's administrative secretary, wrote Gores with a promise to keep him updated on SUPRAD:

> In December I sent you a batch of annual reports of SUPRAD projects covering the year 1957-58. I will continue to send you "white papers" on the projects which may be relevant to your present interests. I have not seen any reports on projects which you have fathered to date. However, I am sure that the "idea shop" is as active as ever. (I never ceased to enjoy hearing your seemingly endless stream of suggestions, new ideas, and new approaches, at the SUPRAD Administrative Board meetings.) Do you have any handouts which might be of help to some of the SUPRAD project committees? (Young, 1959a, p. 1)

Revealed here is an informal relationship between EFL and SUPRAD where each organization keeps the other informed through sending of relevant reports. Three months later, in May, 1959, Joseph Young sends Gores a (much) longer letter intended to (in Young's words) "bring you up to date on developments in connection with SUPRAD's interest in the new elementary school in Lexington which is planned for opening in September 1961" (Young, 1959b, p. 1). The new

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[10] The most important large space was an "assembly-lecture hall" designed for "all kinds of large group instruction." (EFL, 1961, p. 41),

[11] Grove Street Elementary also included offices for each teaching team, "where teachers can perform their own work (lesson planning, evaluation, etc.) and team members can confer." (EFL, 1961, p. 42).

school in question was (or would become) the Grove Street Elementary School, one of EFL's schools for team teaching, and reading Young's May 14 letter to Gores one discovers that not only was SUPRAD driving the Grove Street design process, EFL was invited—if not expected—to be a partner in that process. "Let me close this overly-long letter with several specific questions," Young writes, continuing:

> 1. Assuming the Laboratories [i.e., EFL] is interested in certain experimental equipment or aspects of building design represented in such a building would you be prepared to provide support for any extraordinary costs for which we could not expect the community to pay?
> 2. Assuming that the Laboratories may have a more substantial interest in the Greenwich project,[12] is there a possibility of sharing the consultancy services with Lexington? [. . .]
> 3. Should we take any steps now to get a formal proposal before you? If so, what types of information do you desire? (Ibid., p. 3)

Even if SUPRAD never got around to sending EFL a "formal proposal" to work on the Grove Street Elementary school, Harold Gores's current and former employers clearly shared an interest in designing a successful school for team teaching. Speaking at a May, 1959, SUPRAD retreat, Joseph Young informed his colleagues of EFL's possible involvement in the Grove Street project, presenting EFL as a potential source of funding and ideas: "We have also been in touch with Harold Gores regarding [his] assistance [as a] consultant and capital expenditures, possibly in connection with our new building. Much of this depends on our decisions in the next few weeks, it seems to me, in what direction we want to go and where we want to direct our energies" (SUPRAD, 1959e, p. 18). Harvard's SUPRAD archives reveal nothing about EFL's role—formal or informal—in the Grove Street project, but Gores and EFL were clearly pleased with the outcome, explaining both their 1961 report on the school and their hiring of one of the school's educational consultants, Cyril Sargent. Grove Street Elementary was almost entirely in line with Harold Gores's thinking about an effective Space Age school, incorporating varied spaces for varied activities: "Some of its walls will move, but it provides for the team teaching program mainly by the design of special spaces for large, regular, and small groups" (EFL, 1961, p. 40). Although Harold Gores's role in the Grove Street project is unclear, the part he played in another school design project is a matter of public record.

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[12] Educators in Greenwich, Connecticut were at this time, in Joseph Young's words, "doing a similar thing, in a sense, to approaching a new building with incorporation of the team teaching ideas." (SUPRAD, 1959e, p. 18).

EFL and the Nova School

What was the Nova School? Recognized today as the first Space Age educational park,[13] it was originally the site for simultaneous testing of not just a few SUPRAD programs (Newton, Lexington, and Concord schools had served this role), but many SUPRAD programs, one goal being to see how or if the programs complemented one another. As Broward County, Florida, school board chairman Dean Dessenberger (Dean was his first name), who worked with Harold Gores and others from the Ford Foundation to develop Nova, explained in a 1960 interview:

> A lot of experimental teaching programs have been deemed successful but no one has had the opportunity to put them into practice in a working situation where they could be compared and analyzed. The Ford Foundation alone has about 18 such programs and would like to know which could be recommended for full scale nationwide adoption. Our park would be ideal for setting up experimental and control groups. (Jones, 1960, p. D1)

Nova's origins in SUPRAD[14] are evident when one juxtaposes a description of SUPRAD with a summary of what came to be called the "Nova Plan." Here Harold Howe II, long-time principal of Newton High School, describes the SUPRAD program:

> Our experimentation and study have been concerned with various questions: whether we can take advantage of the growing maturity of senior high-school students to give the individual more responsibility for his own education; how to produce a better quality of learning; to what degree larger student groupings can result in more effective instruction; how to utilize modern audio-visual aids as an integral part of the teaching-learning process; how to extend beyond his own classroom the talents of the particularly skillful teacher; (1960, p. 122)

And here is one section of a 1963 "preview" of Nova High School issued by its administrators:

> The program is based on the concept of individual progress with emphasis on quality education. . . Students are made aware that responsibility for learning is their own. . . Team teaching is done in selected areas. . . Features of this organisation include

[13] At the start of the 20th century several cities built proto-educational parks: "Studies of the extent of educational park planning and operation date back to at least 1901 when Preston Search in his book *An Ideal School* listed and described several schools that were operating then in a park/campus setting." (Freeman, 1975, p. 7).

[14] Two important figures in Nova's development had been SUPRAD participants, Harold Gores, who had been Newton's school superintendent, and Arthur Wolfe, Nova School director in the mid-1960s and a former teacher in Lexington's SUPRAD program. Abraham Fischler, late-1960s president of Nova University (the post-secondary component of the Nova School), was another SUPRAD educator, having served on SUPRAD's Committee on Team Teaching while an assistant professor at Harvard.

> ungraded classes, flexible grouping, independent study time, and 70-minute periods. Automation features include closed-circuit television, a foreign language laboratory, a reading laboratory with reading machines, an overhead projector and screen at each teaching station, a data-processing center, and two sound-equipped lecture halls. (Nova High School, 1963, p. i)

The passages overlap in many ways, with both referencing (sometimes in the same words): (1) student responsibility for learning, (2) team teaching, (3) flexible student groupings, and (4) audio-visual aids. In sum, both the SUPRAD program and the Nova School aspired to provide innovative education emphasizing team teaching, student-directed learning, and technology.

Nova's affinities with SUPRAD were no accident. In February, 1960, Dean Dessenberger, chairman of the Broward County school board, visited New York to meet with Harold Gores, Dessenberger's aim being "to enlist the aid of the Ford Foundation for a county educational project [involving] educational television [and] air conditioning as a step toward a 12-month school program" ("Schools Here May Make Bid," 1960, p. A7). Several weeks later when Dessenberger returned from New York City, he returned not with plans for an air-conditioned school complex with educational television, but with hopes of building what the *Miami Herald* called a "huge 'educational park'[15] where students could go from first grade through college on one campus, and where experiments in education could be conducted" (Taylor, 1960a, p. B1). What seems to have happened in New York is that Harold Gores, learning that Broward County had 230 acres available for school construction, identified the acreage as an ideal location for consolidation of various Ford Foundation projects, including those projects transpiring under the auspices of SUPRAD. This interpretation of events is in line with subsequent developments in 1961, including most tellingly Dean Dessenberger's (and other Broward County officials) visits to a number of SUPRAD school systems, not just the original three (Newton, Concord, and Lexington), but also systems added later to the SUPRAD program (Strickland, 1961, p. B1). Funded by the Ford Foundation, these "field surveys" (ibid.) allowed Nova[16] planners to observe such innovations as large group instruction, educational television, teacher aides, non-graded elementary schools, learning resource centres, team teaching, and programmed instruction

[15] This is the earliest instance I can find of the expression "educational park" being used in the 1960s sense (i.e., to refer to a cluster of schools under a common administration).
[16] At this time Nova School was called the South Florida Education Center.

(ibid.)—the full gamut of SUPRAD initiatives. The purpose of the trips, one Nova planner explained, was to look "for unique methods of teaching and scheduling and for new developments in plant planning" (ibid.). As noted, Nova was designed to consolidate a number of SUPRAD projects, suggesting that, while Nova educators would initially learn from SUPRAD peers, eventually the teacher-learner relationship would be reversed, with SUPRAD-trained or affiliated educators learning from Nova; in other words, the Nova school was meant to be, as Dean Dessenberger explained, "an experiment that would provide beneficial information to all educational systems" (Taylor, 1960, p. B1).

Even before it opened in September, 1963, Nova was a sensation, winning support from local businesses, civic organizations, and parents, along with positive coverage in community and national media. Nova's planners promoted the school on two grounds, as a rigorous school and as a modern school, with, for instance, chief planner Arthur Wolfe explaining in September, 1961, that Nova would be devoted to "old-fashioned tough education emphasizing math, science, language and humanities, using the most modern methods and equipment under the best possible circumstances" (Allen, 1961a, p. C1). Nova students, it was reported, would "go to school 224 days a year instead of the present 180" (ibid.), have access to "closed circuit television [and] highly specialized 'master teachers'" (ibid.), and would attend "some large lecture type classes, some very small classes, and go off on their own for individual research and projects" (ibid.). The scope of Nova's ambitions was revealed in February, 1962, when planners released a 182 page report listing both general objectives and detailed plans. Report in hand, the *Miami Herald* praised Nova's "revolutionary plan encompassing bold new teaching techniques" (Strickland, 1962, p. B1), highlighting Nova's promise to tailor teaching to a student's abilities, while citing the report's assertion that individualized instruction allowed for "maximum attainment of each student's talents, no matter how unequal that maximum might be" (ibid.). [17] A widely-syndicated June, 1963, Associated Press article noted that the various components of Nova's innovative program had mostly been "tried and proved":

> With the notable exception of the longer school year, there is little about the center's individual projects that is startlingly new. Virtually everything has been tried and proved in other schools. What makes the center different is that no school in the

[17] "Instead of being confined to a grade for a specified period, each student will be allowed to progress at a rate 'commensurate with his interests and abilities'." (Strickland, 1962, p. C2).

> United States has put all these things together at one time and in one place. This is the big leap forward. (Hodenfield, 1963, p. D8)

Because familiar with Nova's ties to SUPRAD we know *where* Nova's individual projects had been tried and proved: in Lexington, Newton, Concord and other SUPRAD cities. In January, 1963, Nova received $150,000 from the Ford Foundation, for what the *Fort Lauderdale News* called "curriculum development": "The Nova program will be revolutionary in that large group instruction, team teaching and teacher helpers will be used more extensively than is possible in the traditional school" (Eklblom, 1963, p. B1). Clearly Nova was conceived of as a logical next step in the Ford Foundation-funded SUPRAD project, explaining why, to again quote the *Fort Lauderdale News,* "[Ford Foundation] representatives have visited here frequently to discuss the Nova experimental school" (ibid.).

Nova as a SUPRAD School

To call Nova a "SUPRAD school" is to assert, first, that it was staffed or administered by SUPRAD educators, and second, that it was designed to facilitate use of SUPRAD practices. On the first point, three SUPRAD educators were closely involved with the Nova project, Harold Gores, Ford Foundation liaison during the Nova project's initial period, Arthur Wolfe, Nova's first director and a former participant in SUPRAD's Franklin School team teaching program,[18] and Abraham Fischler, mid-sixties president of Nova University and former Harvard professor researching team teaching and large-group instruction.[19] Of these three educators, Gores and Wolfe are most important for appreciating Nova's SUPRAD roots,[20] Gores because he was—in effect—Nova's first educational consultant, Wolfe because as Nova's first director he ensured that the "Nova Plan for Instruction" was consistent with SUPRAD pedagogy.

On July 5, 1961, Harold Gores wrote to Alvin Eurich, Lester Nelson, and Edward Meade of the Ford Foundation, detailing his and their itinerary for an upcoming fact-finding mission to the site of the proposed South Florida Education Center.[21] Harold Gores's memo—which also

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[18] In June, 1962, Wolfe travelled to Lexington for a seven-week "team teaching workshop. . . headed by a group of Harvard University Professors." ("School Pair Off to Learn," 1962, p. B1).
[19] In the early-sixties, Fischler published four articles based on his SUPRAD research.
[20] Nova University opened in 1966, three years after Nova High School.
[21] "On arrival at Fort Lauderdale we will be met by Mr. Synnestvedt who will take us to the Ocean Mile Hotel to register; then to inspection by helicopter of Forman Field, an abandoned airport to be the site of the proposed South Florida Educational Center; then to dinner with the Board of Education." (Gores, 1961, p. 1).

provides "background" information on the South Florida project—speaks to Gores's role as the Ford Foundation's representative in South Florida, a powerful position given the South Florida project's need to secure Ford Foundation support. Gores, it's important to note, was at this time acting not as an agent of the Ford Foundation, but rather as an employee of Educational Facilities Laboratories, whose letterhead he used in correspondence about the South Florida project, and with whom he was associated in contemporary newspaper articles (e.g., "Education park plan," 1961, p. C1). Given Gores's early involvement with the South Florida project (Gores first met with South Florida officials in January, 1960, sixteen months before the initial Ford Foundation fact-finding mission), it's important to explore Gores's vision of a Space Age school. The 1960s, in the eyes of Gores and his EFL colleagues, required "new schools for new education."[22] What, for Gores, did such schools look like, and what kind of education did they provide?

In May, 1960, Harold Gores, speaking at a conference of the Minnesota School Facilities Council, presented his own vision of "schools of the future." Reporting on Gores's speech, the *Minneapolis Star Tribune* painted a vivid picture:

> Schools of the future will be highly flexible and may include some "amenities" such as carpeted rooms. . . Gores described the coming school as likely to have soundproof walls, movable "at will and at once." They will provide space, he said, that can be multiplied or divided into large and small study areas. Among other trends cited: non-rectangular rooms, perhaps six-cornered; "de-scheduled" classes, changing without bells; class periods of varying lengths for different subjects; and schools built to convert to other facilities when no longer needed. (Kleeman, 1960, p. 22).

This speech, delivered three months before Harold Gores first met with representative of the South Florida Education Center, speaks to continuity between Gores's thinking as a member of SUPRAD's administrative board (where development of a "good, flexible sound barrier" was among his top priorities [SUPRAD, 1957g, p. 2]) and as president of Educational Facilities Laboratories, a position which—as Gores's former colleagues hoped it would—allowed him to disseminate SUPRAD ideas. Yet Gores, as an April, 1960, interview in *The Nation's Schools* reveals, was no less interested in instructional practices than in school design, in fact seeing the two as inseparable:

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[22] The title of a 1960 EFL report.

> Team teaching, as the name implies, is the rearrangement of teachers, pupils, subject matter, time, space, and, in some instances, compensation, to the end that the school is free to choose the circumstances under which children will learn. In medical analogy it means that teaching will be thought of more as the act of a team of specialists and less as that of a series of general practitioners. When teachers and pupils are rearranged according to whatever is the academic task at hand, the immediate response is "give us a variety of spaces—some large, some small." (Gores in Rice, 1960, p. 76)

Gores's response calls to mind David Tiedeman's description, offered during a 1959 retreat, of SUPRAD's aims: "The kind of combination that we are trying to achieve in all instances and at all times is right material, right presentation, right pupils, and right time" (1959, p. 1). As does Tiedeman, Gores sees SUPRAD practices (team teaching in particular) as aimed at providing educators with additional options, the result being that an educator can (to paraphrase Tiedeman) present the appropriate material in the best possible way. As noted in Chapter Five, SUPRAD pedagogy coheres around the complementary notions of differentiation and flexibility, and here, as Harold Gores discusses team teaching, we find a SUPRAD educator promoting such teaching precisely because it exemplifies differentiation (of teachers) resulting in flexibility (in the areas of teachers, pupils, subject matter, etc.) Even two years after leaving SUPRAD, Gores was nothing if not a SUPRAD educator. What did this mean for the Nova School?

The Nova Plan for Instruction

In 1964,[23] the Broward County (Fla.) Board of Public Instruction published *The Nova Plan for Instruction*, a 182-page text "outlin[ing] fundamental concepts of the Nova Plan for instruction" (Wolfe et al., preface). "Within these pages," the document explains, "will be found a general description of the programs, policies, and objectives of Nova High School. . . articles deal with such topics as curriculum organization, scheduling and teaching methods, as well as learning theory" (ibid.). Credited to "Arthur B. Wolfe and Nova Staff Members," the *Nova Plan for Instruction* outlines (often in great detail) a comprehensive pedagogy, providing descriptions of programs, policies and objectives, but also offering—in a more limited way—justifications for

[23] Several online sources date the document to 1962, but this date is incompatible with its preface, which explains: "In the fall of 1963, Nova High School—first phase of the projected South Florida Education Center, extended from kindergarten through graduate school—opened its doors to nearly 1500 enthusiastic students." (Wolfe et al., 1964, preface).

those programs, policies, and objectives. Here for example the *Nova Plan* discusses one of the Nova educators' key aims, justifying the aim by reference to Space Age volatility: "It is no longer possible to keep abreast of the current explosion of knowledge in research and development. The times demand that major emphasis be placed upon conceptual skills—the ability to think ahead and predict a logical outcome" (ibid., p. 4). As noted earlier, Space Age educators often describe their era as uniquely unpredictable, frequently citing—as happens here—an "explosion of knowledge." Nova's response to Space Age unpredictability, however, is unusual in that the focus is on teaching students *to reason out* future developments. In any case, the *Nova Plan* is notably detailed in its coverage of day-to-day activities at Nova High, not only discussing class content in all departments, but also detailing how, when, where, and to whom that content is delivered. While Nova pedagogy includes many original elements, it overlaps in a myriad ways with SUPRAD pedagogy, raising the question: Did Nova educators set out to build a SUPRAD school?

There are several reasons to explore the relationship between Nova and SUPRAD. A first relates to the origins of the educational park concept. In brief, given that the Nova School is often described as the first educational park,[24] it would be significant if Nova were a product of SUPRAD pedagogy. Moreover, if Nova were a SUPRAD school, this would help explain Robert Anderson's belief—evident in his work on Operation Schoolhouse—that SUPRAD schools have a "magnetic" quality that attracts students. Described by its founders as an "educational center for a scientific age" (Allen, 1961f, p. A1), Nova certainly had a magnetic quality. "First day application requests for Nova High School kept the School Board switchboard humming," the *Miami Herald* reported in October, 1962, adding: "Three phone lines were busy most of the morning in Nova's planning office" (Doran, 1962, p. C5). "There isn't going to be any problem filling up Nova School for fall classes," the *Fort Lauderdale News* observed eight days later ("Applicants put rush," 1962, p. C2). Articles along these lines appeared every few weeks in the period leading up to Nova's September, 1963, opening, with most articles emphasizing Nova's cutting-edge features:[25]

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[24] E.g., "Nova High School at Fort Lauderdale, Fla., has developed the nation's first educational park." ("Planner Boosts Educational Park," 1967, p. 15).

[25] Arthur Wolfe selected Nova's name to underscore the school's novelty: "Wolfe said he believed the Latin word for 'new' was a short, attention-getting title for the school in which he'll put together the best modern methods and building techniques, gathered from all over the nation." ("2 new schools," 1962, p. B1).

> This week near Fort Lauderdale, Fla., a school will open which, its sponsors believe, may be a prototype for education of the future. Nova High School, featuring the most advanced curriculum and plant facilities, is to be the first phase of the South Florida Education Center. . . Growing out of an overcrowded area's need for additional schools, the South Florida Education Center master plan has received strong support in the local community. (Evans, 1963, p. E7)

Midway through its second year of operation, Nova High had a waiting list of 1000 students ("Nova Plan Has Few Defectors," 1964, p. B1), and this despite Nova students (alone among Fort Lauderdale students) having to pay for bus rides to school ("Bus Fee," 1963, p. B1). Even a cursory study of Florida newspapers circa Fall, 1963, reveals that the Nova Plan was a hit, with Nova parents believing (to quote one article) "that Nova is a wonder-drug for educational ills" (Jackson, 1964, p. BR9). Nova, then, was a popular school—and popular precisely because seen as state-of-the-art. "I would like to have the most modern methods of teaching," one prospective Nova student told the *Fort Lauderdale News* (Gettemy, 1962, p. B1). What were those methods? And were they developed by SUPRAD educators?

Wolfe et al.'s *The Nova Plan for Instruction* introduces its plan proper with a statement of principles—a statement redolent of the early-sixties Space Age:

> The adult product of education should: (1) show intellectual curiosity, (2) value and desire to make logical and rational decisions, (3) develop mastery through understanding, and (4) enjoy working with problems. Application of these outcomes should enable the student to (1) recognize and understand problems within his environment, (2) respond to problematical aspects of his environment in a logical sequential manner, (3) apply an analytical viewpoint in seeking solutions to problems, (4) gain pleasure from the process of problem solving as well as from the final solution itself, (5) weigh optional solutions in terms of accuracy rather than immediately accepting an easily obtained solution, and (6) seek out the wonders of "why" and gain satisfaction from discovery. (Wolfe et al., 1964, p. 2)

This passage—which describes a student trained to apply an "analytical viewpoint" in making "logical and rational decisions"—speaks to a key feature of the Nova School, its having been designed in part as an instrument of industrial policy meant to ready young people for a career in science or technology. In July, 1961, "South Florida Educational Park, Inc." was established, a

non-profit corporation whose trustees included various Broward County bankers, attorneys, and "industrialists" ("Forman field," 1961, p. C1). This in no way discredits the Nova School, but it does hint at its founders' hope that Nova would provide an economic boost to Broward County, both by training technocrats (i.e., people able to "respond to problematical aspects of [the] environment in a logical sequential manner"), and by attracting new industry to the region. This becomes clear when one studies the groups Nova Officials met with in the early months of the Nova project, not only Ford Foundation officials but also "Broward County industrial leaders [who were asked] to 'give us your ideas of what kind of technical training should be offered at the center'" (Allen, 1961c, p. B1). And what did the industrialists say? "Immaturity and not lack of training is the chief drawback of most new high school graduates. 'We rarely hire new high school graduates because of their lack of stability,' Milo Rudd, vice-president of Univic, an electronic plant, stated" (ibid.). An important purpose of the Nova School, then, was to produce mature, stable young people, explaining (in part) Nova educators' "desired goals or educational outcomes," specifically the educators' hope that Nova pupils be curious, rational, and perceptive. But don't all schools aim to produce curious, rational, perceptive young people? What's special about the Nova School?

"Nova is an experimental, six-year junior-senior high school," we read in a mid-sixties visitor's guide, which continues:

> Aspects of the program include the trimester system, the continuous progress curriculum, team teaching, a class schedule of four 70-minute periods per day, the use of data-processing equipment, and modern instructional aids. . . Features of the physical plant include multi-purpose classrooms, convertible-space lecture halls, conference study areas, special purpose rooms, flexible science laboratories, a television control center, lunch facilities, a home-science laboratory, and a center for preparation of visual aids. (Whiting et al., 1963, abstract)

Constructed in line with a "stridently self-confident blueprint which includes practically every fashionable educational innovation" (Gross, 1962, p. 1), Nova was designed as an experiment comprising many other experiments: "First, sift out the best, pre-tested ideas in education and incorporate them into plans for the campus where students from first grade through university level would provide a control group to put these ideas to work" (Allen 1961d, p. B1). And if one Ford Foundation representative (Ronald Gross) saw the Nova Plan as a haphazard "catch-all" of

educational novelties (1962, p. 1), others (including Harold Gores and his New York associates) saw Nova's wide-ranging experimentation as promising:

> Four noncommittal Ford Foundation executives returned to New York yesterday after conferring with school officials here on development of an educational park. . . [Broward school superintendent Myron Ashmore] said he believed the foursome was intrigued with putting tested new educational ideas together into a single school system for kindergarten through university level. "These things—such as team teaching and ungraded schools—have been tried in isolated locations, but they have never been put together," Ashmore explained. ("Education Park Plan," 1961, p. C1)

Ashmore's point that Nova's various experiments had never been "put together" is an important one, explaining not only the Ford Foundation's interest in the school, but also public officials' (at many levels) support of the project:

> "Very few places would have the vision and wherewithal to contemplate a project such as this," [Florida Superintendent of Public Instruction Thomas Bailey] told a Davie Chamber of Commerce breakfast meeting. "Everywhere I go, not only Florida but throughout the United States, people are talking about it." (Smith, 1961, p. C1)

"Schooling of high quality was the aim in Florida," the *St. Louis Post-Dispatc*h explained in January, 1967, "along with the attendant prestige that might attract space-age industry to the region" (Peters, 1967, p. 207). The hope, then, entertained by Broward County officials (among others), was that Nova would serve as a catalyst for modernization of Broward County, offering nuts-and-bolts technical education that would attract cutting-edge industries (e.g., aerospace) to Fort Lauderdale: "Industrial leaders. . . believe high school graduates need a more thorough basic background" (Allen, 1961c, p. B1). What's striking here is the assumption that a no-frills, basic education is best delivered by "the most advanced experimental school in the nation" (Bishop, 1967, 41). In the 1960s, Nova was often called a "space age school" (e.g., Kaufman and Bethune, 1964, p. 9), a name hinting at its having been designed "to prepare young people for space age living" ("Ft. Lauderdale Thinks Big," 1964, p. D4). What do preparations for Space Age living look like? The *Nova Plan* includes a statement of purpose:

> South Florida Education Center's prime purpose is to design and articulate an educational philosophy capable of meeting new demands of a dynamic society in a scientific age. We must be prepared to meet rapidly changing needs. To be practical, education must prepare

> the minds of students for work that does not yet exist and whose nature cannot even be imagined. (Wolfe et al., 1964, p. 4)

In evoking a world made unpredictable by the rapid pace of scientific discovery, this passage calls to mind Francis Keppel's 1963 comment on challenges facing Space Age educators: "To plan for tomorrow, we must realize that the accelerating expansion of knowledge, the growing complexity of the world, and the rapid advance of technology demand an excellence in today's education sufficient to cope with work and conditions that do not yet exist and cannot yet be clearly defined" (1963a, p. 5). In both cases, we intuit what might be called a pedagogy of doubt centred on recognition that society is too dynamic to be outmaneuvered through anticipation of its future dimensions or needs.[26] Doubt, however, is just an initial state-of-mind for Keppel and the Nova educators, who immediately ask an urgent question: given the impossibility of knowing where our students will be working in the future, what skills can we give them relevant to *all* kinds of work—blue- or white-collar, high-tech or unskilled? "This program is designed," Nova educators write in response to this question (or one like it),

> to arouse and cultivate curiosity and the habit of inquiry at a very early age in the child's education. It also creates and stimulates an active desire to learn. Instructors help children learn careful observation, classification, measurement, experimentation, and the skill of seeing general principles which underlie a set of related facts. In short, scientific methods are taught from the beginning as a basic tool for all learning. (Ibid.)

This passage, too, brings to mind a Francis Keppel comment on education in the Space Age, from the same 1963 speech cited above ("Education for Tomorrow"), and again focused on how educators should respond to the world. Having observed that the character of work in the future "cannot yet be clearly defined," Keppel considers what this means for formal education:

> This requires a new approach to learning in order to provide for continuous renewal of information, continuous re-evaluation of outlooks, and continuous improvement of actions and reactions. In other words, tomorrow's citizens will need to apply to learning—and to life itself—the method of inquiry used in scientific research if they are to face new or unfamiliar situations with confidence. (Keppel, 1963a, p. 5)

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[26] This point is repeatedly emphasized in the *Nova Plan for Instruction*, e.g.: "There has never been a time when foretelling the future with any assurance of accuracy has been more difficult. Science-fiction writers are having a most frustrating time trying to stay a step ahead of reality. This is a time when even a strong imagination permits us to look only into the very fringe of the future." (Wolfe et al., 1964, p. 9).

It is possible to recognize a common theme running through the *Nova Plan* and Keppel passages, namely that students must become apprentice Deweyan educators, objectively examining the world as precursor to running an experiment to assess one or another supposition. In practice, this means that schooling transpires through provision of learning *experiences*, tailor-made for a given student's interests and readiness. As we read in *The Nova Plan for Instruction*:

> Nova's curriculum demonstrates a pattern of education which in no way minimizes the role of the arts, humanities and social sciences but which openly recognizes scientific literacy as the basic skill in a scientific age. Such a course calls for these general provisions: (1) to give students more equipment, space and time to provide for individual needs, (2) to offer experiences more closely tailored to the needs of the learner and his individual point of readiness, (3) to teach more materials more effectively to more students, thereby increasing the influence of the talented teacher and the scope of information which a student experiences during his high school education, and (4) to place the major emphasis of instruction and study on basic learning skills. (Wolfe et al., 1964, pp. 9-10)

As noted in Chapter Five, SUPRAD pedagogy coheres around two concepts, differentiation and flexibility, and here we see how privileging those concepts can structure a plan of instruction, with differentiation realized through individualization of both students and teachers (the latter distinguished in part on the basis of "talent"), and flexibility made manifest through delivery of lessons "closely tailored to the needs of the learner." In its insistence on individualizing students, teachers and experiences, *The Nova Plan for Instruction* is in line with SUPRAD pedagogy. But what of Nova High School itself? Are its facilities compatible with SUPRAD practices?

Nova High School: Design and Features

"Much is known about how children learn, but very little is known about the setting in which learning occurs," we read in "South Florida Education Park Specifications" (1962), the passage continuing:

> Many are familiar with the laws or principles of learning, theories of learning, objectives of education, principles of growth, and other factors that influence learning. In most cases, these are discussed without reference to building design. It is believed here that building design is highly important, and that the classroom setting created by the physical facility

> can make a major contribution or be a major deterrent to the learning process. (Broward County Board of Public Instruction, 1962, p. 35)

Along with Harold Gores and other SUPRAD educators, the designers of the Nova School held that in architecture form follows function, a time-honoured formula ensuring that in the case of a school (the Nova School or any other) "The space layouts and arrangements and all the facilities therein must be designed to best serve the instructional program in a most orderly, efficient and natural manner" (ibid.). This quite reasonable statement raises another question, best phrased as "If form follows function, what does function follow?", a (somewhat glib) question which—in the context of school design—calls attention to another foundational relationship, that linking an instructional program to the world at large. Returning our focus to the Nova School, why does it feature team teaching, nongraded classes and other SUPRAD programs? Why *this* instructional program? The South Florida specifications document provides an answer: "In this age of change it is impossible to foresee the kinds of uses or utilization in succeeding decades. Therefore, it is highly desirable that certain provisions be made which will provide for flexibility, adaptability, expandability, and multi-use" (ibid., p. 36). Again we find an unpredictable world linked to a pliable school plant, the connective belief being that a school with fixed features will soon be obsolete (in part or in full). Having made this point, the South Florida document explains how the attributes listed above (flexibility, adaptability, and expandability) are realized in a school building:

> Flexibility requires a technique of construction in which partitions can be installed, removed or altered to create various sizes and shapes of learning spaces. This type of construction would make the building itself part of the instructional equipment.
>
> Adaptability suggests modification of the teaching space by the teacher as he or she goes about the process of instruction. Some partitions should be mechanically operated while others should be manually operated. In either case, the teacher would be permitted to change the space requirements in a matter of minutes. This arrangement must also provide acoustical privacy.
>
> Expandability is essential with today's ever increasing enrollment in public schools. The original layout of teaching spaces should permit future expansion without serious interference with the educational program. (Ibid.)

These attributes are the ones the South Florida document highlights in its section on school plant, indicating that provision of pliability was Nova educators' principal design goal. Given that these educators had many meetings with Harold Gores, and given that the Nova School was purpose-built for SUPRAD programming, this suggests that the Nova School, in addition to being the first educational park, was the first SUPRAD school built away from the Lexington-Concord-Newton area. Beyond this, the Nova School itself—once up-and-running in the early-sixties—provided evidence that SUPRAD educators, with all their talk of differentiation and flexibility, were on to something.

Nova's popularity was both immediate and enduring, emerging with announcement of the school in March, 1960, and lasting throughout the sixties and into (at least[27]) the early-seventies. As late as March, 1969, when Nova was no longer a novelty, the *Fort Lauderdale News* reported "hundreds of children are waiting to get into Nova and. . . hundreds more would sign up if there were a Nova school nearer to their homes" ("Moore asks," 1969, p. B1). Nova's early popularity is best explained by reference to the Space Age originality mentioned above, with one early news article calling the South Florida Education Center "an educational center for the atomic age" (Jones, 1961b, p. B1). Within a few years, however, Nova had acquired a reputation as a bastion of academic rigor As one widely-syndicated article reported (1964):

> Nova High School is a one-of-a-kind working demonstration model of the newest to be found in American public education today.
>
> > Start with the 11-month, 220-day school year from Sept. 1 to July 30. That's 40 days longer than the national average. In four years at Nova, a student gets the equivalent of six years in a traditional school. . .
> >
> > Add this rigorous academic program: every student, every year, is required to take English, social science, physical science, mathematics, a foreign language, physical education, and an elective from one of the many technical science courses available.
> >
> > Add a non-graded program, where every student proceeds at his own best pace. No one ever fails, no one ever has to repeat a full year's work, and no limit is placed on how fast and how far the brightest students can go. (Hodenfield, 1964, p. A9)

Something of a puff-piece ("All this, plus a reading clinic, team teaching, a required course in good study habits, soundproof booths where students can type their notes, teaching machines"

[27] 1972 was the last year I researched.

[ibid.]), G. K. Hodenfield's article—as the passage above indicates—linked Nova's SUPRAD practices to a purported academic rigor, arguing that the practices allowed students to reach their full potential. By 1968, 2000 students were on the waiting list for Nova Elementary School (Kolb, 1968, p. H1), suggesting that Nova's magnetism was working. An important question for my research is whether this magnetism was—*pace* Hodenfield—related to Nova's inclusion of SUPRAD design elements and SUPRAD instructional practices.

To the extent the Nova Plan incorporated SUPRAD elements, those elements arrived through the auspices of Educational Facilities Laboratories, which in the 1950s-60s had a close relationship with Francis Keppel and other SUPRAD educators. In November, 1964, the Ford Foundation, considering a four-year grant to assist in "development and evaluation of the Nova Plan," sent Nova educators a boilerplate questionnaire to elicit information on their project. One part of the questionnaire ("General Description of Project") includes a list of "new instructional or organizational plans implemented," with spaces to mark if particular plans have been adopted. Here is how the section appears on the Nova School questionnaire:

	Elementary	Secondary
Nongraded units	x	x
Multi-age groupings	x	x
Team teaching	x	x
Variable size pupil groups	x	x
Continuous progress plans	x	x
Independent study or tutorials	x	x

(Ford Foundation, 1964, p. 4)

Assuming, as seems safe, that the questionnaire's list of innovations reflects Ford Foundation priorities, then the Nova Plan was clearly in line with Ford Foundation thinking about best practices in Space Age education. That said, already by the late-fifties SUPRAD educators in Lexington, Newton and Concord were trialing (with Ford Foundation support) all the listed innovations, hinting at a pedagogy developed by SUPRAD before being transferred to Nova educators via the Ford Foundation's Educational Facilities Laboratories.[28] The Ford Foundation

[28] In the early-sixties the Ford Foundation developed the Comprehensive School Improvement Program (CSIP), whose relationship to SUPRAD invites study. (CSIP programming was much like SUPRAD programming [see Ford Foundation, 1972, p. 9]). The questionnaire the Ford Foundation sent to Nova was the "Comprehensive School Improvement Program Questionnaire."

supported Nova throughout the 1960s, with their involvement in the Nova project growing over time.[29] Given the foundation's concurrent engagement with the SUPRAD and Nova projects, it's unsurprising to find Nova educators embracing SUPRAD ideas.

Nova High was the most successful SUPRAD school, at least in terms of attracting students and winning a reputation for academic rigor. Was Nova's reputation for rigor deserved? The argument for "yes" depends on such evidence as Nova High being in 1968 ranked "among the top 10 high schools in the country by a jury of eight experts" (Wysong, 1968, p. 1); or "sixty-five percent [of Nova graduates attending] four-year colleges" (ibid.); or (in 1972) "seven Nova High seniors [being] among 300 national winners of the 31st annual Science Talent Search" ("7 Nova students," 1972, p. B2).[30] Evidence such as this is less than convincing, and indeed Nova's Space Age reputation for rigor might have been undeserved. In 1970, Garnett Foster, a professor of education at Florida State University, published a detailed report, "A Five Year Evaluation of the Nova Secondary School," that presented findings from a series of achievement tests. Foster's report is something of a mixed bag, announcing success in some departments (e.g., mathematics) and failure in others (e.g., social studies), with success or failure measured by reference to both achievement tests and to Nova educators' "process goals" (e.g., that Nova students should "gain pleasure from the process of problem solving"[1970, p. 1]). In the public eye, academic rigor is likely more a function of impressive test scores than realized process goals, making Nova's test results the best marker of whether the school's reality matched its image. "Nova Junior High students," Foster writes, "met expectations in Reading, exceeded expectations in Arithmetic Computation and Arithmetic Problem Solving, but fell below expectations in Total Language, Social Studies Information, and Science" (ibid., p. 5). These results are from a single contested[31] assessment, and as such shouldn't be seen as proof that Nova was a substandard or even standard school. What the results do reveal is that parents eager to enroll their children had no proof the school was academically superior to other schools, knowing only that the school was perceived that way: "Has Nova High School become a false prestige symbol for parents of its students?"

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[29] By 1966, the Ford Foundation had invested over $700,000 in Nova (Orsini, 1966, 13B), a sum that grew in subsequent years, with the foundation (for example) paying the salaries of thirty-three Nova employees in 1968. (Kolb, 1968, para. 1.)

[30] "Nova High had the second highest number of winners in the nation, second only to Bronx Science High School in New York." ("7 Nova students," 1972, p. B2).

[31] "The Nova faculty, however, expressed dissatisfaction with the [Metropolitan Achievement Test] as being an inappropriate if not totally unrelated test of their objectives." (Foster, 1970, p. 5).

the *Fort Lauderdale News* asked in November, 1963: "Edward Grau, Nova's guidance director, frankly believes that too many parents of Nova students parade their children as special or different simply because they are enrolled at the experimental school" (Jackson, 1963, p. 55). Grau's comment suggests that Nova's appeal reflected its SUPRAD programming, a suggestion that takes on added import in the context of Operation Schoolhouse and the educational park movement. "Nova," Grau adds in the same November 1963 article, "is a public school and an experiment trying to prove that this type of program will work for low ability as well as high ability students" (ibid.). This idea—that SUPRAD programming benefitted all students—was foundational to Neil Sullivan's work in both Prince Edward County and Berkeley.

Chapter Seven: Neil Sullivan in Prince Edward County

In a 2009 speech delivered in Prince Edward County, William vanden Heuvel, former special assistant to Attorney General Robert Kennedy, recalled the 1963-1964 period when he and education commissioner Francis Keppel worked together to re-establish public education in Prince Edward County, Virginia, where schools were closed in 1959 by county officials opposed to integrated schooling. In his speech, vanden Heuvel takes credit for the idea of a Free School Association to educate Prince Edward County's African American children. In vanden Heuvel's telling, once Francis Keppel and Robert Kennedy had embraced the idea, attention shifted to finding a suitable superintendent. As vanden Heuvel explains:

> We had a month to organize a school system for 1,900 children. It was a hot and violent summer, the march on Washington was scheduled to be held on August 28. The stakes were high. Failure was not an option. The first task was to find an educator who could serve as superintendent of the school system. Commissioner Keppel suggested talking to Neil Sullivan who had written extensively on non-graded education and who was serving as Superintendent of Schools in an affluent school district in New York. I called Dr. Sullivan on August 16. He knew about the crisis—and wrote later that he felt as though a lightning bolt had hit him with my call. Public education and racial issues were his two driving interests. (2019, p. 75)

Even prior to establishment of the Prince Edward Free School Association, it was decided the association's schools would be nongraded, a decision reflecting Francis Keppel's belief that nongrading has advantages for early learners.[1] (Many older Prince Edward County students, because denied formal schooling for four years, were considered early learners.) And while vanden Heuvel stretched the truth in telling his 2009 audience that Neil Sullivan "had written extensively on non-graded education," Sullivan was in the early-sixties a well-known promoter of such education, featuring for instance in a 1960 A.P. article on non-graded schooling in East Williston, New York, where Sullivan was school superintendent: "'This takes the ceiling off learning for the fast pupil,' Neil V. Sullivan, superintendent of schools said in an interview.

[1] "It might be possible," Keppel wrote in his original SUPRAD proposal, "to abandon the graded system below the 7th grade and to regulate pupil progress along the plan of ungraded systems already in use in about 30 communities." (Keppel, 1956a, p. 43)

'There are no built-in limits to the material he can cover. And it's far superior to the traditional system of grade-skipping no matter how bright a youngster may be, when he skips an entire grade he is missing out on a lot of the basic material. This way he covers all the ground and gets all the basic tools'" (Hodenfield, 1960, p. 80). Unmentioned by William vanden Heuvel but clear from other documents is that Francis Keppel saw Prince Edward County's African American students as needing a program able to handle large differences in student ability and prior learning,[2] and Neil Sullivan—as Keppel knew—had used such a program in East Williston. With Keppel's support, Sullivan, taking up his Prince Edward County post, implemented his non-graded East Williston program. As Sullivan explained in a book (*Bound for Freedom*) detailing his time in Virginia: "Above all, I emphasized the nongraded program. 'No one can give back to these children the four years of schooling they have missed,' I said, 'but our great task will be to help each youngster make up as much lost time as he possibly can, as quickly as he possibly can. To do this, we will forget about the first grade, second grade, third grade groupings to which most of you are accustomed'" (1965a, p. 77).

Choosing a Superintendent

On August 27, 1963, the third meeting of the Board of Trustees of the Prince Edward Free School Association was held in Lawrenceville, Virginia, at St. Paul's College, an African American teacher training college founded in 1888. The Free School Board of Trustees—a distinguished group that included four university presidents and a former governor of Virginia—had been formed several weeks before at the urging of the U. S. Office of Education, its purpose being to organize schools for Prince Edward County's African American students (who had been denied a formal education since 1959). The process leading to creation of a Free School Board of Trustees had moved quickly. In March, 1963, Francis Keppel, U. S. Commissioner of Education, received a memo, headed "Prince Edward County School Situation," from Peter Muirhead, one of his assistants, explaining that, because "Since the start of the 1959-60 school year, no public or secondary education has been provided in Prince Edward County for the approximately 1700 Negro children of school age" (1963, p. 1), not only had "almost all of the teachers formerly

[2] Francis Keppel in *The Necessary Revolution in American Education* (1966) mentions Prince Edward County once, in a section on nongraded schools: "When the schools of Prince Edward County, Virginia, were reopened in 1963. . . nongradedness was introduced to meet the needs of pupils who had been deprived of any education for several years as a result of civil rights disputes. It's very flexibility commended it to those facing new problems." (P. 101).

employed in the Negro schools. . . moved away" (ibid., p. 3), and not only were "older boys and girls. . . with insufficient training for employment" (ibid.), but "most of the Negro children of all ages usually found in grades 4-5-6 have had no basic training in reading" (ibid.) The situation, Muirhead reported, was calamitous: "For hundreds of Negro children in Prince Edward County the present situation has already inflicted life-time wounds—wounds that will hobble them in their efforts to lead useful and gainful lives. It is already too late to give back to many of them the thing they have a right to expect and so desperately need. But it is not too late for all concerned—and that means the American people—to stop this shameful sabotage of the educational rights of children" (ibid.) Three months later, in June, 1963, Francis Keppel met with members of the American Friends Service Committee (Quakers), who, as Muirhead had noted in his memo, were troubled by events in Prince Edward County. The purpose of the June meeting, an Office of Education report observed, was to discern "what has been done and what needs to be done?" (U. S. Office of Education, 1963a, p. 1). What needed to be done, attendees at the meeting[3] concluded, were two things, first, vocational schools needed to be set up for students who should have spent the last four years in high school but had not, and second, the federal government needed to "try to see if a school system can be established to start in the fall" (ibid., p. 3). The federal government, it was acknowledged, "can't pay for the school system," but it could "create or find a vehicle into which funds can be contributed from private sources" (ibid.). The vehicle, launched two months later, was the Prince Edward Free Schools Association, whose trustees were meeting in Lawrenceville on August 27, 1963.

The reason for the August 27, 1963, meeting, a document archived at the University of Virginia reveals, was to interview and possibly hire Neil Sullivan, school superintendent in East Williston, NY. (Trustees, 1963, p. 1). How had the Free School trustees learned of Sullivan—head of a small town school system? Despite Sullivan's contested claim that John F. Kennedy recommended him for the Prince Edward position (Ribble, 1964, p. 1), it was almost certainly Francis Keppel—familiar with Sullivan from Harvard and SUPRAD—who advanced Sullivan's name.[4] But why Neil Sullivan? Early on, even before the Prince Edward trustees were named, a

[3] Among the attendees was William vanden Heuvel, president of the International Rescue Committee, who soon became Francis Keppel's (and the U. S. government's) representative in Prince Edward County.

[4] An October 3, 1963, letter from Keppel to Sullivan supports this supposition: "Dear Neil. Thanks for your letter of September 27. The staff is grateful for your commendations. Needless to say, we are all enormously pleased that you were willing to take this job." (Keppel, 1963b, p. 1).

decision was made in Keppel's office that the Free Schools would be nongraded. As the *Richmond News Leader* noted in an August 14, 1963, article on the newly-formed Free School Association, "The schools will operate initially on an ungraded system, with the pupils reaching their own achievement levels" (Shires, p. 3), an arrangement seen by Keppel and his staff as one part of an ambitious program aimed at assessing a number of educational innovations. Much of what we know about the Office of Education's intentions vis-à-vis Prince Edward County comes from a 1963 document, "Prince Edward Free School Association: A Program," likely prepared as background material for Office of Education officials speaking to reporters.[5] The document's "Attachment A," having listed the program's main objectives ("(1) to restore educational losses resulting from a deprivation of school opportunities; and (2) to conduct such demonstration and research activities as may be compatible with the accomplishment of the educational program objectives" [Office of Education, 1963b, p. 1]), details the program's key components, which include:[6]

> 2) Ungraded, individualized instruction—Each student must be helped to make as rapid progress as possible. Students in similar circumstances will be grouped together in classes but with the high degree of flexibility to permit continual rearrangement of the groups as differentiated progress takes place. (Ibid.)

This component alone is not enough to make the Free Schools' program a SUPRAD program, but, as we'll see, the Office of Education program, as implemented by Neil Sullivan, was straight out of the SUPRAD playbook. That this equivalence was intentional is evident from a September 27, 1963, letter from Neil Sullivan to Francis Keppel (Keppel's October 3rd response is quoted in a footnote above), where Sullivan, having thanked Keppel for "the assistance given to me by your associates in the Office of Education" (Sullivan, 1963, p. 1), recalls his time at Harvard:

> I am sure that you and our old friend, Bob Anderson, will be pleased to know that the nongraded program is receiving its most severe test. Actually, there was no other organization for Prince Edward County. It had to be nongraded; it had to be interage; it had to be narrow range; it had to be team teaching. It had to be large-group, small-group

[5] The document does not list an author but the copy I've seen was in an Office of Education folder ("Dept. & Staff Memoranda") in the National Archives in College Park, Maryland.

[6] Other attributes are small classroom units, ample instructional materials, special education, pupil personnel services, and educational evaluation.

> instruction. One of the most rewarding features of this entire assignment is the receptivity of the staff to what was to them entirely new concepts. (Ibid.)

Sullivan's letter to Keppel, and this passage in particular, alerts us to an important shift in the SUPRAD project, where SUPRAD programming—what Sullivan calls the "nongraded program" but which also includes interage classes and team teaching—came to be seen by some SUPRAD educators, including two U. S. education commissioners (Keppel and Harold Howe), as the *best* program for disadvantaged students, primarily because (as the *Richmond News Leader* noted on August 14, 1963) "pupils [reach] their own achievement levels" (Shires, 1963, p. 3). In his letter to Keppel, Sullivan calls Prince Edward County the "most severe test" of the ungraded program, indicating there had been other, less severe, tests. In fact, several of these tests have been discussed in this thesis, including most importantly tests staged at the original SUPRAD proving grounds (Newton, Lexington, and Concord). These tests, however, were all held in suburban white communities. Perhaps the most important development in SUPRAD's history was the program's move into underprivileged communities, as SUPRAD educators came to see their pedagogy as a possible solution to America's most enduring educational problem, that of providing what Francis Keppel in 1956 called "equality of opportunity" (1956b, p. 6). If, as Sullivan wrote Keppel in reference to SUPRAD programming in Virginia, "there was no other organization for Prince Edward County" (1963, p. 1), by 1969 SUPRAD educators were making similar claims about a number of other locations.

Prince Edward County: Previous Studies

One aim of my literature review (Chapter One) was to reveal the scarcity of published material on SUPRAD and its offshoots (e.g., Nova School; Operation Schoolhouse). While this scarcity is real, there is one SUPRAD affiliated-project that has been well studied: the Prince Edward Free School Association, a subject explored in dozens of books and articles. Of these texts, more than a few are autobiographical, including most importantly Neil Sullivan's 1965 *Bound for Freedom.*[7] Other autobiographical accounts have been published by former Free

[7] Neil Sullivan also published several articles describing his experiences in Virginia, in both mainstream magazines and academic journals. Of the former the most important are "Making History in Prince Edward County" (*Saturday Review*, October, 1964) and "The Prince Edward County Situation" (*NEA Journal*, March 1964). Sullivan's academic writings on Virginia are more limited, the most important article being "A Case Study in Achieving Equal Educational Opportunity." (*The Journal of Negro Education, 34*[3]).

School teachers and students, with a useful compendium of narratives being the 2012 book *The Educational Lockout of African Americans in Prince Edward County, Virginia (1959-1964)*, edited by Terence Hicks and Abul Pitre and including chapters by both a City College of New York (Queens) student who spent the summer of 1963 teaching in a Free School, and a Free School student (Terence Hicks) who went on to earn a doctorate in education. (Hicks' chapter includes narratives voiced by three other Free School graduates who also became professors.) Another Free School graduate who has written about her experiences in Prince Edward County is Dorothy Holcomb, whose 2012 book, *Educated in Spite Of*, is notable for its description of the schooling available to Prince Edward County African American students prior to the opening of the Free Schools:

> Not only did we not have a private school to attend, we could not even return to the dilapidated facilities we used to attend. . . There were makeshift schools called training centers throughout the county in church basements and some in the homes of concerned citizens. This certainly was not the fix we were looking for. It was merely a bandage to keep us from getting so far behind in our schoolwork. (2012, p. 25)

Dorothy Holcomb's narrative—like those of other Free School graduates—reveals the distress African American students felt when Prince Edward County's public schools closed, as teachers and friends disappeared from daily life. "Imagine a happy ten-year-old fourth grade girl named Dorothy Lockett leaving school in June of 1959 for the summer. There was nothing unusual about it. I happily said good-bye to my classmates, friends and teachers and went home. Little did I know that I would never see those classmates again at school in Prince Edward County" (ibid., p. 20).

Autobiographical writings about the Free Schools are scarce, however, compared to outsider accounts. Of the dozens of books and articles about the Free Schools, the key ones for my research are those that link the Free Schools to SUPRAD, either by discussing Francis Keppel's role in establishing the schools, or, less directly, by associating the schools with one or more SUPRAD practice. Candace Epps-Robertson's 2018 book, *Resisting Brown: Race, Literacy, and Citizenship in the Heart of Virginia*, comes closest to presenting the Free Schools as a SUPRAD enterprise, albeit without mentioning SUPRAD by name. Discussing one of three handbooks Neil Sullivan prepared for Free Schools teachers and staff, Epps-Robertson takes note of Sullivan's exhortation that teachers be ready to teach in unfamiliar ways:

> He urges teachers, administrators, and staff to forget the norms of conventional schools "and realistically come to grips with our unique problem." His call to forget the norms was a reflection of the need to adopt a variety of practices for working with the Free School students. Sullivan proposed that the school could "help us close this intolerable gap," referencing segregated schools that had always been unequal, through its use of "proven innovations and methods" such as ungraded classrooms and team teaching. (2018, p. 70)

We now know that if, in Sullivan's view, ungraded classrooms and team teaching were "proven innovations," they had (again in his view) been proven by SUPRAD educators working in SUPRAD schools. Although Epps-Robertson does not cite SUPRAD in this passage, she does, for want of a better term, evoke it—as she does again in a later passage explicating a different section of Sullivan's teacher-staff handbook. As Epps-Robertson observes, Neil Sullivan saw his greatest challenge as managing "the varying academic levels of students coming into the free school" (p. 78). Team teaching and nongraded classes, Epps-Robertson explains, were Sullivan's preferred responses to this challenge:

> Partnering teachers allowed for students to be further divided into groups in the classroom according to ability. . . Proponents of the nongraded classroom believed that these environments were more accurate reflections of the ways in which students grew and developed. In the traditional graded model, students' progress is seen as being unified and advancing in regular fashion across all areas of development. In the nongraded structure, there was more flexibility, as a student could excel in one area and need more assistance in another subject. (Ibid., p. 78)

Sullivan's Prince Edward program, Epps-Robertson adds,

> [followed] the fundamentals presented by John Goodlad and Robert Anderson. He began with instructions for teachers to use during the first weeks of school: "study pupil records; evaluate student performance; formulate plans for grouping" (Sullivan, 'Bulletin #9, 2). Citing scholarship that defines team teaching, he explicitly draws from Robert Anderson's May 1961[8] article in the *Journal of the National Education Association* on team teaching. (Ibid.)

Although Robert Anderson's 1961 article is not about SUPRAD *per se*, it does use SUPRAD's Franklin Street project as an exemplary team teaching project, calling it a "pioneer project in

[8] Anderson's article appeared in the March (not May), 1961, issue of the *NEA Journal.*

team teaching" (1961, p. 52) and describing it as "part of Harvard University's School and University Program for Research and Development" (ibid., p. 53). If only by implication, then, Epps-Robertson highlights SUPRAD's influence on Free School programming, identifying Robert Anderson as Neil Sullivan's team teaching mentor.

Another book hinting at connections between SUPRAD and Prince Edward County is Raymond Wolters' *The Burden of Brown; Thirty Years of School Desegregation* (1984), which includes a long section called "Massive Resistance in Prince Edward County, Virginia." Wolters, having discussed William vanden Heuvel's recruitment of Sullivan (Keppel is not mentioned), explains vanden Heuvel's interest in Sullivan by reference to Sullivan's record in Long Island:

> Sullivan was known as an integrationist. He was on record as favoring busing, pairing, and the construction of large metropolitan educational parks to mix city blacks and suburban whites in racially balanced schools. In 1959 his school district had been among the first to send extra textbooks to the out-of-school blacks of Prince Edward. Sullivan had also pioneered in developing innovative teaching methods. . . At East Williston he had set up a nongraded program which "freed students from uniform lockstep progression through twelve years of school and allowed each student to move along as quickly as his individual abilities dictated." (1984, p. 108)

If Wolters here quotes *Bound for Freedom*, he later borrows from an interview Sullivan gave to *Southern School News*, where Sullivan boasts "We've probably the best equipped school system in the United States— bar none. We have team teaching, teaching machines, and educational TV" ("Prince Edward Case," 1964, p. 109). Wolters, like Epps-Robertson, mentions Sullivan's teacher-staff handbook, which he calls "a 52-page teachers manual explaining nongraded and team teaching techniques" (ibid.).

A third author interested in Neil Sullivan's Prince Edward County programming is Patricia Sullivan, whose 2021 book *Justice Rising: Robert Kennedy's America in Black and White* advances in a paragraph many of this chapter's key claims:

> With help from Francis Keppel, US commissioner of education, vanden Heuvel identified the ideal candidate to serve as superintendent of schools: Neil Sullivan, an innovative public educator who had established one of the first nongraded school systems in the country while serving as superintendent of schools in a suburban Long Island district where children were grouped by learning ability rather than by age. (2021, p. 198)

This thumbnail sketch of the Prince Edward County situation is the last example worth citing of an author tying, even loosely, SUPRAD to the Free Schools. As has been mentioned, no study of the Prince Edward County Free Schools mentions SUPRAD directly, leaving readers interested in SUPRAD to seize on mentions either of Francis Keppel's contribution to Free Schools or of Neil Sullivan's use of SUPRAD practices. Still it's clear from the examples above that the Prince Edward County Free Schools incorporated SUPRAD procedures, with teachers working in teams and students learning in nongraded classrooms. All this said, full tracing of connections between SUPRAD and the Free Schools requires analysis of documents produced by the two projects.

Equality of Opportunity

In 1956, Francis Keppel, discussing "the restraints placed on local education policy by the provisions of federal and state constitutions" (1956b, p. 5), identified one issue thrown up by such restraints as "the problem [of] how best to fuse national interests with local responsibilities in providing equality of opportunity" (ibid.). What for Keppel was "equality of opportunity"? Like many Space Age educators, Keppel associated equality of opportunity with integrated schooling, arguing in another context that the Civil Rights Act of 1964—which (among other things) prohibited racial segregation in schools—was "a great watershed dividing the past from the present in our national life" (1965c, p. 204). "However," Keppel adds as postscript to this passage, "the act of desegregation is only a beginning. One goal must be the widest possible opportunity for all youth" (ibid). For Keppel and other SUPRAD educators, provision of the "widest possible opportunity" for an African American student (any student for that matter) did not end with desegregation of schools, but also required reform of schooling itself to ensure that each student received an appropriate education. School desegregation plans, in Keppel's opinion, were frequently undermined by the fact that the resulting integrated schools were designed for middle class rather than "disadvantaged" (ibid) students:

> The truth is that we have entertained unfounded assumptions about the level of interest and sophistication of disadvantaged children. Far too often we have followed conventional middle-class views about what these children should know. We have insisted that they come to school with ready-made, convenient attitudes about the uses of learning. We have not been prepared to learn from their values and their needs. (Ibid.)

Keppel was not alone in the mid-sixties in arguing that integrated schools did a disservice to many African American students arriving from *de facto* segregated schools. Writing in 1964, sociologist Arnold Rose highlighted the shortcomings of what he called "slum schools" (p. 51):

> [E]ducation is not equal for Negro and white children in several respects. First, the school buildings in the slum areas where Negroes are concentrated tend to be old and out-of-date. The classrooms were constructed for old-fashioned methods of teaching (such as fixed seats), the playgrounds are usually small, there are no indoor play rooms or libraries, and the special rooms for shop or laboratories are often makeshift. Second, teachers generally have preferences for the new schools with white pupils; the more experienced teachers with high seniority usually manage to get into these schools, leaving the old schools to be taught largely by novices or substitutes with a high rate of turnover. Thus, the quality of teaching is generally better in the white schools. (1964, p. 14)

Rose adds two further reasons why Northern white students are advantaged: first, white schools receive non-allocated resources through "parents directly providing supplies for their children" (ibid., p. 15); second, white schools are less crowded than African American schools (which are "often put on double shift" [ibid.]). It's important to note that neither Keppel nor Rose maintains that African American students are incapable of competing with white students, both men instead arguing that due to long-standing underfunding of *de facto* segregated African American schools, integration (in Keppel's words) "cannot prosper unless we do something about the accumulated effects of past inequality in the schools" (1965c, p. 205). What, for Keppel, is that "something"?

> The new Elementary and Secondary Act of 1965 promises an enormous thrust of opportunity for the children who have borne the brunt of poor education and isolation in our urban slums and rural areas. In these areas school districts will be helped by Federal funds to provide remedial instruction, pre-school programs, special guidance, study centers, enrichment of language and science courses, additional personnel, and educational radio and T.V. (Ibid.)

For Francis Keppel, then—and not only for Keppel—the 1965 Elementary and Secondary Education Act advanced equality of opportunity to disadvantaged children (urban and rural) through provision of Keppel elsewhere calls "fluid and dynamic" education (1966b, p. 54), i.e., education designed to meet individual needs. Such an approach is wholly in line with SUPRAD pedagogy, which, in Harold Gores's words, "cares about individuals" (1964b, p. 21).

Regardless of whether African American students in general suffered educationally from attending *de facto* segregated schools (few in the 1960s would have argued they hadn't), Prince Edward County's African American students certainly suffered from being without schools for four years. As Neil Sullivan explained during a 1964 Congressional hearing:

> We were to educate children who had been deprived of schooling for 4 long years. Most of them had lost whatever basic skills they had acquired. They were subdued by their physical isolation and had lost the ability to communicate. They were returning to society and knew not what to expect. We had to convince them that they were wanted—that they had the ability to be successful—that education was absolutely essential—that the program would be designed to meet their individual needs. (110 Cong., 1964, p. A5417)

"My staff," Sullivan recalled in a 1964 *Saturday Review* article, "was faced with the Herculean task of teaching children ranging in age from six to twenty-two how to read and many of them how to communicate orally" (1964a, p. 60). The problem Sullivan faced in Virginia wasn't just that many students were unprepared for school, but that they were unprepared *in different ways* and *to different degrees*, with for instance some older students unable to read while others had "college potential" (110 Cong., 1964, p. A5418).[9] Sullivan's solution to these challenges was predetermined when Francis Keppel hired him: the "nongraded program" (Sullivan, 1963, p. 1). Before exploring the nongraded program in detail, it's important to note that, in Keppel's mind, the challenges Neil Sullivan confronted were also faced by educators in any number of newly-integrated Northern schools, where (as in Virginia) students were unprepared in different ways and to different degrees.

Neil Sullivan's nongraded program is best understood as an iteration of SUPRAD pedagogy, complete with a set of practices and accompanying justifications for their use. The two most important practices, Sullivan remarks in his *Saturday Review* article, were "team teaching and a nongraded organization" (1964a, p. 60). "I knew that some members of my staff were better prepared than other members," Sullivan recalled in his 1964 congressional testimony,

> Was it fair to the children to give one group a superior teacher and another group the inferior teacher? Certainly not. We would all share the "top" teacher and all share the teacher with less than superior ability. We would, however, have teaching teams, whereby

[9] Nine Free School graduates entered college in 1964. (110 Cong., 1964, p. A5418).

> the superior teacher could help all teachers in a single area prepare, plan, and carry out assignments. (110 Cong., 1964, p. A5417)

Sullivan here sounds a lot like Francis Keppel, who in his Basic Document (1956) also justified team teaching on the grounds that effective teaching is infectious:

> For the teachers, there are a number of potential advantages in the team arrangement. Group planning would result in the sharing of ideas. The most competent teachers might directly influence more of their colleagues and much larger numbers of pupils than has been possible under the traditional organization. Each junior teacher could expect to receive far more effective direction because of close working relations with his seniors. (1956a, p. 49)

Yet team teaching, for SUPRAD educators, is as much about advantaging students as teachers, with advantages to students accruing both from exposure to "the most competent teachers," and from facilitation of new student grouping practices. Under a team teaching arrangement, Keppel explains in his Basic Document,

> It might be anticipated that the pupils would find themselves from time to time in classes ranging in size from 10 or 15 to 250 or where suitable, (for instance, via closed-circuit TV) in a class including the whole school. Any of these groups might in turn be taught by a single teacher or by suitable combinations of the personnel assigned for such purposes, who might also use mechanical teaching aides necessary to the instruction. (Ibid., p. 46)[10]

As does Keppel, and perhaps to a greater degree, Neil Sullivan sees team teaching as a boon for students, although unlike Keppel—whose real interest is in how team teaching benefits teachers (the team teaching concept arose from Keppel's desire to make teaching a better paid and more prestigious profession [Keppel, 1956a, p. 23)—Sullivan is acutely aware of the many ways that team teaching allows educators to (in Sullivan's words) "meet individual needs" (110 Cong., 1964, p. A5418). Discussing student grouping patterns in the Free Schools, Sullivan posits non-traditional patterns as essential to the schools' success:

> The key to the grouping was *flexibility* and the responsibility of the staff was to see that each child was succeeding and that the subject matter was *always* kept challenging. The

[10] A group size Francis Keppel ignores here is a group of one, a lapse Keppel later corrects: "The flexibility of staff assignments and pupil grouping would permit more individual instruction." (1956., p. 49).

> remarkable achievement made by our youngsters (for example over two years growth in reading over one trimester year) should encourage school people everywhere to give the grouping plan a chance. (1965b, p. 321)

From the earliest days of their project, SUPRAD educators had recognized that team teaching facilitates new student grouping arrangements, and one of Sullivan's (and Keppel's) goals in Virginia was to see whether such arrangements benefitted students who—for whatever reason—struggled in school. How did Sullivan's Free Schools programming help such students?

As noted previously, Sullivan was singled out by Keppel's Office of Education for his familiarity with nongraded instruction, a practice Sullivan had been linked with in the public eye since at least 1960.[11] By September, 1963, the month the Free Schools opened, Sullivan had developed a detailed definition of the nongraded school, which he shared in a staff bulletin:

> The non-graded school is an organizational pattern of education which can provide continuous learning for every child, by which he will be able to achieve success at each level of instruction. Each child will progress from level to level as rapidly as he masters the skills and the content of each level of achievement. He will not experience failure as it is sometimes experienced in the graded system. Neither will he experience boredom, no matter how able or gifted, since he will be stimulated and challenged to progress to new levels when he is ready to do so. (Sullivan in Hohl, 1993, p. 96)

Here Sullivan describes the nongraded school in theory. What does such a school look like in practice? "The Prince Edward nongraded plan grouped children on an inter-age basis, based on achievement rather than chronological age, in language arts, mathematics, science, and social science. These same boys and girls were heterogeneously[12] grouped for the fine and practical arts, health, and physical education, in homerooms, and for citizenship classes" (Sullivan, 1964a, p. 72). This passage, together with the previous one, speaks to an instructional program tailor-made for each child. Yet the flexibility of a nongraded system, as Sullivan explains elsewhere, extends beyond this, with each individualized program open to revision. "We had to develop a design that was completely flexible and would permit a child to be reassigned to another group if he was moving at a different rate than the majority. We didn't wait for the end of the year or the

[11] In May, 1960, a widely-syndicated newspaper article described Sullivan's non-graded program in East Williston, NY. (Hodenfield, 1960, p. C10).
[12] "Heterogeneous" here refers to differing student achievement levels.

end of the semester. He just picked up his little ole chair and moved to a different group" (110 Cong., 1964, p. A5417). Writing his Free School staff bulletins (at least nine were issued in 1963 alone), Sullivan argues the case for a nongraded program, which he knew was unfamiliar to his staff,[13] mapping in his argument the relationship between nongrading and team teaching:

> The nongraded school makes it possible for children to grow at their own growth pattern. Team teaching strengthens the opportunity, [example]– A group of seven youngsters has not grasped a science concept being developed at a given time. One member of the team can take the seven children and give them additional background and instruction while the other two members of the team take the balance of the level in one large group or two smaller groups for enrichment, research, project activity, and/or additional experimentation. (Prince Edward Free School Association, 1963, p. 2)

Neil Sullivan's version of nongraded schooling, implemented in various towns and cities, was not designed for a particular type of student, instead being—in Sullivan's eyes—suitable for all students. That said, Sullivan and his SUPRAD colleagues believed nongrading in general and the SUPRAD version of nongrading in particular offered unique advantages to struggling students. It was this belief that led Sullivan and Francis Keppel to choose Prince Edward County as the site for nongrading's "most severe test" (Sullivan, 1963, p. 1).

SUPRAD Pedagogy and Equality of Opportunity

Neil Sullivan first came to public attention in May, 1960, when G. K. Hodenfield, a widely-syndicated Associated Press writer, published an article on nongraded primary schools, using as a case-study the Willetts Road School in North Hampstead, N.Y., where Sullivan was superintendent. Hodenfield's article portrays Neil Sullivan as an innovator fighting against "the notion that children of the same age should start school together and march forward in lockstep" (p. 80), a notion G. K. Hodenfield describes as "headed for the academic ashcan" (ibid.). While Sullivan, featuring prominently in Hodenfield's article, acknowledges that nongraded primary schools help "bright" children ("'This takes the ceiling off learning for the fast pupil'" (ibid.), he speaks more forcefully to how such schools benefit (what Hodenfield calls) the "slower pupil" (ibid.), explaining:

[13] "One of the most rewarding features of this entire assignment is the receptivity of the staff to what was to them entirely new concepts." (Sullivan, 1963, p. 1).

> "Because the teacher doesn't have such a wide spread in ability in her classroom. . . she has more time for each individual pupil. A slow learner gets the special attention he needs. And many of these slow learners are really only slow starters. They suddenly blossom—sometimes after half a year in school, sometimes after a full year or two. Whenever they're ready to go, we're ready to go with them." (Ibid.)

Sullivan's characterization of nongraded schooling as a boon for "slow starters" is, as one might expect from a SUPRAD educator, part of a wider campaign meant to promote SUPRAD ideas—a campaign Sullivan intensified in the mid-sixties:

> All parents need to be assured that schools are actively seeking to develop programs to meet the needs of all students. This search for "excellence" includes a willingness to adopt desirable innovations, such as non-graded school programs, team teaching, and flexible scheduling, wherever they will strengthen the educational program. Opportunity must be provided for each student to progress at his maximum speed and to his maximum capacity. (Sullivan, 1965c, p. 18)

This passage, with its list of "desirable innovations," hints at Sullivan's belief that nongrading is best deployed in conjunction with other SUPRAD practices, a belief that also comes through as Sullivan discusses his early days in Berkeley:

> The disadvantaged minority child in the desegregated school will continue to be discriminated against, set apart and isolated if he cannot read—or cannot read as well as his fellows. Equal ability to read is implicit in integration. In 1964, the Berkeley schools started scheduling extra time for reading wherever needed; to double or triple it even at the expense of other subjects. We singled out reading specialists, promoted team teaching, encouraged nongraded programs. (1967a, p. 44)

Typically when Sullivan mentions nongrading, he mentions it together with team teaching, a practice SUPRAD educators saw as a precondition for nongrading of classes; and typically when Sullivan mentions these or other SUPRAD practices, he does so while discussing what he (using the vernacular of the 1960s) calls "ghetto children" (1966, p. 9), i.e. urban African American students. By 1964, when he arrived in Berkeley, Sullivan was convinced SUPRAD's "nongraded program" (1963, p. 1) was the best program for Berkeley's African American students, primarily because the program offered those students the best—perhaps only—chance of receiving tailor-

made schooling. “I pounded away on the advantages accruing to the youngster in a non-graded integrated school,” Sullivan recalls (1965b, p. 324).

Upon arriving in Berkeley in 1964,[14] Neil Sullivan distributed a pamphlet, “A Message to the Staff,” that summarized his educational philosophy along with its implications for teaching. Evident from the pamphlet is that Sullivan’s interest in individualized instruction (“children will be challenged to achieve the maximum of their potential through individual rather than mass instruction” [1964d, p. 4]) emerges in part from a conviction that a society will only flourish if its members have certain minimum competencies, meaning that although an educator should be concerned with all students, he or she must take a particular interest in students lacking those competencies. To quote from the “curriculum” section of Sullivan’s message to his staff:

> Continuing purposes of the curriculum shall include. . . Provision for every child to achieve those fundamental skills that are required for successful and effective participation in the life of a democratic society. The skills shall include the ability to use effectively the communicative skills of reading, writing, speaking, and listening; the ability to use numbers functionally in social situations; a practical understanding of science as it relates to our daily living; and the use of the practical arts and crafts. (Ibid.)

The connection in Sullivan’s mind between students’ acquisition of these skills and teachers’ use of SUPRAD practices is evident when Sullivan discusses reading—the skill he values the most.[15] “Give special attention to children having difficulty with reading before they fall so far behind that their total education is handicapped,” Sullivan tells his staff, adding:

> Develop an organization flexible enough to permit bringing the subject matter to the level of the child, to keep the child challenged, and where possible to permit the children to work in compatible groups. We shall encourage widespread independent study by students in the 12th grade. (Ibid., p. 1)

If Sullivan here makes a veiled reference to nongraded instruction (through use of the phrase “compatible groups”), in other BUSD publications he discusses such instruction in detail:

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[14] Sullivan would implement in Berkeley nearly all SUPRAD practices: “We have studied the following innovative practices in some detail,” he wrote in 1968, “team teaching and team planning; large group instruction; small group instruction; independent study, individualized study, and programmed learning; tutorial programs; resource centers; open laboratories; the use of para-professionals; and flexible scheduling.” (1968a, p. 8).

[15] In 1967 Sullivan published an article in *Equity & Excellence in Education*, “The Right to Read—A Straight Path to Integration,” where he argued: “Reading is the key to learning, to understanding our complex world, to working with one’s best skills, to coping with life in general.” (P. 41).

> Berkeley schools currently practice content acceleration in such areas as reading and math. A child in the 3rd grade, for example, who is achieving at the 4th grade level in reading will be using reading materials at that higher level. This 3rd grader may be at the 4th grade level in reading and continue to work at the 3rd grade level in math. However, if a 3rd grade child is achieving at the 4th grade level in math, he will be working in materials at that level. . . This approach is a form of an ungraded program. (BUSD, 1968b, p. iii-7)

"Content acceleration," i.e., offering students material beyond their grade level, was in the mid-sixties practiced at many Berkeley schools. That said, Berkeley's most ambitious nongraded program operated at just one school, Whittier-University Elementary School, where in 1964 the BUSD had established a laboratory school. This school is described in one of Sullivan's *Berkeley Gazette* columns,[16] in a piece written by John Matlin, principal of the Whittier-University school.

> Based on the democratic principle that each individual has dignity and worth, and should have the opportunity to develop his unique capabilities to the fullest, it followed that the school should be oriented toward the individualization of instruction. . . Over the years the inadequacies of the graded system have become apparent. A single grade designation never adequately describes the achievement level of either the class or each child. (Matlin, 1966a, p. 9)

Whittier's nongraded project, Matlin adds in a second column a week later, relies on another "major concept":

> This was the use of "team teaching" to go with the move toward a nongraded school organization and the placement of children into multi-aged instructional groups. Basically, we regard the heart of team teaching to be cooperative planning by a group of teachers for the educational program of a group of children. . . Within this broad definition, flexibility is the keynote, with adaptation to educational needs being the goal. (Matlin, 1966b, p. 11)

John Matlin was not a SUPRAD educator, although by 1966 he sounds like one, almost certainly due to the influence of his superintendent. Two years into his Berkeley term, Neil Sullivan had launched two nongraded instruction projects, both at elementary schools and both experimental. Because limited in scale, neither project (nor both together) was congruent with Sullivan's belief that *all* students could benefit from nongraded instruction—explaining Neil Sullivan's interest in the educational park concept.

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[16] Sullivan's column appeared in the *Berkeley Gazette* between January, 1965, and December, 1968.

Chapter Eight: An Educational Park for Berkeley

Although SUPRAD officially ended in 1964, many alumni of the project (from both sides—school and university) continued to champion SUPRAD ideas. On December 18, 1965, Lyndon Johnson appointed Harold Howe II, of the Learning Institute of North Carolina and (previously) Newton High School, to be U. S. Commissioner of Education, replacing Francis Keppel, a Kennedy appointee who had run into trouble two months earlier when he froze federal aid to the *de facto* segregated Chicago school system.[1] Keppel almost certainly recommended Howe to be his replacement, having in September, 1965, identified Howe as a top prospect for the newly-created federal post of Director of Elementary and Secondary Education, a position Keppel perceived as requiring "a combination of (Type A) an imaginative, even daring man, enthusiastic for new educational ideas, and (Type B) a steady administrator who keeps his eye on keeping the complicated machine going" (Keppel, 1965a, p 1).[2] Keppel and Howe's relationship dated to the late-fifties when Keppel was Harvard's dean of graduate studies and Howe was principal of Newton High School, the flagship school in a SUPRAD-affiliated school district. As SUPRAD colleagues, Keppel and Howe not only worked together to improve Newton High, but also spoke at the same conferences and symposia, even appearing together on Boston television. All of this is to say that it's both unsurprising and very odd that two alumni of a little-known educational reform program were for seven consecutive years (1962-68) tasked with setting U. S. educational policy, a huge responsibility during a period of extraordinary social upheaval. One policy Keppel and Howe agreed on was promotion of educational parks, described in an October 1966 Harold Howe speech as "educational centers that would provide classes ranging from pre-kindergarten through junior college. . . These entities will house 20,000 or more pupils, and will

[1] An April, 1966, article in the *Chicago Daily Defender*, an African American newspaper, offers a helpful summary of Keppel's Chicago troubles: "Keppel has been increasingly unhappy in Washington since his head-on collision last summer with Illinois politicians. He ordered $30 million in federal funds withheld from the Chicago school system because he believed that Schools Supt. Willis and the school board had not made sufficient efforts to achieve better racial balance. The White House intervened, after complaints from Senator Dirksen and Chicago politicians." ("Keppel the Educator," 1966, p. 6). In 1970, Neil Sullivan ran into similar difficulties as Massachusetts Education Commissioner. (See below, Chapter Nine).

[2] Keppel endorsed Harold Howe in a memo archived at the Kennedy Library in Boston. The same memo identifies Howe's Newton colleague, Harold Gores, as a "Type A" who would also make a good Director of Elementary and Secondary Education. (Keppel, 1965a, p. 1).

cut across all geographic, economic and social boundaries to draw students" (ibid.).[3] In the end, Howe's promotion of educational parks destabilized his tenure as commissioner of education, damaging in the process Lyndon Johnson's presidency.[4] Given this it's worth asking, why did Harold Howe, and before him Francis Keppel, embrace the educational park concept?

The SUPRAD Case for Educational Parks

An obvious (and valid) answer is that both Keppel and Howe opposed segregated schooling and saw educational parks as (to quote Howe's 1966 speech) "[cutting] across all geographic, economic, and social boundaries" (1966a, p. 11). In the mid-sixties, this argument—that educational parks held promise for racial desegregation—was seen everywhere: in books, speeches, syndicated columns, editorials, congressional hearings, government reports, academic articles, television debates, even conservative newsletters (e.g., "The Ripon Society considers the educational park to be the most promising innovation yet developed for encouraging integration" [McDonald and Marans, 1968, p. 34]). Harold Howe, more so than Francis Keppel, advanced the argument that educational parks brought together disparate groups: "The St. Paul school system is considering a plan to combine a rapid-transit system with a cluster of four or five 300-acre educational parks that would bring youngsters from the ghetto, from other city schools, and from parochial and suburban schools into central locations for classes ranging from nursery school through junior college" (Howe, 1966b, p. 11).

That said, the SUPRAD case for educational parks rested on more than desegregation—something that comes through clearly in Francis Keppel's comments on an East Orange (N. J.) educational park plan:

> It is a particularly attractive concept in today's planning for effective urban schools. It permits a concentration of talent at one location, bringing together teachers of different subjects at various levels for an exchange of ideas and experiences. The education plaza

[3] In 1965 Francis Keppel "enthusiastically endorsed" an East Orange (NJ), educational park proposal. (Janssen, 1965, p. 8).

[4] In the aftermath of Howe's October 1966 speech, Lyndon Johnson was challenged by a journalist: "Mr. President, sir, Monday the House is scheduled to vote on the demonstration cities bill. Title II of that bill, which you are urging Members, I understand, to vote for, provides incentives or, rather, bribes to local communities to do away with their own school systems, to have open housing, and to create educational parks where there would be 25,000 or 35,000 children going to school. . . I wonder if you would tell us why you think doing away with the local school systems, as has been admitted by educators in your administration would happen—I wonder why you think this would be better?" (Miller Center, n.d.) Johnson had no answer.

> breaks down patterns which have isolated school administrators from each other. Above all, children benefit by being exposed to a more stimulating and orderly school environment. (Harrison and Petrovich, 1965, p. 63)

Keppel's approval rests not on the proposed educational park being integrated, but on its being a locus for "concentration of talent," where many teachers and many administrators meet to offer students a varied ("stimulating") curriculum. As education commissioner, Keppel unreservedly backed integrated schools,[5] but as an educational park advocate (a hat he wore as commissioner), he emphasized diversity among teachers and administrators rather than diversity among students, perhaps because he felt the latter diversity was 'baked into' the educational park concept, but more likely because he believed educational parks had merit regardless of student demographics. If the latter is correct, then Francis Keppel was an unusual educational park backer, downplaying integration in describing educational parks as e.g., "effective urban schools" (ibid.). But Keppel was not alone in taking this position, Harold Howe, his successor as commissioner of education, likewise promoted educational parks as more than just desegregation devices:

> Educational parks have not been tested yet, but the plans I have looked at—for Pittsburgh and for East Orange, New Jersey as well as for parts of New York City—seem to be soundly based and should provide exciting new models for education. They appear to offer an opportunity for desegregating our schools while at the same time providing high quality education, but an educational park which was nothing but an enlarged version of the school we have always known would be a waste of money even if it produced some desegregation. (Howe, 1968, p. 9)

Here Harold Howe sounds very like Francis Keppel in promoting educational parks as quality schools. In fact, Howe goes beyond Keppel in noting that desegregation for desegregation's sake is an educational dead end—"a waste of money." For Harold Howe, then, an educational park's worth is mostly a function of how well it fosters student learning, with desegregation of lesser importance.[6]

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[5] In 1964, Keppel as education commissioner published an article describing segregation as an affront to American values: "Whether it be blatant in the South or subtle in the North, it saps and diminishes democracy and justice. Whether it exists by law or by custom, by edict or by tradition, by patterns of unemployment or patterns of housing, segregation hurts all children, Negro and white alike." (P. 3).

[6] In 1966, Howe was lambasted in Congress and the press for presenting educational parks as nothing more than desegregated schools: "These entities [Howe wrote] will cut across all geographic, economic, and social boundaries to draw students." (1966a., p. 11). Howe's description drew ire from conservative columnists, essentially ending the educational park movement. (See Brillinger, 2016, 68-81).

While praising educational park plans for Pittsburgh, East Orange and New York City, Harold Howe does make one error, claiming "Educational parks have not been tested yet." Contrary to Howe's claim, a number of 1960s educational park advocates pointed to the Nova School as a working educational park, e.g., Max Wolff: "I have been proposing the 'educational park' as a new type of centralized school system for several years, but the first actual park was started two or three years ago in Fort Lauderdale, Florida" (Wolff, 1966, p. 180). To make sense of Howe's claim that "Educational parks have not been tested yet" requires making a distinction between two kinds of educational park, the suburban park and the urban park. The Nova School was built in suburban Fort Lauderdale, in a county (Broward) which when Nova opened in 1963 had a school population that was 87% white (110 Cong. Rec. 5708, 1964). Put simply, Nova was not built as a desegregation device,[7] there being only a small African American population in the vicinity.[8] In contrast to the suburban educational park, the urban park (which as Howe noted had yet to be tested by 1968) was deliberately designed (size- and location-wise) to bring together students from all parts of a racially-diverse city. Howe certainly knew about the Nova School,[9] and knowing about it he was also aware that it had not been 'tested' as a desegregation device, the commonly-understood function of an educational park.[10]

Two Types of Educational Park

Historians of the educational park concept are most interested in urban educational parks, likely because these were the talked-about educational parks during the mid-sixties heyday of the educational park concept. Because mostly interested in urban parks, these historians typically date the educational park concept to 1964, when Max Wolff, a sociologist often (as noted) called the "father of the educational park,"[11] published an article, "A Plan for Desegregation," in *Equity & Excellence in Education*, urging New York City to build integrated educational parks to "serve both the educational and recreational needs for all children" (p. 47):

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[7] "Integration is not even a consideration in the South Florida center," a *Tampa Bay Times* columnist wrote in June, 1964 (Michalak, 1964, p. A56).

[8] Despite this, Nova was in April, 1965, the only Broward County school with more than 25 African American students. ("NAACP Asks School Board," 1965, p. A1).

[9] Harold Gores, Howe's former SUPRAD colleague, mentioned Nova in a 1964 article: "Early in 1962, EFL supported the planning of an education center for Broward County (Fort Lauderdale)." (Gores, 1964, p. 3).

[10] Like all educational park advocates, Harold Howe had to wait until September, 1971, when the Northeast Bronx Education Park opened, to learn that educational parks are an ineffective way to desegregate urban school systems.

[11] E.g., Martin Luther King (1968/2010): "Max Wolff, the father of the educational park idea, has suggested ways of using existing buildings and temporary structures to produce some of the effects of the educational park." (P. 207).

> The educational park will serve all the children of the community who will have the opportunity, some for the first time, of meeting and working with pupils of varying backgrounds. The children will stimulate, motivate and challenge each other. The concentration of school facilities serving wide areas will replace neighborhood schools of high or low status. (Ibid.)

Bearing in mind the distinction between suburban and urban educational parks, Max Wolff can justifiably take credit for developing the latter concept, which he first shared with the public during a June 1963 conference at Adelphi College.[12] For a number of reasons, including most importantly societal frustration with conventional desegregation methods (e.g., open enrollment; the Princeton Plan), Wolff's urban educational park concept was widely embraced, to the point that a June 1966 *New York Times* article concluded "it now appears certain that educational parks will move into the forefront of civil rights strategy and educational experimentation" (Buder, 1966, p. E7). Why this never happened is an interesting story, but an equally interesting story can be told about another 'why not?', namely, why didn't the *suburban* educational park concept attract attention? After all, the Nova School was not only the first operational educational park, upon opening it was viewed as "the hottest thing in education" (Morgan, 1964a, p. A73):

> Suddenly Broward County finds itself becoming a mecca for educators from around the nation and around the world. Every week from 30 to 50 educators visit Nova High School in Davie. They come from Pakistan and England, from California, Arizona, Germany, New York. . . They come to see in person if the rumors they have heard, the exciting stories they have been told about a stunning approach in education of youngsters is as dramatic, as daring and as brilliantly conceived as they have read and have been told. (Ibid.)

Just as there were two types of 1960s educational park, the urban and the suburban, so there were two groups of 1960s educational park advocates, one group focused on integration and intent on building schools along lines sketched by Max Wolff, another—much smaller—group fixated on innovation and eager to build schools modeled on Nova.[13] In November 1962, Max Wolff, then of the Department of Labor of Puerto Rico, published "Patterns of Change in the Cities of New

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[12] The November 1963 issue of *Current* summarizes Wolff's speech in these words: "In an Adelphi College seminar on problems of integration, Dr. Wolff, an educational consultant and former judge, now with the Migration Division of the Department of Labor of Puerto Rico, suggests a school system modeled on the industrial park or shopping center." (P. 40). Historian Nat Hentoff heard Wolff's speech and discusses it in *The New Equality.* (1964, p. 143).

[13] In distinguishing these two groups, I don't want to suggest that either was single-minded, caring only about (either) integration or innovation. Both groups cared about both things, differing only in which they prioritized.

Jersey," a study that aimed to measure the impact of immigration on New Jersey's larger cities. Wolff's report closes with a section ("Some areas in need of further research") that includes a number of questions related to education:

> To what extent is de facto segregation of the Negro child per se a cause of low achievement?
>
> Causes of school dropout: what programs can be developed to prevent dropout from school, to stimulate the desire to learn.
>
> After desegregation, how can integration of students in a school be achieved?
>
> The Educational Center—a possible solution? (1962, p 34)

During the 1961-1962 period, the future Nova School's name was the "South Florida Education Center," a name used in a number of contemporary articles about the school,[14] and while we (as yet) have no proof that Max Wolff during this period learned of the proposed Florida education center, he might have, which could explain his 1962 reference to the "educational center." This is, of course, speculative, but what is certain is the Nova project was underway by the time Wolff gave his Adelphi speech, confirming that the educational park concept had suburban roots. Why does this matter?

Unlike the urban educational park, the suburban educational park was a modification—by way of expansion—of an existing concept, the SUPRAD school. In 1967, Francis Keppel, now working in the private sector, contributed an article to a United States government study of the educational park concept in which he argued that educational parks, because compatible with expansive use of computers ("[E]ducational parks could be as valuable to computer technology as the technology is to educational parks" [p. 34]), are ideal settings for educational innovation:

> [C]omputer technology is not easy to absorb into the usual school routine. It is sure to have a disturbing effect on any social system into which it is fitted and the potential advantages of being a part of a new system from the very start are perhaps equally great to the educational park concept and to the development of computer technology. The reason for greater flexibility in the setting of the educational park, in short, has less to do with the

[14] For instance, in June, 1962, education journalist G.K. Hodenfield published a syndicated article about the future Nova School that calls the proposed school the "South Florida Education Center." (P. 58). The article appeared in the *Passaic Herald-News*, where Max Wolff (then teaching at Rutgers) could have seen it.

> strictly technical aspects of the computer and its applications than it has to do with the problems of innovation in general and the finance of schools in particular. (1967, p. 35)

For Francis Keppel, then, educational parks and computers share something important: both require assimilation within a "new system"—whether of public schooling or school design—to operate effectively, encouraging as a result new ways of thinking and doing. This has nothing to do with integration, and in truth is only connected to SUPRAD in a tangential way (Keppel had for years been encouraging construction of high-tech schools). That said, while other SUPRAD educators (e.g., Harold Gores, Neil Sullivan) were more passionate park promoters than Francis Keppel, it was Keppel who first recognized that SUPRAD programming required a new kind of school.

Neil Sullivan and a Berkeley Educational Park

By the time he left Prince Edward County (if not before), Neil Sullivan was the SUPRAD educator most committed to the educational park concept. In May, 1965, eight months after his arrival in Berkeley, Sullivan, speaking to the Cragmont branch of the Berkeley P.T.A., shared a hope:

> "I envision 'educational parks' built in, if you will, border areas between the various tight groups of the community so that we can achieve truly integrated schools. That way we will benefit all pupils. Everyone will gain." ("'Truly Integrated' Schools," 1965, E16)

Sullivan's vision of "truly integrated" educational parks benefiting all Berkeley pupils would have been understood by other members of the burgeoning educational park movement, who, like Sullivan, saw educational parks as offering desegregation from which "everyone will gain." Sullivan, speaking to the Cragmont P.T.A. and noticing skeptics among his audience, added a disclaimer: "All this is just in the study stage" (ibid.). The study in question features in a 1965 memo where Sullivan invites Kathryne Favors, director of the Berkeley Unified School District's Intergroup Education Project (IEP) to join a BUSD task force investigating the benefits of "an educational park or a series of such parks" (Sullivan, 1965d, p. 1). "[T]he general concept of 'educational parks,'" Sullivan writes,

> is coming in for increased study and discussion in urban communities across the country. The increased interest in this subject on the part of educators has been triggered by the desire to improve the general curricular offerings of the schools and to improve the

> situation vis-à-vis de facto segregation. I regard the subjects as interrelated. However, even if racial balance in schools were not a factor I would still consider educational parks as having promising possibilities for improvement of education generally. (Ibid.).

For Sullivan, an educational park is not an 'either-or' facility where schooling is either integrated or effective but not both. In his view, an educational park is a magnet school which by providing effective education attracts students from throughout a city. This scenario is much like those rendered by mainstream educational park advocates, although it does differ in (1) presenting educational effectiveness as a cause and integration as a result, and (2) depicting a non-integrated educational park as desirable. On the first point, Sullivan in speeches often distinguishes between "desegregation"—which he considered a legal term hinting at compulsory mixing of racialized groups—and "integration," where racialized groups interact voluntarily. Speaking in 1968 at a symposium on equal educational opportunity, Sullivan argued that educational parks—unlike other desegregation devices—facilitate *integration*:

> [D]esegregation is only the first step. To achieve meaningful integration, we must move toward the educational park, which will enable full use of the modern technology of education, specialized teaching and auxiliary personnel, and cafeteria, recreational, and cultural facilities. (1968, p. 149)

If Sullivan (see point 2 above) insists that even non-integrated educational parks are desirable, this insistence reflects his view that every educational park will be a high quality school (modern technology, etc.), making every such school a magnet school—at which point the key question becomes: What student population will attend the school? Sullivan knew the BUSD was racially diversified, ensuring a Berkeley educational park would be integrated. He also knew other cities had different demographics, meaning not every educational park would be integrated, something that—as we've seen—didn't trouble him.

That said, Sullivan was by 1966 committed to construction of an integrated Berkeley educational park, i.e., an educational park targeting his twin goals of "high quality education simultaneously with integration" (Sullivan, 1966a, p. 7), goals Sullivan describes in his 1965 memo to Favors as "interrelated" (1965d, p. 1). Integration in Berkeley schools, Sullivan tells attendees at the 1968 symposium on equal educational opportunity, benefits all students:

> Average grades achieved by the tenth-grade students who experienced the new desegregated seventh-and-eighth-grade school and the desegregated separate ninth-grade

> campus of the high school were generally better than the average of those who did not. Tenth-grade marks of students from the desegregated secondary schools continue to improve over the marks achieved by tenth-graders who received their seventh-, eighth-, and ninth-grade education in the segregated Negro or the segregated white junior high school. (1968, p. 150)

Contrary to what many white parents think, Sullivan notes, all students benefit from integrated schools, with the greatest benefits coming to long-term attendees of such schools ("Those who have been in integrated schools since the first grade are doing better than those who started in a segregated school" [ibid., p. 149]). Sullivan's belief (based on Berkeley data) that integration benefits all students does not mean he will refuse to build a non-integrated educational park, it simply means be believes an integrated educational park, all else being equal, is educationally superior to a non-integrated educational park. In effect, Sullivan, working during the 1960s in a variety of school systems, developed in that time a vision of the ideal learning environment: an integrated SUPRAD school.

A milestone in Neil Sullivan's quest for a Berkeley educational park was the BUSD's 1966 proposal for an educational park planning grant, submitted to the Department of Health, Education, and Welfare (HEW). Part I of the proposal includes such information as the name of the agency submitting the proposal ("Berkeley Unified School District"), the name of the person authorized to receive the grant ("Neil V. Sullivan"), the size of the group served by the project (30,000), and the project's estimated cost ($76,500). The more interesting Part II of the proposal details the project's purpose, personnel, facilities, services, materials, supplies, and budget. The 1966 proposal, it should be noted, is a request for funding to *plan*, not build, an educational park, explaining both the modest sum requested from HEW ($51,500) and a lack of information about what a Berkeley educational park would look like. That we know today what Berkeley's system of educational parks would have looked like reflects the success of the 1966 proposal.[15]

[15] In July, 1968, the BUSD published *Integrated Quality Education: A Study of Educational Parks and Other Alternatives for Urban Needs,* the fruits of the 1966 proposal, which details the district's plan to consolidate all educational activity in nine educational parks.

The 1966 proposal focuses less on Berkeley's planned educational park system, than on educational parks in general, allowing for inferences about why Neil Sullivan was drawn to the educational park concept.[16] The proposal's Part II opens:

> The Berkeley Unified School District seeks to develop a model system of community educational centers (educational parks) for all students of the public schools. This it intends to do in the interest of 1) quality, innovative education for each child in every classroom, 2) racial integration system-wide to complete the process begun in 1958 and accomplished in the secondary schools in 1964, and 3) economy in plant and operation through the development of large, flexible facilities capable of applying the latest technology to classroom uses and student service at minimal cost. (BUSD, 1966a, p. 7)

Already we can appreciate the model system's SUPRAD origins, visible less in its promise of "racial integration system-wide" than in its provision of "flexible facilities capable of applying the latest technology." That said, the BUSD's educational park project, as sketched here, is best seen not as a Berkeley version of the Nova School, but as a Nova School designed for Berkeley conditions, meaning an educational park focused on innovation *and* integration. This is evident when one looks at the BUSD's list of innovations its proposed educational park provides, a list that includes:

> 4. Intergroup education through school integration and the daily practice of interracial living and learning. [. . .]
>
> 9. The nongraded school, flexible in schedule but even more so in program so in interrelationships between teacher and student.
>
> 10. Team teaching in its various forms.
>
> 11. An alternative to homogeneous grouping and tracking.
>
> 12. Testing and development of tests that truly measure achievement.
>
> 13. Research and evaluation built into all programs.
>
> 14. Facilities and equipment as innovative as educational organization and program and community relations, featuring clusters of campus settings, the ultimate in flexible walls, furniture, rooms, work space. . . (Ibid., p. 9)

[16] In May, 1966, Harold Howe revealed in a speech that the U. S. Department of Education was "interested in finding one or two great American cities that are adventurous enough to join us in planning the educational park of the future" (1966a, p. 11). The BUSD's July, 1966, proposal might have been Neil Sullivan's response to Howe's call.

In a sense, what Sullivan hoped to build in Berkeley was a combination of the Prince Edward County Free Schools and the Nova School, adopting from the former an emphasis on school-community cooperation, while taking from the latter an array of instructional and organizational practices. Of course, the situation was more complicated than this in that the Free Schools used many practices also employed at Nova (e.g., nongrading, team teaching, flexible scheduling, an ongoing research program), while Nova—like the Free Schools—was an island of diversity in a segregated sea.[17] That said, if Sullivan's Berkeley educational park was a cross between the Free Schools and Nova, all three schools (one proposed, two built) originated in SUPRAD pedagogy, explaining not only their shared features but also their joint appeal to Neil Sullivan. In February, 1966, Sullivan, who had a column in the *Berkeley Gazette*, published a piece; "The Twin Goals of Progress Discussed," which identified his district's essential task as "[to] develop high quality education simultaneously with integration" (1966a, p. 7); a mixture of reportage and sales pitch, Sullivan's column is about educational parks which in his telling *are* a combination of the Free Schools and the Nova School, not only "bring[ing] the whole cross-section of children—from every economic and social group—together" (ibid.), but also "permit[ing] the qualities for which we care—adaptability, innovation, comprehensiveness" (ibid.). For Sullivan and other SUPRAD educators, an educational park was the perfect place for implementation of SUPRAD pedagogy, raising the question—why?

Educational Parks as SUPRAD Schools

The BUSD's 1966 grant proposal describes "school and community involvement and participation in the broadest sense" (BUSD, 1966a, p. 7) as essential to Berkeley's educational park planning process. This involvement and participation, the proposal explains, will be guided by "the present Berkeley Board of Education's lay-professional advisory committee," some of whose 138 members were to be redeployed as "an educational parks planning committee" (ibid.). Sullivan knew the district's lay-professional advisory committee (i.e., "Master Plan Committee") would play a vital role in Berkeley's decision-making process around educational parks, either

[17] Nova in the mid-sixties was Broward County's most racially diverse school (which isn't saying much). In April 1965 the *Fort Lauderdale News* reported local NAACP leaders as saying "Nova. . . is unique in that it was a pilot program where more than 25 Negroes attend the school." ("NAACP Asks School Board," 1965, p. 6). At the time only 80 of Broward County's 18,600 African American students attended integrated schools. (Ibid.). By February 1966, 400 of Nova's 2100 students were African American. ("Education officials," 1966, p. 6).

giving impetus to Sullivan's educational parks push by coming out in favour of parks, or slowing the push by refusing support. Working with Berkeley's school board, Sullivan had established the Master Plan Committee in May 1965 as "an experiment in community involvement in public education reaching far beyond the traditionally accepted role of citizens committees created to advise boards of education" (BUSD, 1967, p. i), the "major purpose" of the committee being to obtain "the cooperative development, by a representative committee of lay citizens and staff members, of suggested programs, both short and long-range, in several specified areas" (ibid.). The Master Plan Committee was subdivided into five smaller committees, each focused on a separate area: (I) instructional program; (II) special education and special services; (III) finance and business services; (IV) community environment, school buildings and facilities; (V) district relations. "[T]wo-thirds of the way through its work," we read in a 1967 Master Plan Committee report, "Committee IV was asked to undertake study of the desirability of the District acquiring a large parcel of previously unavailable land for possible use as some form of educational park" (ibid., p. iv). Reporting its findings in July, 1968, Committee IV would make Sullivan's case for a Berkeley educational park.

"[An] educational institution is three things—people, ideas, and a place—in that order of importance," Committee IV writes in *Integrated Quality Education*, its 1968 report to Berkeley's Master Plan Committee. "Like the community it serves, the characteristics of an educational park complex must be adaptable, flexible, convertible, expandable, and contractable" (BUSD 1968, p. 33). If, as Committee IV observes, Berkeley in the late-sixties was undergoing rapid change, so too (other authors note) was the rest of Space Age America, the United States during this period being a nation of "rapid change, not only in the educational field but in all other fields" (Hick, 1965, p. 39). Accepting BUSD's Committee IV was right to argue that changing times call for changeable schools, what features make Berkeley's proposed educational park a *particularly* changeable school, i.e., a school designed to meet the evolving needs of Space Age students?

> Great opportunity for instructional innovation exists in an educational park where centralized facilities and built-in flexibility for all activities would contribute to the effective and efficient use of personnel, and a variety of learning experiences for all students. . . If learning is to be most effective, space should be provided in the park environment that respects the learner and his need for a sense of amenity. Spatial flexibility would permit small and large group activity, and independent study. (BUSD, 1968a, p. 35)

A first point to make is that much of this could be and was written in the early-sixties about SUPRAD schools such as Grove Street Elementary School (a school "sired by an organization called SUPRAD" [EFL, 1961, p. 37]) or Wayland High ("Educational Consultants: Kargman, Mitchell, and Sargent" [EFL, 1960e, p. ii]), schools also characterized by "spatial flexibility":

> The conventional school classrooms of equal size were obviously unsuited to Wayland's program. To use a classroom of 800 square feet for a 10-student seminar is wasteful. To use such a classroom for the instruction of 125 students is impossible. One answer would have been a system of movable soundproof partitions to enable the school to set up small, medium, large classrooms at will. But no one had come up with an acoustically satisfactory and reasonably priced partition at the time the school was planned. So the school was planned for flexibility through variety of accommodation. This means that space for classes of various sizes is achieved by providing classrooms of various sizes. (EFL, 1960e, p. 16)

Wayland High was neither built as nor considered an educational park, first because it is a single school rather than the cluster of schools, second, and perhaps more importantly, because unlike Berkeley's proposed park, Wayland High was not built for integration.[18] Familiar with both the Prince Edward County Free Schools and the Nova School, SUPRAD educators had by the mid-sixties developed a unique definition of an educational park: a SUPRAD school with a racially-diverse student population. "Total integration is my goal," Sullivan told the *S.F. Bay Guardian* in 1966. "Hopefully, we shall bring this about through the educational park where all city children of certain age groups and grade levels will go to school together in one large center shared by the community" (1966b, p. 9). Whereas some Space Age educators were intimidated by the thought of educating a racially-diverse student body, SUPRAD educators embraced the idea, positing educational parks as (in Francis Keppel's words) "a particularly attractive concept in today's planning for effective urban schools" (in Seitzer, 1966, p. 17).

What features of Berkeley's proposed educational park[19] would have made it an effective urban school educating disadvantaged students? Committee IV, describing a prototype Berkeley park, emphasizes flexibility:

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[18] E.g.: "The only two fixed characteristics of the education park are its large size and its consolidation—of age groups, teachers, and facilities. Today the concept is seen as the road to integration, higher educational quality, and cost economies." (Community Research and Development Corporation, 1968, p. 13)

[19] *Integrated Quality Education*'s educational park "prototype"—the park the report describes at length—was a "middle school park" serving grades 4-8. (1968, p. 54).

> Built-in flexibility promotes a varied curriculum, and contributes to the encouragement of new ways to plan change and improve instruction. Flexibility of instruction includes a combination of nongrading practices and team teaching which would provide an abundance of opportunity to cluster teachers and students. Flexibility also should be related to the timeliness of specialization of instruction according to student need. Provisions should be made within the instructional program for small and large group activities, for independent study leading to individualization of the curriculum, and for staffing to meet these activities. Space requirements should be accommodated through flexible design and traffic control. (BUSD, 1968a, p. 40)

This passage hints at the resiliency of SUPRAD pedagogy in the 1960s, a decade defined by "rapid change. . . in the educational field" (Hick, 1965, p. 39), and during which one might expect wholesale revision of *any* pedagogy, let alone one developed for suburban students. If SUPRAD pedagogy was only lightly revised during the 1960s, this reflects SUPRAD educators' belief that while students change, both individually and collectively, their need for tailor-made instruction remains the same. Indeed, the above-quoted celebration of instructional flexibility, where such flexibility is associated with "new ways to plan and improve instruction," goes on to link these new instructional practices with accommodation of "student need"—accommodation facilitated through provision of individualized instruction. SUPRAD pedagogy, then, rests on a belief that differentiation and flexibility are not ends in themselves but rather serve the purpose of meeting "student need" (however defined). "Flexible scheduling should be incorporated into the instructional program," Committee IV argues, continuing:

> Time allotments should be dependent upon subject matter, mode of instruction and student needs. Time should be divided into "blocks", some reserved for subjects which lend themselves to daily allocation of a given amount of time, other time blocks should be reserved for subjects lending themselves to longer periods at less frequent intervals, e.g., certain creative arts, science laboratories, vocational classes and physical education. There should be provisions for more time being added to the study of a variety of subjects. . . It is recommended that facilities, and space, be designed for optimum flexible use, and time be used more flexibly. (BUSD, 1968a, p. 40)

As with instruction, when it comes to scheduling, decisions should privilege student needs, with differentiation being how one identifies a particular students' needs, and flexibility being what

allows a school to meet those needs. "The total education program at Nova is geared to the individual child," we read in a 1962 article on the Nova School. "Every child will be able to move along at his own rate" ("Ashmore Explains," 1962, p. 5). Again the individual student is the focus, schooling being adapted to the student, rather than the reverse.

BUSD and the Nova School

Writing in 1967, Max Wolff identified Nova as "the outstanding and perhaps unique example of a large educational park" (p. 24). That same year, Neil Sullivan and the BUSD, planning their own park, invited James Smith—Nova's assistant director of curriculum and instruction—to visit Berkeley and deliver a talk on Nova's "exciting educational innovations" ("Berkeley Teachers," 1967, p. 9).[20] The BUSD's interest in the Nova School invites us to ask how closely Berkeley's educational park planners modeled their proposed facility on Nova, not only in terms of instructional practices and staff organization, but also in relation to design. An answer to this question reveals a great deal about the ways Berkeley's proposed educational park would have deployed flexibility to ensure each student received a tailor-made education.

The best available description of Nova High's physical plant is found in a 1966 working paper, "Nova High School: Introduction," issued by System Development Corporation (SDC), a Rand Corporation subsidiary that developed software for mainframe computers.[21] Characterizing Nova High as "a total organization in terms of its environment, personnel, objectives, space and facilities, use of instructional media, and its noteworthy organizational features" (SDC, 1966, p. 1), the report includes a "technical discussion" (ibid., p. 2) of Nova's physical plant which opens with recognition of Nova's unusual architecture:

> In designing a physical plant, Nova High School planners recognized the need for buildings quite different from those in the usual secondary school. This planning is clearly apparent in the structures which were designed and built. The buildings reflect the Nova philosophy rather than simply the designs common to our period. (Ibid.)

[20] An article on James Smith's visit opens: "Exciting educational innovations being made in an educational park in Fort Lauderdale, Florida, were reported to a Berkeley teachers' in-service workshop on flexible curriculum. . . 'Large-group' and 'small-group techniques, as well as individual study, are used. Classroom periods vary in length, according to the nature of the subject. Team teaching is used at all levels." ("Berkeley Teachers," 1967, p. 9).
[21] SDC's interest in Nova says a lot about education during the Space Age.

The first design feature that catches SDC's eye is Nova's "absence of 'typical' classrooms": "In each of the four classroom buildings, rooms that might be considered typical require less than half of the available floor space. While none of the buildings is dominated by any other single type of space usage, the role of the traditional classroom is certainly de-emphasized" (ibid.). Nova's atypical classrooms, an SDC-provided floor plan reveals (ibid., p. 16), have retractable partitions that divide a single rectangular room into two non-rectangular rooms, an arrangement SDC calls attention to:

> Although flexible space arrangement is becoming rather common in secondary schools, many schools are still being built without such provision. For this reason, mention is made of Nova's middle rooms in the language arts, technical and special studies, mathematics, and science buildings which consist of two slightly larger than normal rooms that are divisible by sliding doors. With the doors closed, two classrooms are formed. Opening the doors provides a single, large space in which two teachers may combine their classes for large group instruction. (Ibid.)

With its linking of flexibility in space and flexibility in staffing arrangements, this description calls to mind Harold Gores's remark, made at the first meeting of SUPRAD's administrative board (1957):

> We would like to explore ways by which we might bring greater flexibility into school construction. This is desirable for many reasons, but particularly to have spaces that will, at different times, accommodate large and small groups. If we had this kind of flexibility, we would be able to explore ways of utilizing our teaching personnel more effectively. The chief barrier to this at the present time is that there is no good flexible, sound barrier which school architects have devised. (SUPRAD, 1957c, p. 3)

In 1957, when Gores made his remark, no flexible sound-proof barrier existed,[22] precluding or disrupting various types of team teaching arrangements, including the arrangement described by SDC. In part due to the efforts of Educational Facilities Laboratories, whose School Construction System Development (SCSD) project had spent the early-sixties working to develop an "interior partitions system" (EFL, 1965, p. 29), Nova opened with movable partitions in place, facilitating

[22] SUPRAD's administrative board agreed to consult an M.I.T. acoustics expert.

team teaching, nongrading, and other SUPRAD practices.[23] Another way Nova individualized instruction was through inclusion of "resource centers" (SDC, 1962, p. 17), i.e., library/learning laboratories where students could access books, foreign language audio tapes, video lessons, and microfilm cards. When Nova staff boasted that at their school "Every child will be able to move along at his own rate of speed" ("Ashmore Explains," 1962, p. 5), Nova's resource centers were at top of mind, largely because the centres—which included "carrels for the use of audio-visual aids" (SDC, 1962, p. 17)—allowed students access to lessons suited to their achievement level.

Many SUPRAD innovations are familiar today, but in the early-sixties practices like team teaching and nongraded classes were dauntingly new for many teachers.[24] As late as 1967, the year Neil Sullivan invited James Smith to address BUSD teachers, Nova's practices were seen (at least in Berkeley) as "exciting educational innovations" ("Berkeley Teachers," 1967, p. 9), indicating their limited uptake since Nova's 1963 opening. This raises a question: Why, given Nova's stellar reputation in the mid-sixties,[25] did very few school systems adopt the Nova Plan? One way to answer this question is to compare Berkeley's proposed educational park to the Nova School. What lessons did Sullivan and the BUSD draw from Nova's first five years?

Introducing their educational park prototype, the members of BUSD's Master Plan Committee IV share their guiding principle: "The need to treat the student as an individual—to promote his identification with his educational environment—was considered to be the most important objective of the planning activity" (BUSD, 1968a, p. 55). Immediately we find an emphasis on differentiation, quickly followed by a highlighting of flexibility:

> To achieve this purpose, a middle school park to house 3,200 students was divided into four component schools. . . Each school would accommodate 800 students who would be subdivided into cluster groups of 200 students occupying one loft space for instruction. . . The loft area would offer the flexibility of a single large teaching room, or it could be subdivided easily with sound-deadened folding panels into a multiplicity of varying-sized teaching spaces. At any time, the loft could be used as eight contained classrooms. The

[23] Nova's lecture halls could also be subdivided: "Each of the halls can be subdivided into three rooms, two of which hold 50 students each and a third one which will accommodate 100 students." (SDC, 1966, p. 18).
[24] Robert Anderson's 1957 conversations with Lexington teachers uncovered many fears, e.g. "There were also some very real reservations about the desirability of teaching children in large groups, one teacher commenting that most of the large group experiences tended to be demonstrations and entertainment" (1957b, p. 2).
[25] "Nova," a *Miami Herald* columnist wrote in October, 1964, "has already attracted international attention and is a matter of pride to the county." (Morgan, 1964b, p. 61).

> flexible arrangement would permit freedom for student movement so vital to the success of a widely diversified curriculum, and a variety of group sizes. (Ibid.)

What the SDC report on Nova High characterizes as an atypical classroom, the BUSD calls a "loft," but in both cases a learning space can be subdivided into several smaller classrooms by moving a "sound-deadening panel" (ibid.). Moreover, in both cases spatial flexibility is credited with facilitating (what the BUSD calls) "a widely diversified curriculum, and a variety of group sizes" (ibid). In addition, the Berkeley educational park, like Nova, includes resource centers for individualized learning:

> There would be one resource center for each of the Park's two schools, or two resource centers within a Park, with shared service space for both centers on the basement level. . . Each would house library and audio-visual aid material and media, individual- and group-study spaces, and special study and listening carrels. (Ibid.)

As is the case with many aspects of SUPRAD pedagogy, the idea of a resource center might be underwhelming today, but during Nova's heyday (Berkeley never built an educational park) it was futuristic, evoking images of encapsulated students exploring information storehouses.[26]

Berkeley's use of a "schools-within-a-school" model distinguishes the city's proposed educational park from the Nova School. Why did the BUSD adopt this model? An often-heard 1960s criticism of the educational concept held that because the parks were so enormous (Harold Howe spoke of 20,000 students), individual students might be (to quote the BUSD's Master Plan Committee) "lost in the multitude" (BUSD, 1966b, p. 9). The argument that educational parks would be distressingly large and impersonal was a powerful one in the 1960s, arriving at times accompanied by visions of collectivistic insect dwellings:

> What they really mean are educational beehives. Or even anthills. When our leaders should be bending every effort to decentralize schools and make them smaller and less bureaucratic, they are instead proposing to pack hundreds and even thousands of youngsters into vast, swarming skyscrapers where mass instruction can be facilitated and where both individuality and individualism will be as rare as a barber at a Castro cabinet meeting. (Rafferty, 1966, p .20)

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[26] "[The resource center] should be more than just a school library or city library; it should be a combination of both those functions coupled with an application of today's technology. It would become the center for a computerized teaching system whereby the student has instant access to information from tapes, videotapes, and microfilm, as well as books, magazines, and other printed materials." (Lamp, 1967, p. 24)

Max Rafferty's colorful critique is one Neil Sullivan would have been aware of, Rafferty and Sullivan often being at loggerheads during Sullivan's time in Berkeley.[27] The BUSD's answer to Rafferty's appraisal, conveyed by Committee IV, was schools-within-a-school, four in total with 800 students each, with each subschool subdivided into four lofts educating 200 students each. "[One] of the critical aspects of educational park planning," Committee IV remarks in its report, "[is] that of bringing together a large group of students, yet being able to subdivide it effectively into small groups" (BUSD, 1968a, p. 56). Between 1963, then, when Nova opened, and 1968 when the BUSD published *Integrated Quality Education*, educational park advocates accepted that an educational park might be overly large and impersonal, seizing as a result on the notion of schools-within-a-school. Aside from this modification, however, little separates educational park advocacy as practiced in Fort Lauderdale from educational park advocacy as seen in Berkeley, with advocates in both cities arguing that educational parks were ideal sites for such SUPRAD practices as team teaching and nongraded classrooms. Speaking in 1959 at a SUPRAD retreat, David Tiedeman linked effective schooling to four factors: "right material, right presentation, right pupils, and right time" (SUPRAD, 1959, p. 1). Soon after their 1959 retreat, SUPRAD educators added a fifth factor to their equation—right design—resulting in the educational park concept.

The End of Educational Park Planning in Berkeley

On September 10, 1968, Berkeley became the first American city with a population of more than 100,000 to fully desegregate its school system. Newspaper articles marked Berkeley's achievement ("An army of 8,900 black and white elementary school pupils etched their place in American history books yesterday" [Lieberman, 1968a, A1]), with articles appearing not just in California but throughout the country ("Negro and white youngsters mixed in an atmosphere of excitement and some apprehension Tuesday as Berkeley became the largest public school system in the nation to integrate all schools" [Associated Press, 1968, 1]). Officials praised Berkeley's integration efforts ("You have struck a blow for justice that will have an impact far beyond the

[27] Max Rafferty was California Superintendent of Public Instruction from 1963 to 1971. In 1967, Rafferty accused Neil Sullivan of profiting from publication of a BUSD textbook, a charge Sullivan denied in the *Sacramento Bee*: "Sullivan declares himself surprised and shocked by Rafferty's language and behavior. He admitted being attacked before, from both the far left and the far right, but never by a state superintendent." ("Max Rafferty Flips his Wig," 1967, p. 54).

limits of Berkeley" [Harold Howe in Milstein and Hoch, 1968, p. 524]), as did scholars ("Other school districts across the country have experimented with integration, but never before has a major community assured that all schools will approximate the racial composition of the total school student body" [Milstein and Hoch, 1968, p. 524]).

In 1968, Berkeley's high school and intermediate schools were already desegregated, leaving only the city's elementary schools to be integrated. School board minutes from the 1967-68 period reveal the pressure placed on the school board to follow through on its 1964 pledge to implement elementary school desegregation:[1]

> COMMUNICATIONS
>
> Berkeley Branch NAACP Subject: "School Integration."
>
> Stating, "The Berkeley Branch NAACP hereby formally requests the Berkeley Board of Education to initiate steps toward total elimination of de facto segregation in Berkeley schools. The reactionary and ultra conservative climate involving open housing precludes the hope that mobility in housing accommodations will solve the school problem of segregated schools." (BBE, May 2, 1967, p. 18)

These and other communications, as well no doubt as school board members' own wishes, led the school board to unanimously adopt on May 16, 1967, a motion "concerning desegregation of the elementary schools":

> The Board of Education reaffirms its commitment to desegregation of all Berkeley schools in September 1968 and directs the Administration to develop and present a plan or plans that will accomplish this goal. . . We authorize the administrative staff to begin now, planning such items as teacher preparation, curriculum development, etc., and submit a plan or plans to us for discussion as early as possible but not later than October 1967 so that we may adopt the most effective plan as early as possible but no later than January or February of 1968 and spend the remaining time prior to September 1968 refining the plan and preparing for full implementation. (BBE, May 16, 1967, p. 3)

[1] The 1964 plan that integrated Berkeley's middle schools included provisions for immediate integration of the city's elementary schools, but these provisions were tabled in May, 1964, "so that administrative energy and our available finances can be concentrated on a successful demonstration to the community of the educational values of full integration at the Junior High School level." (BBE, May 19, 1964, p. 12).

Passage of the May 16 motion initiated a process that culminated sixteen months later in full integration of Berkeley's schools. Authorized by the school board to submit a desegregation plan "as early as possible but not later than October 1967," Neil Sullivan and his staff immediately recognized a problem, namely that the October, 1967 date undermined the work of the district's Master Plan Committee. As Marc Monheimer, the committee's chair, explained in a May 16th communication to the school board:

> [Q]uestions have arisen concerning the scope and timing of the Report of the Berkeley School Master Plan Committee. Although we are hopeful of presenting the complete School Master Plan Committee report in time to permit implementation of at least some of its recommendations as early as the 1968-1969 school year, it is unlikely that the Report will be available prior to November 1, 1967. (Ibid.)

After noting that "integration has been a crucial part of the study and discussion of members of the [Master Plan] Committee" (ibid., p. 3), Monheimer adds that the Master Plan committee's forthcoming recommendations—if "adopted by the Board of Education and implemented by the administrative and certified staff" (ibid.)—will have "a direct and immediate effect on achieving racially integrated elementary and secondary schools and providing quality education worthy of imitation" (ibid.). Neil Sullivan's influence is evident in Monheimer's communication, and the communication is best understood as Sullivan asking by proxy Berkeley's school board for more time to produce an integration plan: October of this year is too early for us to formulate a plan, Sullivan (through Mark Monheimer) explains, because our Master Plan Committee report won't be done until (at the soonest) November, 1967.

Given that a key purpose of the Master Plan Committee study was to make a case for a Berkeley educational park, Monheimer's May 16 communication to the school board represents a worried Neil Sullivan's attempt to ensure the educational park concept remained part of the desegregation conversation in Berkeley. Sullivan knows that in October, 1967, the school board is going to begin discussing various plans for integration, and as things stand an educational park plan will not be part of the discussion, an absence Sullivan and his BUSD colleagues consider disastrous. "The recommendations of sub-committee IV[2] concerning changes in the uses and organization of school buildings and facilities deal directly with achieving full integration," Monheimer tells the school board in his May 16, 1967, communication (ibid., p. 16), alerting the

[2] Monheimer's "sub-committee IV" was originally named "Committee IV," a name I've retained.

board to the existence of an educational park-based integration plan. As things stand, Committee IV's recommendations, like those of the other Master Plan committees, will (unless the school board revises its schedule) arrive too late to be taken into account as the school board settles on a path to total integration in Berkeley.

Sullivan and Monheimer's pleas went unheard. Compelled by Berkeley's school board, the BUSD implemented in September, 1968, an integration plan "that involved total two-way crosstown busing" (Halpern, 1968, p. 47),[3] frustrating as a result Sullivan's hopes of building a Berkeley educational park. On September 11, 1968, the day after Berkeley's integration plan went into effect, Sullivan reacted to Berkeley's school board decision to (as he saw it[4]) choose desegregation over integration by resigning as superintendent of Berkeley schools, quitting so abruptly that the president of Berkeley's school board reprimanded him during a board meeting:

> I had known we could probably not keep a man of his national reputation for too many years, but I was naive enough to believe that the four year contract he had signed with us only last November at a large and deserved increase in salary would prevent his leaving too suddenly and without more notice to his Board. (BBE, September 17, 1968, p. 2)

Sullivan's decision to leave his Berkeley post invites scrutiny. In public, Sullivan explained the decision by reference to the authority and influence he would have as Massachusetts Education Commissioner: "I see great challenge for me during the years ahead at the state level. . . This is where the action is, and I want to be part of the action" (Lieberman 1968b, p. A13). Sullivan's explanation is inadequate for two reasons, first, because it conceals Sullivan's dissatisfaction with Berkeley's choice of desegregation plan; second, because it obscures Sullivan's eagerness to participate, even if only at arm's length, in Boston's Operation Schoolhouse.

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[3] This was a "Princeton Plan," named for the city where such a plan was first used. "According to this plan, two or more neighboring schools are combined into a single attendance area, and all the pupils in the enlarged area attend one school for the primary grades and the other school for the intermediate grades." (Havighurst, 1967, p. 11).

[4] In the May 17, 1965, issue of *The Superintendent's Bulletin* Neil Sullivan makes clear his opposition to two-way busing: "The solution does not lie in bussing children long distances into Negro neighborhoods. One vital reason is that too frequently ghetto schools are the very ones not fit for children to attend. The problem is to improve the program and course of study in these schools, not to bring additional children of any race into the schools." (1965e, p. 4). Sullivan also uses the May 17, 1965, article to make his case for educational parks: "Where [integration] can be done, Dr. Sullivan recommended that ghetto schools be phased out and large 'educational parks' be erected to serve children of all races over an extended area." (Ibid.).

Chapter Nine: Operation Schoolhouse

In September, 1971, a new Boston elementary school, the Joseph Lee School, opened in the district of Dorchester, at the time one of Boston's few integrated neighbourhoods. Prior to its opening the Joseph Lee School had attracted media attention for two reasons: first, it was seen as a state-of-the-art facility with innovative architecture and cutting-edge programming; second, it was going to be integrated, and so was seen as a signal that Boston was moving on from *de facto* segregated schooling.[1] In March, 1971, *New England Architecture* published a celebratory article about the Joseph Lee School, focusing on its striking design:

> The $5.5 million Joseph E. Lee School is one of 12 unusual schools under construction in Boston as part of Mayor Kevin H. White's major school building program. . . It is being constructed on a five-acre site in three sections, including a three-story classroom building with "saw-toothed" exterior walls, a connecting centrally located 1½ story multipurpose room and seven-room kindergarten section, and a multi-level swimming pool-gymnasium-theater area. ("Joseph E. Lee School," 1971, p. 16)

Similarly appreciative articles were published in other Boston-area media outlets, including the *Boston Globe*, which in September, 1971, favorably compared the Joseph Lee to traditional elementary schools: "[The] Lee, which is ungraded. . . [and] designed on the 'open-space' concept, has team teaching and 'learning areas' instead of traditional classrooms, each manned by one teacher. The open-space approach enables children to learn reading with others of the same ability, then switch to another group for math, which is a different skill" (Brody, 1971a, p. 22). The Joseph Lee School, then, was seen as a new kind of Boston school, one that (to again quote the *Globe*) "[has] a great many facilities for learning experiences which the older schools lack" (Brody, 1971b, p. A-46). As noted, the Joseph Lee's novelty went beyond its architecture and programming. To the displeasure of many white Dorchester parents, the Joseph Lee School was going to be integrated, something these parents considered unacceptable: "Parents of about 300 children scheduled to attend opening day classes at a new elementary school in a plan to

[1] "Until recently, Boston's schools were quite segregated," the U. S. Commission on Civil Rights wrote in 1975, adding: "In the 1971-72 school year, the public school enrollment was 61 percent white, 32 percent black, and 7 percent other minorities; but 84 percent of the white pupils attended schools which were more than 80 percent white, and 62 percent of the black pupils attended schools which were more than 70 percent black. At least 80 percent of Boston's schools were segregated in the sense that their racial composition was substantially different than that of the entire school system." (U. S. Commission on Civil Rights, 1975, p. 20).

racially balance the new facility refused to comply Wednesday and brought their children to their old neighborhood schools. Instead of enrolling their children at the new $8 million Joseph Lee School in the Dorchester section, the parents followed through with previous threats and took the children to the Fifield and O'Hearn schools" ("Parents Balk," 1971, p. 11). The early-seventies saw anti-integration activity in many U. S. cities including St. Louis, San Francisco, Savannah (Georgia), and Pontiac (Michigan). ("Antibusing Groups Act," 1971, p. 6). Nowhere, however, was this activity more violent than in Boston, which by the mid-seventies was seeing near-daily protests, brawls, and walkouts. ("Backdrop to Boston," 1975, p. 10). If white shunning of the Joseph Lee School deserves attention the reason relates to the school being both a solution-in-theory to and an instigator-in-practice of Boston's mid-seventies racial unrest.

The Joseph Lee School was designed not by the city of Boston's planning department (designer of previous Boston schools) but by Harvard University's graduate school of education, where in the mid-sixties a team led by Robert Anderson had (to quote a Harvard press release) "assumed the responsibility for preparing statements of design requirements for twelve or more public school buildings to be erected in the next few years" (SPP, 1967, 1). Launched in early 1967, the Harvard-Boston Schools Planning Project (dubbed Operation Schoolhouse by the Harvard team) authorized Harvard's graduate school of education to, in the words of the *Boston Globe*, "take educational specifications from school officials, translate them into architectural specifications and forward them to the architects on school projects" (Waters, 1967a, p. 21). This description of Operation Schoolhouse is misleading in that Harvard ultimately provided Boston officials with more than architectural specifications, also offering guidance on staff deployment and instructional practices.[2] Operation Schoolhouse, then, was expected to provide to the city of Boston a full-fledged pedagogy positing not only how schools should operate, but also why they should operate that way.[3] Perceived by Boston officials as a way to attract wary white families to integrated schools, this pedagogy—SUPRAD pedagogy—became Boston's principal weapon in its mid-sixties war against racial imbalance.

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[2] "Anderson's group has recommended in addition that each school be physically designed to accommodate team teaching techniques and encourage individualized study on the part of the pupils." (SPP, 1967, p. 2).

[3] The 'why' of Operation Schoolhouse specifications often turned on appeals to late-sixties rebelliousness, e.g.: "The winds of change blow very strong in 1967, and it is heartening to see how widespread indeed is the reform movement including the curriculum improvements upon which all else depends. It is therefore to be hoped that Boston, in committing itself to the creation of flexible and beautiful new schools, will find that the way to a truly individualized school program is less rough than it might once have been." (Anderson, 1967a, p. 38).

Operation Schoolhouse educators prioritized integration in drawing up plans for Boston schools. In April, 1967, John E. Sullivan, Operation Schoolhouse's administrative officer, sent a memo to Robert Anderson, addressing a key question bearing on the new project:

> [*Question*] Why?
>
> [*Answer*] To implement the first stage of the approved Boston School Committee Plan "Toward the Elimination of Racial Imbalance in the Public Schools." (Sullivan, J. E., 1967, p. 1).

John E. Sullivan's memo, with its catechistic question-and-answer, not only identifies the main purpose of Operation Schoolhouse as advancing racial integration in Boston schools, it also links that main purpose to a Boston School Committee planning document, revealing in doing so that Operation Schoolhouse educators saw themselves as partnering with Boston officials. In truth, the Boston School Committee plan referenced in Sullivan's 1967 memo was anything but a good-faith effort at promoting racial harmony, being instead a reactionary body's belated attempt to comply with the Massachusetts Racial Imbalance Act of 1965, an act which prohibited construction of a school which would open "racially imbalanced" (defined in the Act as a school where "the percent of non-white students is in excess of fifty percent of the total number" [BSC, 1967, p. ii]). Boston school officials in the mid-sixties had no answer to the question of how to integrate schools, offloading as a result their planning program onto Harvard's graduate school of education. Why did the Boston School Committee believe that Harvard professors were best placed to desegregate Boston schools?

SUPRAD and Desegregation

In September, 1967, five months into Operation Schoolhouse, Robert Anderson, the project's leader and one-time director of SUPRAD's team teaching program, drafted a memo (likely for Operation Schoolhouse staff) where he shared a vision for the project:

> We visualize something of a revival of the 1965 Harvard-Boston summer program, and also a larger scale program for curricular planning, staff development, and general preparations to be carried on during the academic year as well. Orhenberger is eager to initiate programs of this sort,[4] and I think we could expect 100% cooperation if we as a University were to seize the initiatives and attempt to set up a SUPRAD-type relationship

[4] William Ohrenberger was superintendent of Boston schools.

> to Boston which would be enlarged to include pre-service teacher education, inservice staff development on a broad scale, and so forth. (Anderson, 1967c, p. 2)

Anderson's vision of a revived SUPRAD, the memo reveals, was borne out of a recent meeting with William Ohrenberger, during which Ohrenberger responded enthusiastically to Anderson's proposals, leading Anderson to believe "the time has arrived for making a particularly important move in the direction of that city with whom our destiny seems to be so closely associated" (ibid.). The meeting with Ohrenberger, Anderson reports,

> was our first opportunity to discuss the Dorchester specifications and broader problems, and we used most of our time to discuss with Ohrenberger the long-range staff development proposals that are beginning to generate in our minds. Ohrenberger, from the very beginning, has shared with us the hope that the schools-planning project will be merely a first major step in a series of events that will bring Harvard and the Boston schools into a close and continuing friendship. (Ibid.)

With this vision of friendship in mind, Anderson proposes a "summit conference within the University" (ibid.) akin to "the meetings that we held prior to the opening of SUPRAD" (ibid.), his goal being to turn Boston into a late-sixties version of a SUPRAD town.

Given Robert Anderson's past role in SUPRAD, it is unsurprising to find him—three years later—using SUPRAD as a touchstone for how a school-university project should develop. That said, Anderson, as director of Operation Schoolhouse, took more from his SUPRAD experiences than guidance on organizing a new project; he also inherited a pedagogy. Anderson's allegiance to SUPRAD pedagogy is evident when one examines a 1967 Operation Schoolhouse document, "Design Requirements and Limitations for Three Elementary Schools in Dorchester," which was written soon after the project's launch. Dorchester was in 1967 a racially diverse area of Boston, so the new elementary schools were designed (in Robert Anderson's words) for "youngsters of different backgrounds" (1967a, p. 25), although this design feature is downplayed in the 1967 report.[5] SUPRAD pedagogy, as noted in Chapter Five, includes ideas about both school form and school function, an axiomatic SUPRAD belief being that a school's design should be determined

[5] The "General Background" section of the report notes that, "The planning of new elementary schools for Boston coincides with an awakening national awareness of the prime importance of public education, especially in urban communities" (p. 11) with the phrase "urban communities" shorthand for African American neighbourhoods.

by its programming. Instructional programming at the three Dorchester elementary schools, we read in the Operation Schoolhouse document, is organized around two practices:

> replacement of graded school structure and policies with a more hygienic and flexible arrangement for vertical progression of pupils; and the abandonment of self-contained classrooms in favor of cooperative teaching. (Anderson, 1967a, p. 36)

The notion that nongrading and team teaching are complementary elements within a pedagogical system, is stated directly in the report's next paragraph:

> Suffice here to say that neither of the two arrangements (nongrading and team teaching) has within itself any magic or any short cuts to educational excellence but in combination they offer an extremely flexible and appropriate framework within which programmatic excellence may be more certainly achieved. . . [It] is not the organizational pattern that leads to excellence, it is the combination of a vital and viable curriculum, appropriate and skillful teaching procedures, and a psychologically valid atmosphere surrounding the child, that causes good learning to take place. An important part of that atmosphere is of course the physical environment itself. (Ibid.)

Bearing in mind Patricia Murphy's definition of pedagogy as "about the interactions between teachers, students and the learning environment and learning tasks" (1996, p. 35), this passage describes a distinctive pedagogy, complete with skilled teachers, confident students, a supportive learning environment, vital and viable learning tasks, and a comfortable physical environment. Murphy, having defined "pedagogy," adds that a given pedagogy "cannot be disembedded from the wider educational system," including most importantly "the goals of education" (ibid.). What did Anderson and his colleagues hope to achieve with Operation Schoolhouse? In answering this question, it helps to look at the experiences of a more loosely-affiliated member of the Operation Schoolhouse team, Neil Sullivan, Massachusetts education commissioner.[6]

In 1971, Sullivan, two years into his term as Massachusetts education commissioner, wrote "Desegregation Strategies," a booklet describing solutions to *de facto* school segregation. "For many of the larger metropolitan centers of this nation, 'educational parks' offer the greatest opportunity for the desegregation of schools," Sullivan argued (p. 21), introducing what he saw

[6] Neil Sullivan had two roles in Operation Schoolhouse. First, Sullivan had the authority to distribute or withhold state aid to Boston schools, authority he used to advance Operation Schoolhouse; second, Sullivan was a proponent of busing for integration, which was needed to transport white students to integrated Boston schools like the Joseph Lee Elementary School.

as "one of the most promising dreams for breaking down big city ghetto walls and for helping to liberate urban public education and the communities it serves from deeper crisis" (ibid., p. 22). In addition to integration, an educational park, for Sullivan, offers something else: "Its facilities would serve all the children and teachers alike with the best available programs and technology" (ibid.). An educational park, then, in Sullivan's view, has two purposes that can be summarized in a single phrase: "integrated quality education." As an educational park advocate, Sullivan was unusual in that he *first* associated educational parks with provision of quality education. As noted in the previous chapter, Sullivan, in arguing that even a non-integrated educational park is worth building, places himself outside of the mid-sixties educational park movement, whose members focused on integration when promoting educational parks. Of course, just as Sullivan promoted integrated schooling, the educational park movement worked towards effective schools. Where Neil Sullivan and the educational park movement disagreed was in their respective notions of an educational park's *primary* purpose, with Sullivan unusual in believing that a *de facto* segregated educational park can have value. Related to this difference is Sullivan's belief, also not shared by mainstream educational park advocates, that an educational park's cutting-edge features are ends in themselves rather than means to an end, a distinction turning on whether a given feature is seen as innately valuable or as valuable only insofar as it attracts white pupils. The latter view, Robert Dentler observes, is widely held within the educational park movement:

> I suspect that the concept of the education park attracts us because it contains at root the notion of "white bait." Tradition-oriented white citizens might be attracted to back education parks, where they oppose neighborhood school pairing, because the park package gleams so handsomely. (1964, p. 22)[7]

What most 1960s educational park advocates didn't know was that the educational park concept was developed in a suburban setting (Davie, Florida) where integration wasn't an urgent issue, and where innovative programming was seen as an end in itself. As a SUPRAD educator, Neil Sullivan knew about and admired the Nova School, leading him to value educational parks "even if racial balance in schools were not a factor" (Sullivan, 1965d, p. 1). Again this is not to say that Sullivan wasn't committed to integration (in 1967 Martin Luther King identified Sullivan as one

[7] David Cohen also saw educational parks as bait: "If such a system of schools were built in a metropolitan area, whites who refused to send their children would have to reject better and higher status education in order to reject desegregation." (1967, p. 29).

of few school superintendents with "the stamina and the skill to undertake the massive struggle for meaningful and full school integration" [1967, p. x]), but only to note that Neil Sullivan's pedagogy—SUPRAD pedagogy—held that educational parks were of *most value* as innovative schools, with integration if it occurred a welcome byproduct. Bearing this in mind, we can return to the question posed above: what did Robert Anderson and his colleagues hope to achieve with Operation Schoolhouse?

Three SUPRAD Schools

The above question is best answered by reference to another Operation Schoolhouse document, "The New Georgetown Elementary School in West Roxbury" (1969),[8] which opens with a section ("General Background for School Planning") that places Boston's school planning program—Operation Schoolhouse—in a cultural context characterized by dangerous instability. Unlike in the early-sixties, when cultural change was associated with progress, by the late-sixties disruption of the status quo was linked with decline; decline which public schools, fairly or not, were expected to slow or reverse:

> The planning of public schools for Boston coincides with an awakening national awareness of the prime importance of education especially in urban communities. It is important to note that the Report of the National Advisory Commission on Civil Disorders (March, 1968), stresses ignorance—along with discrimination, slum conditions, poverty, disease, and unemployment—as one of the conditions that breeds despair and violence in this nation. (Anderson, 1969, I-1[9])

This passage, from the first paragraph of a 188-page report, is an initial step towards identifying Operation Schoolhouse as an attempt to remedy a litany of societal ills, thereby dissociating it (one might think) from another Harvard-directed project, SUPRAD, which unfolded in three well-to-do suburban communities and so was never meant to address inequities arising from "discrimination, slum conditions, poverty, disease, and unemployment." That said, Operation

[8] West Roxbury was in 1969 a working class Irish Boston neighbourhood different in many ways from Dorchester. Nonetheless, Anderson and his colleagues copy/pasted much of their 1967 report on Dorchester schools into their 1969 Georgetown Elementary report, hinting at their belief that SUPRAD schools were appropriate for all types of neighbourhoods.

[9] "The New Georgetown Elementary School in West Roxbury" has no named author, but most of its text is found in a Robert Anderson-authored document ("OPERATION SCHOOLHOUSE: Rough First Draft of Statement for Five Elementary Schools") that is archived at Harvard. (Records of the Harvard-Boston School Planning Project.)

Schoolhouse, whose director acknowledged that "a serious—sometimes scandalous—gap existed between what goes on in schools, and what could be going on in schools" (ibid.),[10] has SUPRAD roots, with Robert Anderson and his Harvard colleagues never doubting that SUPRAD pedagogy provided what late-sixties American educators needed, namely "the insights, the resources, and the skills. . . necessary to the development of appropriate and efficient school programs" (ibid.).

Operation Schoolhouse's SUPRAD roots are especially evident when the author of "The New Georgetown Elementary School"—in discussing "the sorts of schools that will be needed in Boston" (ibid.)—stresses the importance of differentiation: "If any one phrase summarizes the stated goal of modern education, its central thought would be 'individualization of instruction'; the fulfillment of each unique child's inborn potential for intellectual, social, physical, and civic accomplishment" (ibid.). While the stated goal of late-sixties education may or may not have been individualization of instruction, such individualization was certainly the *shared* goal of SUPRAD educators including those responsible for Operation Schoolhouse. "[S]chools," we read in "The New Georgetown Elementary School,"

> must increasingly concern themselves with children in the roles of students (i.e. learners, each with perhaps a different style of learning and each requiring somewhat different opportunities and treatment). Consequently, teachers must revise their own roles in order to insure that the intellectual climate and the resources of the school will be appropriate and adequate. (Ibid., I-2)

This endorsement of individualized instruction is found alongside endorsements of two other SUPRAD practices, first, recognition in lesson planning of "the implications for education of rapid developments in the world of science," second, "teacher specialization [that acknowledges] the impossibility of any one teacher possessing all the knowledge, skills, viewpoints, experience, and personal resources, upon which children must draw" (ibid.). These three practices reflect one belief: that educators must attend to distinctions among and between people, and not just people but those people's surroundings as well, with Space Age educators recognizing in the latter case that the Space Age, with its "rich technological world" (ibid.), is unlike earlier periods. From this emphasis on differentiation emerge various classroom innovations, including nongraded classes (acknowledging age-group differences in ability) and teaching teams (acknowledging differences

[10] This line alludes to Francis Keppel's 1956 claim that his proposed SUPRAD project would help "close the gap between educational ideals and educational realities." (1956a, P. 2).

in teacher skill and experience). “The basic ‘grammar’ of schooling. . . has remained remarkably stable over the decades,” David Tyack and William Tobin write, adding:

> People are accustomed, for example, to elementary schools that are divided into *grades* in whose *self-contained* and *coeducational* classrooms pupils are taught several basic subjects by a *single teacher*. (1994, p. 454)

Georgetown Elementary is very different from the schools described here, resembling them only in having coeducational classrooms. Construction of Georgetown Elementary, we read in “The New Georgetown Elementary School,” will mean “replacement of graded school structure and policies with a more hygienic and flexible arrangement for vertical progression of pupils; and the abandonment of self-contained classrooms in favor of cooperative teaching” (Anderson, 1969, p. II-1)—changes that radically revise the traditional grammar of schooling. Specifications for the Georgetown Elementary School also include a number of non-standard architectural features, “houses” and “team centers,” for example, a design scheme that sees each “house” divided into two or more “team centers”:

> Each four to six-classroom team center will probably have a total space of about 10,000 to 12,000 square feet. Within this space would be incorporated the general areas for instruction with a teacher working with a group of pupils, a common learning area, access and exit spaces and routes, storage of supplies, books and equipment (to some extent in fixed storage spaces, but more commonly in movable storage cabinets), toilet spaces, refrigerated drinking fountains, display areas on the fixed and movable walls (Ibid., p. VI-5)

A theme of *ad hoc* transformation echoes throughout the passage above, where not only storage cabinets but bookshelves are described as movable. The emphasis on transformation reflects the implementation of a nongraded team teaching program because such a program requires spaces suitable for groups of different sizes, groups, moreover, doing different things. *Adhocery* as a design principle enters the picture because the designers of Georgetown Elementary can’t predict the learning activities transpiring in a team center, i.e., how many students will be interacting with how many teachers to what ends. In this sense, flexibility is a response to uncertainty: not knowing what will happen, one designs for many possibilities: “Since the pupils in this school will be assigned to classroom clusters, and class groups need not be directly based on age or grade status, and since all furnishings and equipment will be similarly flexible, the plans that

follow can be adapted to almost any enrollment distribution that may occur in future years" (ibid., p. VI-1).

As its design suggests, Georgetown Elementary was planned as a SUPRAD school compatible with SUPRAD programming. Still other connections to SUPRAD pedagogy emerge if one compares Georgetown Elementary to another SUPRAD school, Lexington's Grove Street Elementary School. In March, 1959, educators working on the Franklin School team teaching project began to design an elementary school purpose-built for team teaching, undertaking as a first step a series of fact-finding missions to places "where kindred enterprises are in operation" (Anderson, 1959a, p. 7). As these missions indicate, the Franklin School project was just one of many late-fifties team teaching projects, indicating Space Age educators' interest in innovation in general and SUPRAD ideas in particular. While Grove Street Elementary School may or may not have been the first school specifically designed for team teaching (although it probably was), it *was* the first school purpose-built for SUPRAD programming. School architecture for team teaching is premised on a belief that uniform classroom shapes and sizes are counterproductive, primarily because they hinder division of a class into groups of different sizes.[11] According to a 1961 EFL report on Grove Street Elementary School, "There appear to be two basic approaches to the problem of providing the different sizes and kinds of space that team teaching needs" (p. 40). What are these two basic approaches?

> [1] Creating space that can adapt to different educational demands because there are no walls. . . or because the walls can be moved.
>
> [2] Creating different kinds of permanent space to accommodate the different needs of team teaching. (Ibid.)

Grove Street Elementary, the report explains, deploys both these approaches: "Some of its walls will move, but it provides for the team teaching program mainly by the design of special spaces for large, regular, and small groups" (Ibid.). This passage, in presenting Grove Street Elementary School as a hybrid team teaching school, where some rooms are transformable while others are of a fixed but irregular shape,[12] identifies the school as precursor to West Roxbury's Georgetown

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[11] "[A] conventional building operates against the efficient working of a team program." (EFL, 1961, p. 40).

[12] Grove Street's hybrid design reflects its being what EFL calls as a "reconvertible school" (1961, p. 42), that is a school that "[although] designed around an existing team teaching program. . . also had to be designed to work for a conventional school program." (Ibid.). Grove Street's reconvertibility spoke to Lexington school officials' anxiety that team teaching would prove a flash in the pan.

Elementary School, where all classrooms can be transformed by moving a partition. And Grove Street resembles Georgetown in other ways as well, with both schools including not only rooms for individualized learning, but also what EFL's Grove Street Elementary report calls a "team work space. . . [housing] materials for making slides and transparencies for large screen projection and tape recordings for language work, a teachers' library, a storage space for films and other materials and devices that might aid the instructional process" (ibid., p. 42). Beyond these similarities, both schools also have classrooms "equipped with instructional materials and devices that go with a particular subject" (EFL, 1961, p. 41). It would be misleading to present Georgetown Elementary as a carbon-copy of Grove Street Elementary. That said, the schools have much in common, not just the design features described above, but also an instructional program reliant on team teaching, large- and small- group classes, and individual learning. These commonalities are easy to explain: both schools were products of SUPRAD pedagogy.[13]

In his report on the proposed Georgetown Elementary School, Robert Anderson presents the school as a social good, arguing that well-designed schools contribute to the development of the United States:

> Schools in America are presently in a state of unprecedented ferment and change, and present-day educators are faced not only with some of the greatest challenges but also with some of the greatest opportunities that have ever existed in organized society. The public is increasingly conscious of the school's role in the development not only of individuals but of nations. (Anderson, 1969, I-1)

How, in Anderson's view, can present-day educators help develop individuals (and so nations)?

> As never before, modern educational practices recognize the vast diversity that is found among individuals. It seeks to respond to that diversity rather than to diminish and reject it; and it aims to render each individual capable of taking responsibility for his own education not only in later life but during the process of schooling. (Ibid., I-2)

For SUPRAD educators, their pedagogy is tailor-made for diverse student populations, primarily because unlike assimilationist pedagogies that ignore difference, SUPRAD pedagogy "responds" to diversity through provision of individualized instruction, a foundational SUPRAD practice,

[13] SUPRAD initially had a Committee on School Architecture, "for the purpose of discussing problems of school architecture as they related to the construction of new buildings in the three cooperating communities" (Brown, 1957, p. 1), but the committee disbanded within a year.

and one that was increasingly emphasized over time. When in September, 1963, Neil Sullivan informs Francis Keppel that SUPRAD's nongraded program was receiving "its most severe test" (p. 1) he is speaking to the challenges of adapting the program to meet the needs of students Sullivan would later call "normal, though intellectually starved, children" (1965a, p. 108). The Prince Edward County test, however, was small-scale compared to the "Boston test," launched in September, 1967 and designed to assess whether SUPRAD programming could transform a large American city. Did SUPRAD educators really see their pedagogy as transformative? In March, 1966, Evans Clinchy, director of Boston's Office of Program Development (and formerly EFL's editorial associate[14]), released a report, "Preliminary Educational Specifications for the Central Boston Secondary Education Complex," that described an Operation Schoolhouse educational park, a facility, Clinchy writes, "designed to serve, at least in part, all of the various education needs of urban high school youth and the needs of all sections of the urban community" (1966, p. 1). Planned as a "significant step forward in American education" (ibid.), the proposed complex, in Clinchy's words,

> will attempt to provide a flexible, individualized program for every student. . . The school will be nongraded in the sense that there will be no "tracks" labeled "academic," "general," "business," etc., and no rigid distinction between grades such as freshman, sophomore, junior and senior. Students will progress through the school and take courses as their ability and achievement dictate. Thus a student's progress will be individualized, with large amounts of his time given over to independent projects and independent study in labs, resource centers, etc. (Ibid., p. 5)

With its welcoming nods to individualization and flexibility, this passage follows the SUPRAD script of linking these traits to effective schooling. Where Clinchy goes off script is in the claims he makes for such schooling: "What is outlined here, in short, is a plan not only for a 5,000 pupil high school, but a plan for the first urban educational complex to attempt to provide for both the educational and the community needs for a large American city" (1968, p. 8). In Clinchy's view, a 5,000 student Boston high school would meet the educational needs of Boston in two ways, first, by educating secondary students from all areas of the city, second, by serving as model for other Boston schools, at elementary and junior high level, inspiring them to similarly implement such SUPRAD practices as nongraded classrooms and team teaching. "I have a suspicion that

[14] Clinchy as educational associate is credited with "preparing" five Educational Facilities Laboratories reports.

our project is in some ways unprecedented," Robert Anderson wrote of Operation Schoolhouse in 1967, citing the "magnitude" of the project. (1967d, p. 1). Had Anderson's project succeeded, it might have transformed American education. But it didn't.

The Unwinding of Operation Schoolhouse

On September 21, 1971, two weeks after the Joseph Lee school opened with 200 white families boycotting, the Boston School Committee rejected a busing plan (which the committee had itself accepted one month before) that would have ensured racial balance at the Joseph Lee. "The decision came on a 3-2 vote of the committee at a meeting before some 400 parents at the auditorium of one of the schools involved. . . Most of the parents cheered the decision" ("Boston School Bus Reversal," 1971, p. 12). Education commissioner Neil Sullivan's displeasure with the school committee's decision was expressed both in words ("Neil V. Sullivan said he was 'completely amazed' and 'greatly disappointed' by the school committee's reversal" ["Boston School Committee," 1971, p. 31]) and actions as Sullivan rescinded two-thirds of a $21.3 million bonus Massachusetts had granted Boston as reward for opening a racially balanced school. In the next six months Sullivan denied Boston another $11 million in state funding, while threatening to withhold "at least another $150 million in state school construction aid" (Rosenbloom, 1972, p. 1). "[The racial imbalance] law has been ignored by the Boston school committee since it was enacted," Sullivan said in December 1971, observing that Boston schools were becoming *more* racially imbalanced. ("Boston School Bias," 1971, p. 22). Sullivan's anger and disappointment spoke to his previous hope that Boston, with his department's assistance, could "eliminate racial isolation" (92 Cong. 1971, p. 399). As Sullivan explained in a June, 1971, congressional hearing: "[It] is the educators and the school committee members of a community—with outside technical assistance—who are best able to develop and implement a plan for the elimination of minority group isolation which will be optimal for the local situation" (ibid.).

Ten months after the troubled opening of the Joseph Lee School, Neil Sullivan resigned as Massachusetts Education Commissioner, "[reserving] his strongest criticism in his resignation statement for the members of the Boston School Committee. . . [deploring] the fact that in his opinion they used the office only as a political stepping stone" ("School head Sullivan," 1972, p. 3). Sullivan's defeat could not have been more complete: not only were most Boston schools racially unbalanced, but Sullivan had been named in a lawsuit (Morgan v. Hennigan) filed by the

Boston NAACP on behalf of the city's African American parents. The NAACP lawsuit, filed in March 1972 and decided in June 1974, was the most consequential act in the Joseph Lee School drama, a demoralising finale that featured Francis Keppel's return to public life.

On June 21, 1974, District Court Judge W. Arthur Garrity issued a ruling in the case of Morgan v. Hennigan, affirming that the Joseph Lee School had indeed been ground zero in the Boston School Committee's war against integrated education:

> The defendants acted in such a way as to lead all parties concerned to believe that it would not compel [white] pupils to attend Lee. It did virtually nothing to encourage the parents of those students to send them to Lee, even when it became inevitable that Lee would open racially imbalanced if those students were not in attendance. The intent of the defendants was apparent all along: they never intended to take the initiative in seeing that Lee would open racially balanced. (Garrity, 1974)

Judge Garrity's depiction of the Boston School Committee as duplicitous quasi-segregationists is in line with Neil Sullivan's December, 1971, observation that the school committee had been ignoring the Racial Imbalance Law "since it was enacted" ("Boston School Bias," 1971, p. 22). Both Garrity and Sullivan, then, saw the Boston School Committee as acting outside the law; but unlike Neil Sullivan—who resigned in despair—Garrity could not only cite the Massachusetts Racial Imbalance Law, he could enforce it. In his June, 1974, ruling, Garrity argued that both the Boston School Committee and the Massachusetts Department of Education had an "affirmative obligation" to reverse their "unconstitutional conduct" (p. 57), with the most impactful section of Garrity's decree clarifying what such a reversal might look like: "busing, the pairing of schools, redistricting with both contiguous and non-contiguous boundary lines, involuntary student and faculty assignments, and all other means. . . must be evaluated; and, if necessary to achieve a unitary school system, they must be implemented" (Ibid.). In September, 1974, three months after Garrity's ruling, the Boston School Committee adopted a desegregation plan based on redistricting and involuntary busing, likely doing so aware the plan would trigger what a 2006 *Boston Magazine* article would later call Boston's most "shameful period":

> Busing, as everyone knows, ignited Boston's most tumultuous, violent, and shameful period of the 20th century. White adults hurled rocks that shattered the windows of school buses carrying terrified black children—and the illusions of a city that for centuries held itself up as a beacon of tolerance and justice. (Wolfson, 2006).

More than a few authors argue that Boston's mid-seventies descent into violence and division arose from the vexed opening of the Joseph Lee School: "It all could have turned out differently but for a single switched vote at a Boston School Committee meeting 33 years ago. That vote sent the city down a path from which there was no turning back, a path that led directly to all the violence and humiliation" (Ibid., 2006). [15] Contrary to the claim made here—that there was "no turning back" from the September, 1971 vote—another path was available, one belatedly taken in 1975.

In February 1975, Judge Garrity appointed four "masters" to "conduct hearings on the numerous school desegregation plans that have been proposed" (Doherty, 1975, p. 1). The best known of the masters was Francis Keppel, who as a Civil Rights activist since the mid-sixties[16] had both personal and professional reasons for working to rescue Operation Schoolhouse. Judge Garrity's masters, we read in an article announcing their appointment, were to be aided by two experts, one of whom, Robert Dentler of Boston University, later co-wrote a book on the Boston desegregation debacle (*Schools on Trial*, 1981). Dentler's book presents Operation Schoolhouse (a name not used in Dentler's book) as a struggling but salvageable magnet school project: "The masters," Dentler and his co-author write,

> agreed with the magnet concept. They thought it fit well with the educational history of Boston, where such schools had flourished for many years. They viewed the concept as one that gave them an opportunity to adopt features of the committee plan for inclusion in their own design. They believed that if these schools were fostered, they could become demonstration programs for other schools in the system and thus contribute tellingly to the upgrading of instruction. (1981, p. 123)

In their final report, the masters recommended establishing a Boston-wide "magnet district" which, the report argued, would "constitute the source of dynamism toward quality desegregated education for the total system" (ibid., p. 127). Partially realized, this district eventually included several Operation Schoolhouse-designed schools, most prominently Madison Park High School, a "campus park for public school facilities" (ibid., p. 131) that opened in 1977 and was in 1980 37% white, 48% black, and 15% other minority, "a ratio nearly identical to that of all students

[15] John Wolfson's article was first published in 2004.
[16] In 1965, Keppel published "The Emerging Partnership of Education and Civil Rights," arguing that "the energy and talent of the civil rights movement must now be channeled to help educators and communities solve the hard, day-to-day problems of making integration and equal opportunity in education a reality." (1965c, P. 204).

enrolled in the system" (ibid., p. 133). "With few exceptions," Dentler and his co-author report, "the magnet schools in Boston have achieved substantial successes. They are desegregated, they have an overabundance of applicants, they are peaceful and safe" (ibid., p. 140).

Depending where one chooses to end it, the story of Operation Schoolhouse can be a narrative of success, failure, or a mixture of both. To end the story in the months leading up to the Joseph Lee School's opening is to celebrate a Space Age facility "so unusual. . . that its steel-framed profile varies with nine different roof levels having more than 100 different roof slopes" ("Joseph E. Lee School," 1971, p. 16). To end the story on the Joseph Lee's opening day is to spotlight a troubled school, racially unbalanced because rejected by whites: "Only a handful of the 396 white children reassigned to the Joseph Lee Elementary School as part of Boston's move toward racial balance in the schools showed up there today, the first day of the new school year" ("Whites Balk," 1971, p. 57). However, to extend the story of the Joseph Lee School into the late-seventies is to offer a hopeful narrative, where the Joseph Lee, like other Boston magnet schools, is an effective and appealing school. "The Lee is a good school, according to anyone you ask who knows anything about it. If you visit the Lee. . . people will tell you how much they like being there" ("The Lee School," 1977, p. 3).

SUPRAD and the End of the Space Age

Writing in 2014, Matthew Tribbe links the end of the Space Age to a sense among Americans that progress was a thing of the past. "By the early 1970s," Tribbe writes,

> when NASA should have been celebrating its triumph and proudly counseling other ambitious programs and organizations on how to adapt its winning methods to myriad other causes and concerns, it instead found itself facing an increasingly antagonistic cultural environment in which growing numbers of Americans began to contest rather than embrace the values and vision of progress the space program embodied. (2014, p. 5)

In offering a requiem for the Space Age, Tribbe cites *New York Times* science reporter John Noble Wilford, who in December, 1972, in the wake of the final Apollo mission, published a piece on (to quote Wilford's title) "the meaning of Apollo" (p. 21). The meaning of Apollo, Wilford wrote, is two-fold, first, humans explored beyond their own planet, and second, humans, in Wilford's words, "discovered earth. . . turn[ing] an abstract idea into an emotional perception"

(ibid.). These achievements notwithstanding, the Apollo program, Wilford argues, "was out of step with its times":

> For all its vaunted technology, it was somewhat old-fashioned, a reflection of America past more than of America present. Apollo was an expression of faith in the value of scientific discovery in a time of reaction against science, even against rationality. Apollo was an act of can-do optimism, of a belief in progress, in a time of reigning pessimism. Apollo was the work of a dedicated team, pursuing a well-defined goal, in a time of bitter confusion of national purpose. (Ibid.)

As does Tribbe, Wilford presents the Space Age—the past in Wilford's telling—as an age of optimism, when Americans saw empiricism as deployed by teams of scientists (e.g., NASA) as the key to a prosperous future. This sentiment, for both Tribbe and Wilford, had vanished by the early-seventies by which time, in Tribbe's words, "the technocratic rationalism that Apollo so well represented had begun to lose its exalted position in American society" (p. 221). Why did this happen? If in Tribbe's view 1970s "neo-romanticism" (2014, p. 21) replaced rationalism, other historians link the end of the Space Age to the waning of Cold War hostilities ("Détente, perhaps, diminished the determination behind human exploration" [McNeill, 2008, p. 7]) or to multidimensional American decline ("Astronauts nibbling on thousand-dollar tubes of exotic snacks in space did not sit well with an American society struggling with urban crime and racial tensions, social injustice and rural poverty" [Benjamin, 2004, p. 21]), or to the ongoing Vietnam war ("President Nixon's early 1970 decision to follow the least ambitious of the three alternative options mapped out by Vice-President Agnew's recent Space Task Group report. . . constituted part of the short-lived anti-inflation policy pursued by the new administration in the contexts of continuing expenditure in Vietnam" [Carter, 1988, p. 233]). Whatever the cause(s), by the early-seventies the U. S. space program, with its visions of Mars colonies and atomic-powered spaceships, was considered by many Americans "a drain on the nation's reserves" (ibid., p. 226), that is, an unaffordable luxury for a country "learning to live with fewer resources" (McCurdy, 1997, p. 147). A key premise in this thesis is that SUPRAD was a product of the Space Age, raising the question: was SUPRAD's demise tied to the waning of the Space Age?

John Noble Wilford, comparing a Space Age past to an early-1970s present-day, describes the Apollo program as "the work of a dedicated team pursuing a well-defined goal" (1972, p. 21). Given this team's "faith in the value of scientific discovery" (ibid.), what Wilford

is describing is a team of technocrats ("specialists steeped in quantitative methods and values," in William Carleton's words [1965, p. 494]). If in the early-sixties the United States was for many Americans a prosperous technocracy guided by well-meaning experts, by the end of the decade it was a mismanaged technocracy guided by a discredited elite. Theodore Roszak, in *The Making of a Counter Culture*, spoke for disaffected late-sixties Americans:

> [In] the case of the technocracy, totalitarianism is perfected because its processes become progressively more subliminal. The distinctive feature of the regime of experts lies in the fact that, while possessing ample power to coerce, it prefers to charm conformity from us by exploiting our deep-seated commitment to the scientific world-view and by manipulating the securities and creature comforts of the industrial affluence which science has given us. (1969, p. 9)

Given their Harvard pedigree and claims of expertise, were SUPRAD educators seen by the public as devious technocrats? Educational park advocates were certainly seen this way. Indeed by 1967 more than a few congressmen were describing Harold Howe, well known at the time for his educational park advocacy, as the worst kind of social planner:

> Let me suggest that Mr. Howe is a veritable Clark Kent: one moment; he is a bespectacled, mild-mannered bureaucrat, but let him step out of sight of the Congress, and he hops into an ivory tower, rubs his magic daguerreotype of John Brown's moldering body, says the magic words "racial balance" and becomes "superplanner." Let me suggest, Mr. Speaker, that the Members of this House make the acquaintance of "superplanner" before our schools become sociological laboratories and not educational institutions. (113 Cong. Rec. 9113 1967)

There's a lot to unpack here, but to touch on a few points, the speaker (Representative Paul Fino) is contemptuous of Howe's (1) claimed expertise ("hop into an ivory tower"), (2) empiricism ("schools become sociological laboratories"), and (3) interest in organizing ("superplanner"). In brief, Howe is lambasted for being a technocrat, something one might expect a commissioner of education to be. The notion that educational park advocates were planners (or "superplanners"), deploying their expertise in pursuit of questionable goals, was widespread in the late-sixties, e.g.:

> Recently Dr. Donald J. Leu, an educationalist from Michigan State university, formally reported to the Chicago Board of Education on plans for the "cultural-educational parks." These complexes, he said, will focus "on innovation, experimentation and evaluation of

> educational change." He said very little about teaching any intellectual disciplines. . . We need restored community, not enforced collectivism—in our neighborhoods, in our work and in our schools. But the positivistic educational planners now capturing Chicago are bent upon collective mediocrity. (Kirk, 1967, p. 7)

Donald Leu and others *were* planning a large Chicago educational park focused on innovation and experimentation, and one suspects it was the planning aspect that most disturbed columnist Russell Kirk, who—like many right-wing pundits in the 1960s—associated large-scale planning with Soviet collectivism. More than a few 1960s attacks on educational park advocates derided the advocates as race-obsessed social planners, a critique that—however fanciful—had staying power.[17] Of course this attack on (one type of) technocrat seems very different from Theodore Roszak's scattershot attack, Kirk's critique coming from the right while Roszak's arrives from the left, but the two attacks share a sense of technocrats as button-pushers more concerned with process than results. As this suggests, technocrats by the late-sixties were no longer viewed as unruffled experts solving complex problems; now they were cold-hearted calculating-machines. (Roszak: "Technique must reduce man to a technical animal" [1969, p. 6]). Did this late-sixties reassessment of technocrats contribute to SUPRAD's failure?

In 1964, Robert Dentler, having defined the concept of "white bait" ("white citizens might be attracted to back education parks, where they oppose neighborhood school pairing, because the park package gleams so handsomely" [p. 22]), goes on to dismiss the concept as wishful thinking:

> Parents, like the rest of us, want more and better of everything, but in the case of public education, they want it at no increased cost and at no risk of further change in their intercultural relations. (Ibid., p. 23)

SUPRAD educators, in contrast to Robert Dentler, *did* believe in the efficacy of white bait, maintaining that (in Neil Sullivan's words) "As suburban school systems drew whites from the core city, so too can improved programs in inner city schools attract whites" (1971, p 18). But what if, *pace* Dentler, white bait is ineffective? One result is that the foundations of Operation

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[17] A 1967 anti-educational park flyer distributed to Berkeley parents concludes: "In summary, the words of Neil Sullivan of Berkeley and Harold Howe of Washington, D.C. leave no doubt as to their intention to use educational parks as a prize method to achieve total integration. One looks in vain for any consideration of the child, his well-being, his RIGHT to be an individual rather than a faceless non-entity in a dehumanized, de-personalized complex." (Anonymous, 1967, p. 1).

Schoolhouse crumble—leaving not rubble but a series of *de facto* segregated schools. The 1971 opening of the Joseph Lee School indicates that it was Robert Dentler rather than Neil Sullivan who best understood what white families wanted (zero change to "intercultural relations"). Were SUPRAD schools always imperfect desegregation devices, or did something change in American society between the early-sixties (when Nova and the Free Schools attracted white families[18]) and the late-sixties (when the Joseph Lee opened *de facto* segregated)? One thing that changed was that Americans came to distrust solutions underwritten by nothing more than a technocrat's claims. In a time of anti-intellectualism, it's difficult to spark enthusiasm for an integration plan devised by Harvard professors, let alone a plan requiring parents to put their faith in unfamiliar practices. For many reasons,[19] technocrats took a (figurative) beating in the late-sixties, and SUPRAD educators were among the injured.

Operation Schoolhouse as a Technocratic Project

As Operation Schoolhouse unfolded, both supporters and opponents saw the project as aimed in large measure at attracting white students to integrated schools. While this aim was in line with the publicly-expressed wishes of Boston officials, including the School Committee ("White families from all over the city will be informed of this unique school [the Joseph Lee] and encouraged to attend" [1966, p. 53]), others in Boston viewed the project's focus on white students as racist, seeing it as yet-another instance of Boston officials taking the city's African American community for granted.[20] Of these two groups, it is the latter that invites closest study, not least because its critique of Operation Schoolhouse—which posited Robert Anderson and his colleagues as out-of-touch theorists detached from the groups they purported to serve—was at heart a critique of technocratic thinking. In brief, if the late-sixties saw widespread criticism of technocrats as disengaged pseudo-experts, the criticism found favour with many members of Boston's African American community, both as a description of technocrats in general and as a description of Robert Anderson's team in particular. As Rowena Conkling, an African American

[18] In January, 1964, the Prince Edward County Free Schools had eight white students, including four from one family. (Sullivan, 1965a, p. 180).
[19] Steven Jones (2006), discussing "antitechnology attitudes" in the late-sixties, writes: "The enemy was the shadowy virtual 'machine' processing draft cards as well as punch cards, managing CIA operations and FBI files on 'subversives,' and *at the same time*, running soulless corporate capitalism and degrading the environment." (P. 181).
[20] "How can you plan schools for our communities without knowing anything about them?" one African American critic of Operation Schoolhouse asks in a 1968 letter to the dean of Harvard's Graduate School Education, adding: "This has, in fact, been one of the well-known deficiencies of the Boston system." (Conkling, p. 2).

Bostonian, explained in a January, 1968, letter to Theodore Sizer, dean of Harvard's Graduate School of Education:

> It came as a shock to learn how ill-prepared Harvard's Operation Schoolhouse is to cope with the new expectations of the black community. . . We heard Dr. Anderson say that the community had no useful ideas to contribute but he admitted that their only opportunity to discuss the matter had been when they were presented with a finished product. We heard Dr. Anderson say that an idea evolved by the community would not have a part in his plans unless it fitted into his preconceived ideas of what we need. (1968, p. 1).

These criticisms, spurred by Rowena Conkling's attendance at a January 10th, 1968, outreach meeting (organized by Robert Anderson) convey Conkling's sense that Anderson and his team have no interest in how their plans will impact Boston's African American students—the pupils Operation Schoolhouse is supposedly designed to help. Criticisms like Conkling's led in January, 1968, to formation of an "Ad Hoc Committee on Operation Schoolhouse Planning," a working group comprised of Harvard graduate students and junior faculty whose mission (to quote the group's manifesto) was

> [to address] itself not only to the problems and questions raised by Operation Schoolhouse, but also to the other situations in which Harvard, or any other university, attempts to plan with or study city residents who have neither formal nor informed access to power. (Ad Hoc Committee, 1968, p. 1)

As this passage suggests, the Ad Hoc Committee's mission turned both technocracy and Francis Keppel's Basic Document on their head, presenting the people Keppel calls "university scholars and intellectuals" (1956a, p. 9) as anything but experts on urban issues. (Conkling in her letter remarks: "Surely the black man is uniquely qualified to talk with and about black communities." [1968, p. 1].) As often happened in the late-sixties, technocrats are posited as out-of-touch, with their isolation shown to be self-imposed. What did Operation Schoolhouse's African American critics demand? Above all else, an end to paternalism. In Rowena Conkling's words:

> Surely Harvard must be aware that the people of the ghettos will no longer accept "We know what is best for you" handed down from above. We know that if it were really that easy the problems would have been solved long ago. The curricula, physical plant, and so on, come to nothing without the active backing of the community. This fact seems to have escaped Dr. Anderson completely. (1968, p. 1)

The Ad Hoc Committee, too, asked Robert Anderson and his team to *listen*:

> The ad hoc committee is agreed on the major theme to be derived from the Bridge meeting:[21] if [the Harvard Graduate School of Education] is to continue to work in the city, the Dean and others on the faculty must listen to and begin to hear the members of city communities who object so strenuously to traditional modes of experimentation and planning. . . In the simplest terms, many of the black parents not only want to participate in the planning of their children's schools, they want to initiate the planning and have direct influence over its subsequent progress. (1968, p. 1)

Technocrats in the late-sixties were criticized both for their fanciful concocting of theories and for their eagerness to impose their theories on society, a process seen as turning individuals and groups into experimental subjects.[22] Here those criticisms are directed at Operation Schoolhouse, a Harvard-led project that—as a late-sixties iteration of SUPRAD—*was* experimental in nature.[23]

To his credit, Robert Anderson was responsive to claims that his team was out of touch, not only engaging with the Ad Hoc Committee, but immediately asking the Committee (in the words of its first—perhaps only—*communiqué*) "to report on and submit recommendations on his [i.e., Anderson's] meeting at the Bridge the previous night" (1968, p. 1). As this request indicates, Anderson, either during or soon after the January 10th Bridge meeting, acknowledged his own disengagement from Boston's African American community, compelling him to ask the Ad Hoc Committee for advice. Did Anderson take the Ad Hoc Committee's recommendations seriously? A January 21, 1968, memo (addressed to Theodore Sizer) suggests he did. The Ad Hoc Committee's report, Anderson remarks,

> is obviously a reflection of earnest, honest, and well-intentioned work and thought on the part of colleagues whose concern is with an obviously urgent problem. . . Therefore let us look at the recommendations and what has led to them. First, the document proposes what seems to me to be an extreme reaction, the necessity of which I question. Several of the

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[21] The name reflects the meeting's having been held at a venue called The Bridge.

[22] E.g., California State Superintendent of Public Instruction Max Rafferty on two-way busing: "So-called 'liberals' are aghast at the mere suggestion that they will not be allowed under the new plan to force little children onto huge buses every day to act as sociological guinea pigs." (1968, p. 19).

[23] Robert Anderson in an April, 1967, letter to an official at U. S. Office of Education acknowledged that Operation Schoolhouse had no parallel: "Recently I was asked to head a task force, to be composed largely of my associates at Harvard, which will have the responsibility for writing the specifications and design requirements for some fourteen public school buildings in the city of Boston. This would be an awe inspiring assignment even for a group of professionals who are thoroughly seasoned in the field of urban school planning, so we are especially aware of our need for much insight and information." (1967e, p. 1).

> recommendations are excellent and practical, whereas others are impractical if not naïve. My first question, therefore, has to do with the amount and type of compromise the Ad Hoc Committee was or is prepared to negotiate with you and me, without violating some of its obviously valid assumptions about the legitimacy and urgency of significant local participation. (1968, p. 1)

While Anderson doesn't stipulate which Ad Hoc Committee proposals he considers an "extreme reaction," there are two likely candidates: first the committee's recommendation that "a series of drinks and dinner meetings [be] planned for the remainder of the academic year [to be] held at least every other week alternately in Roxbury and Cambridge" (Ad Hoc Committee, 1968, p. 1), second the committee's suggestion that "the community where a school is to be built should have the planning money that went to Operation Schoolhouse" (Ibid., p. 4). Neither of these proposals would have appealed to Anderson, the first proposal ensuring a ruinous slowdown of Operation Schoolhouse, the second guaranteeing Operation Schoolhouse's demise, but as the memo shows Anderson spent time considering them. That said, the key passage in Anderson's memo is one asking Theodore Sizer about "the amount and type of compromise the Ad Hoc Committee was or is prepared to negotiate with you and me" (Ibid., p. 1), a passage revealing Anderson's own willingness to compromise. So did Anderson and Harvard reach an agreement with the Ad Hoc Committee?[24]

The best evidence an agreement was reached is found in a confidential March, 1968, Operation Schoolhouse document awkwardly titled "A Proposal on How P.F.D.[25] and Harvard Get Into a Specific School Planning Program."[26] Outlining a three phase, eight step procedure, the document recommends that future Boston school planning projects emerge from discussions between universities (Harvard is not mentioned by name), Boston's School Department, and community representatives, variously called "community groups," "community coordinators" and a "community committee," with discussions described as resulting in a "community school

[24] There's an irony in Robert Anderson negotiating with Harvard colleagues to fix problems caused by technocratic overreach, but the Ad Hoc Committee arguably was speaking for the Roxbury community. The Bridge meeting, one 1968 newspaper article reports, "was arranged and moderated by James Reed, community liaison at Harvard, and an Associate in Education at the Harvard Graduate School of Education." ("Community fights Harvard."). James Reed was a member of the Ad Hoc Committee on Operation Schoolhouse Planning.
[25] Boston's Public Facilities Department.
[26] The document was revised by Ronald Jackson on March 13, 1968.

plan" (Schools Planning Project, 1968, pp. 1-3). As this abridgement suggests, community consultation features heavily in the proposal, with such consultation presented as ongoing:

> Phase 3. VIII. The School Department and the community formally invite P. F. D. into the community and site feasibility studies formally begin. (The community committee continues to meet and plan and work with the school department and P. F. D. (Ibid., p. 3).

If anything, this procedure demotes the Operation Schoolhouse team, who last feature in Step V of the eight-step procedure as part of the "school staff" (Ibid., p. 2). It's unknown whether this procedure was followed at any point during Operation Schoolhouse, but the procedure itself—with its heavy reliance on community consultation—testifies to Anderson's recognition that a technocratic process lacking community consent was a recipe for disaster.

During his time as Berkeley superintendent of schools, Neil Sullivan—Operation Schoolhouse's (mostly) silent partner—experienced some of what Robert Anderson experienced as director of Operation Schoolhouse, encountering similar resistance while promoting policies some in his city saw as (in Rowena Conkling's words) "handed down from above." As a result, Sullivan, in planning full integration of Berkeley schools, invited Berkeley residents to submit integration plans, all nineteen of which were subsequently discussed in a September, 1967 task force report (BUSD, 1967c, pp. 59-63). Unlike many late-sixties technocrats, Neil Sullivan was aware that proposals imposed "from above" invite resistance. This was a lesson Robert Anderson learned in 1968.

Conclusion: SUPRAD's Legacy

In January, 1959, twenty months after SUPRAD's launch, Francis Keppel drafted a memorandum to Clarence Faust of the Ford Foundation requesting an eight-year grant to allow Harvard to continue its SUPRAD project:

> This memorandum seeks the aid of the Ford Foundation for an eight-year program to pull together, to extend, and to find ways to insure continuing fiscal support for enterprises started over six years ago with the aid of the Fund for the Advancement of Education. Liberal arts colleges, a university graduate school of education, and school systems have begun to coordinate their efforts in recruiting and training able personnel, in improving the quality of teaching and administration, and in experimenting with the organization and personnel arrangements in the schools. These enterprises must be fused: each can be made to benefit from the strength of the others. (1959, p. 1)

Having requested $3 million, Francis Keppel and Harvard ultimately received $2.26 million over eight years, support meant to carry the program through 1967. As it turned out, SUPRAD as a Harvard-led experimental project ended in 1964,[1] with SUPRAD's final project being provision of design recommendations for a new Lexington elementary school.[2] The end of SUPRAD, however, did not mean SUPRAD educators no longer designed SUPRAD schools ready-made for SUPRAD practices. Under the guidance of Robert Anderson, SUPRAD— reborn as the Harvard-Boston Schools Planning Project—continued until 1972 when the collapse of Operation Schoolhouse extinguished SUPRAD educators' belief that their project would lead to (in Francis Keppel's 1956 words) "major changes in the policies and organization of American public education" (1956a, p. 4). Today SUPRAD is mostly forgotten, a precipitous fall from its early-sixties heyday. Contrary to Francis Keppel's early hopes, SUPRAD did not bring major changes to American education. What did it bring?[3]

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[1] Harvard University's SUPRAD collection is called "Records of the School and University Program for Research and Development, 1957-1964."

[2] Robert Anderson in a March, 1964, letter to Lexington's superintendent of schools, writes "Perhaps it would be even better were you to simply refer him (i.e., consultant John Bahner] to the publications of Educational Facilities Laboratories" (1964b, p. 1), suggesting that Harvard had started offloading some of its SUPRAD duties to EFL.

[3] It's noteworthy in this context that Operation Schoolhouse appears in the Harvard library catalogue as "Project Schoolhouse," a sign of its neglect. (https://hollisarchives.lib.harvard.edu/repositories/4/archival_objects/3123950).

The few authors who address this question in even a peripheral way do so through consideration of Educational Facilities Laboratories's legacy. One of these authors, Malcolm Gladwell, credits EFL with several widely-adopted improvements in school design: "It was EFL. . . that pushed successfully for the use of carpeting in new school construction, which made classrooms quieter and easier to clean. It was also the group responsible for the move to build schools with air conditioning" (1994). If Gladwell here downplays EFL's legacy (sooner or later schools would have been built with carpeting and air conditioning), another author, Amy Ogata, credits EFL with a more significant achievement: encouraging educators to think seriously about the implications for learning of school design decisions.

> EFL facilitated the notion that buildings had to change to meet the shifts in educational research and the debates and conversations around education and school building in postwar America. With the conviction that children could meet their potential in spaces designed to enhance their experience of learning, the group ceaselessly promoted new spaces and new forms for the American schoolhouse, along with the furnishings and technology that raised the educational standard. (2017, p. 66)

As I did in Chapter Four, Amy Ogata presents SUPRAD educators as Space Age progressives, depicting them as Dewey's descendants in their insistence that educators look objectively at what does and doesn't work in a classroom (while including in their assessments the classroom itself). Ogata argues that SUPRAD educators taught people to take an interest in (to borrow the title of an EFL report) educational change and architectural consequence, i.e., the relationship between a school's instructional program and physical design.[4] Another author interested in EFL's legacy is Judy Marks, whose "The Educational Facilities Laboratories (EFL): A History" (published 2001) is the only in-depth study to date of EFL—an organization Marks introduces with enthusiasm:

> Over its 28-year existence, EFL spurred innovation in school architecture by sponsoring research projects and programs, holding conferences, and awarding grants to thousands of school districts, colleges, and nonprofit organizations throughout the United States and Canada. Committed to spreading the word of such advancement, EFL distributed more than two million copies of its publications on research, experimentation, and emerging trends. (2001, p. 1)

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[4] In Ogata's words, SUPRAD educators believed "children could meet their potential in spaces designed to enhance their experience of learning." (2017, p. 66).

In making her case for EFL's importance, Marks catalogs a number of EFL ventures, detailing in doing so EFL's increasing awareness of the benefits a well-designed school can bring to students and their community:

> Other innovations included joint use and mixed occupancy of buildings, convertible dormitories, quieting the schoolhouse through carpeting, cooling it through air conditioning, improving school furniture design, developing new products such as artificial turf and soundproof moveable partitions. . . Other issues included recycling and converting school buildings, developing community school centers, increasing citizen participation in planning processes, preparing for technological advances in communications and education, and conserving energy through more efficient building design and management. (Ibid, p. 4.)

"[The] most significant of its accomplishments," Marks adds, "was EFL's ability to bring architects, designers, fabricators, moguls of the construction industry, educators, and school personnel to one table for the express purpose of improving the function and quality of school facilities" (ibid.). Focusing in her study on the Harold Gores period (1958-1976), Marks makes the case for EFL's being a combination of think-tank and test-site, where new school forms were imagined and then trialed. In Marks' opinion, the most important EFL invention was the open plan school, a configuration, Marks observes, "that influenced the basic design of thousands of schools during the 1960s and early 1970s" (ibid.):

> Instead of schools with dozens of identical, boxy, fixed classrooms, which Gores referred to as the "egg-crate plan," schools were planned with large, open, flexible spaces that could adapt to changing educational needs. . . EFL's work in open plan schools was developed in response to changing pedagogical theory and practice. This held that children should be allowed to learn in ways suited to their individual differences and that school was best conducted by teachers working collaboratively with each other—that is, through team teaching. (Ibid.)

For Judy Marks, then, as for Gladwell and Ogata, EFL was something of a tinkerer's workshop: an incubator of trial-and-error innovations. Hinted at in Marks description is that EFL was one part of a larger school reform movement, a movement from which practices like individualized instruction and team teaching emerged. SUPRAD, however, is unmentioned in Marks's history of EFL.

To the extent Educational Facilities Laboratories was a SUPRAD offshoot, all of the innovations discussed so far—soundproof partitions, open plan schools, even AstroTurf—are part of SUPRAD's legacy. But SUPRAD's significance does not rest on EFL's achievements alone. Team teaching, the most widely-adopted SUPRAD practice,[5] was conceived of prior to EFL's existence. The educational park concept, too, arguably emerged from SUPRAD, although EFL certainly played an important role. Of course it might be argued that neither team teaching nor the educational park remade American education, but any conversation about SUPRAD's legacy must include discussion of these two Space Age innovations.

Team Teaching

Writing some forty years after SUPRAD, Anthony Jackson and Gayle Davis describe teamwork as an essential aspect of effective teaching:

> For teachers, teams provide the kind of collaborative work group that is increasingly viewed as vital to organizational productivity across a wide range of professions. . . The shared insights, critique, conjecture, search for evidence, discussion of lessons learned, prodding, probing, and small celebrations of success that permeate the conversations of effective teams are the primary means by which teachers create their professional knowledge about teaching. (In Wild, Mayeaux, and Edmonds, 2008, p. 11)

If Jackson and Davies present teamwork as an important source of information on *how* to teach, other teacher-educators—while affirming the claim—describe teaching in a team as providing lessons on *what* to teach:

> As a team, we hold each other accountable for the rigor and high expectations of all classes. We have a deep understanding of our individual subject specialties, but we also know each other's content. We review lessons and assessments for evidence of engagement and authentic connections. . . As administrators, school districts, and state and federal policymakers search for ways to help students and teachers reach higher expectations, they should look to teaming for an effective system of checks and balances. (Ibid., p. 151)

[5] "SUPRAD is best-known for its experiments with team teaching, which has already spread to 50 communities, with another 300 planning to introduce it soon." (Ferrer, 1962, p. 30).

Discussing their experiences with team teaching, many non-SUPRAD teachers corroborate claims Francis Keppel first made in 1956. One Keppel claim, echoed in the passages above, speaks to the close relationship between team teaching and professionalism:

> For the teachers, there are a number of potential advantages in the team arrangement. Group planning would result in the sharing of ideas. The most competent teachers might directly influence more of their colleagues and much larger numbers of pupils than has been possible under the traditional organization. Each junior teacher could expect to receive far more effective direction because of close working relations with his seniors. (1956a, p. 49)

As conceptualized and practiced today, then, team teaching is in many ways a SUPRAD legacy, implemented—as at the Franklin School—so teachers can learn from and teach one another. In other ways, however, team teaching has evolved since Francis Keppel's day, losing its soldierly quality as teachers collaborate as equals, rather than as members of a chain-of-command (junior teachers, senior teachers, etc.). Here is how members of a post-SUPRAD teaching team describe their team's structure:

> We respect each other enough to know that each of us has strengths and weaknesses. For example, Amanda does not have great organizational skills, but she is very good at managing instructional time allotted for special projects, so we usually call on her to create schedules. Math is not Monique's forte, but she often critiques word problems for fluency. Neither Amanda nor Monique is good at keeping up with the various forms and records required of teachers. However, Kathryn fills this void beautifully. The strongest collaboration comes when we realize how much each of us can contribute to the greater good. (Wild, Mayeaux and Edmonds, 2008, p. 3)

These procedures are in line with key SUPRAD beliefs about the benefits of team teaching, most importantly the belief that team teaching allows each teacher to teach to his or her strengths—a belief expressed in a SUPRAD-developed[6] book on team teaching:

> Team teaching provides an organizational vehicle for specialization in teaching. A team for an elementary school may consist of teachers in complementary skills, such as an expert in reading, one in social studies, and one in mathematics and science. At the secondary level teachers of a single subject like English may develop specialties within that subject and

[6] *Team Teaching* (1964) includes chapters by Judson Shaplin, Francis Keppel, Robert Anderson, and Cyril Sargent.

> may become experts in grammar, literature, language, or other disciplines. Such specialization may lead to improvements in instruction and to more effective use of teaching talent. (Shaplin and Olds, 1964, p. 18)

Francis Keppel promoted team teaching for a very different reason, namely that a hierarchical staff structure—one with rewards (prestige, higher salary) for those at the top of the structure—would attract "first-rate people" (1956a, p. 12) to the teaching profession.[7] The disappearance of this rationale in writings on team teaching reveals that a SUPRAD practice can be repurposed to new ends, not because old ends become irrelevant (although they might) but because conditions change (e.g., a technocratic age of hierarchies is over). In any case, team teaching has been used in many settings—K-12 schools, colleges and universities, vocational schools—becoming as a result SUPRAD's most important artefact.

The Educational Park Concept

Between 1959 and 1971 five SUPRAD schools were built: Wayland Senior High (1959), Grove Street Elementary (1961), Estabrook Elementary (1961), the Nova School (1963) and the Joseph Lee Elementary School (1971). Each designed for what Neil Sullivan called SUPRAD's nongraded program, these five schools were distinguished by their 'flexibility,' with each school having, among other things, classrooms equipped with movable partitions allowing subdivision into smaller spaces. While not open plan schools *per se*, the five schools were stepping stones towards open plan schools, a type of school characterized in a 1972 EFL report as "composed of broad expanses of enclosed space unbroken by walls. Their clear-span interiors, usually carpeted and air-conditioned, are subdivided into smaller, discrete areas by the use of movable panels and screens, plants, or rolling casework" (p. 65). Several authors credit SUPRAD (by way of EFL) with developing the open plan school model,[8] and while this might be an exaggeration, SUPRAD educators did invent at least one school form: the educational park.[9] From the early days of their program, SUPRAD educators like Harold Gores were committed to the idea that (as a 1960 EFL

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[7] In his Basic Document, Francis Keppel observes that team teaching plays to teachers' unique strengths: "There is a greater likelihood that [the student] would be with each teacher in those situations in which the teacher would be doing things he is most competent to do." (1956a, p. 49).

[8] E.g., Malcolm Gladwell: "EFL's legacy, in the end, was mixed. Astroturf, of course, was a bust. . . So was another of EFL's pet ideas, the open classroom concept in school design." (1994).

[9] Max Wolff first discussed the educational park concept during a July, 1963, lecture at Adelphi College. ["Suburb race session," 1963, p. B9]). By this time Nova, identified as an "educational park" in numerous newspaper articles between 1960 and 1963, was nearing completion. Wolff, however, *did* conceive of the integrated educational park.

report maintains) "Educational form invariably has architectural implications" (1960d, preface). This axiom brings together a number of SUPRAD adages usually expressed at greater length, as happens here: "[S]choolmen and school boards are asking whether the school can be designed to accommodate itself easily and immediately to changing arrangements of children and the consequent redeployment of staff. Can there be small spaces where individual children may on occasion and in partial privacy pursue knowledge on their own?" (Gores, 1959, p. 155). Harold Gores and his SUPRAD colleagues answered these (and similar) questions affirmatively, arguing that not only *can* schools be designed to meet evolving instructional and organizational needs, they *must* be:

> Central to the design of space for teaching and learning is how the persons involved, adults, and children, are to be deployed. If the custom continues of arranging children in uniform class groups of 25 to 35 or more children to be taught by one teacher, unaided and alone, then the schoolhouse will continue typically to be a series of uniform classrooms. . . If, on the other hand, schools move toward arrangements of pupils and teachers that vary from the solitary teacher in her solitary classroom, the arrangement of spaces will vary accordingly. (EFL, 1960a, p. 128)

For SUPRAD educators, the educational park was the ideal school form because it allowed for implementation of *all* SUPRAD programs: team teaching, nongraded classes, large- and small-group instruction, etc. In May, 1962, Cyril Sargent of Harvard's Graduate School of Education[10] issued the "Sargent Report," a 300-page report offering "recommendations for a modern school plant for the City of Boston" (Boston Redevelopment Authority, 1962, p. viii). Described in a September, 1962, *Boston Globe* editorial as "an important milestone for all Hub parents" ("The Sargent report," p. 22), the Sargent Report recommended (among other things) construction of a "city-wide campus high school" to be completed in 1965 and "designed initially to house 3,100 pupils" (Boston Redevelopment Authority, 1962, p. xiv). Meant to educate all of Boston's high school students, and planned as a series of "houses" each with 200-400 students, Cyril Sargent's proposed campus high school, "with its variety of specialized programs and facilities" (ibid., I-43), shared many features with the prototypical mid-sixties educational park, most obviously its large size and central location, but also—and more importantly—its serving students from all

[10] Cyril Sargent later worked as a program specialist for Educational Facilities Laboratories.

parts of a city.[11] Whether or not Cyril Sargent's campus high school met the accepted definition of an educational park, it was to be Boston's answer to such a park, something Robert Anderson and his Operation Schoolhouse team recognized at once. In February, 1968, Peter Capernaros, a member of the "Operation Schoolhouse Task Force," submitted a report to his colleagues, "Plan for Madison Park High School," which describes a 5,000 student centrally-located Boston high school organized into houses and meant to serve all the city's high school students. In effect, Capernaros updated Cyril Sargent's campus high school proposal in such a way that Sargent's proto-educational park becomes a full-fledged educational park, along Nova School lines but racially balanced. "What you see before you are a highly tentative description of the projected Madison Park High School," Capernaros's report begins. "In the basic essentials it ought to resemble the kind of school we have been talking about for some time" (1968, p. 1). What kind of school had Capernaros and his colleagues been talking about? Capernaros's report offers an answer:

> I shall assume that all those who read this document are familiar with the basic outline of the school. Some comments are in order, however, concerning the assumptions underlying my procedure.
>
> 1. INDEPENDENT OR INDIVIDUAL LEARNING: This plan for MPHS [Madison Park High School] has as one of its objectives the creation of the kinds of spaces which will allow for maximum individualization of instruction. . . In general, some flexibility must be built into any system of independent or individual learning, and into the spaces provided for such functions [. . .]
>
> 2. TEAM TEACHING: Team teaching, like individual or independent study, is a concept that may be interpreted or implemented in a variety of ways. In general, it refers to cooperative efforts among teachers in dealing with mutual problems of preparation, instruction, and evaluation. . . Team teaching may take place within the standard size classroom, but in addition increases the usefulness of alternative arrangements of students. (Ibid., pp. 2-3)

The first two assumptions Capernaros makes about the proposed Madison Park High School, then, are that its programming will emphasize individualized instruction and team teaching. As

[11] "Berkeley already has an educational park—Berkeley High School," Neil Sullivan wrote in 1967, referring to another high school serving students from all parts of a city. (1967b, p. 2).

Capernaros's discussion of these practices reveals, he also takes for granted that Madison Park High's design will facilitate individualized instruction and team teaching through provision of appropriate spaces. The weight this assumption holds is evident when Capernaros describes the types of spaces needed for team teaching:

> [L]arge and small group study spaces have been incorporated into this design, but in such a way that most of the spaces provided may be used for other purposes. . . The use of folding partitions is an integral part of the arrangement. Of the spaces assigned to each department, approximately 1/3 will be capable of readjustment to provide for large group (50-100 students) instruction, and approximately 1/3 will be capable of readjustment to provide for small group (15 or less) instruction). (Ibid., p. 3.)

Capernaros here details relationships between educational forms and architectural implications, with each relationship defined by maximization of flexibility. That said, similar relationships can be found in all SUPRAD schools, again[12] raising the question: Why is an educational park an exemplary SUPRAD school?

One reason emerges from 1960s educational park advocacy, which maintains that an educational park, because so large, can include features well beyond the capacity (physical or financial) of a smaller school. In Thomas Pettigrew's words: "[C]oncentration makes it possible to provide large-scale or special facilities that can be shared by all of the park's units; e.g., Olympic-sized swimming pools, extensive auditoriums, elaborate theatrical equipment." (1971, p. 118). Returning to Peter Capernaros's description of Madison Park High School, we find a number of large-scale or special facilities, not just a swimming pool and an auditorium, but also a resource materials center, a technology center, departmental centers, a planetarium, two gyms and a hockey rink. While some of these features are unrelated to SUPRAD programming, others are not, most importantly the resource materials center ("library space is provided for 1000. . . This kind of allocation will help to satisfy the needs of a substantial independent study program" [Capernaros, 1968, p. 7]) and the departmental centers (which include rooms for teachers to plan together). Reading Capernaros's report it's clear that SUPRAD educators appreciated the many options available in an educational park, where many grade-levels would be present, facilitating interage classes of various sizes. An educational park, we read in the BUSD's *Integrated Quality Education* (1968), "offers spatial flexibility of facilities for use by large numbers of individuals

[12] See pp. 191-195.

in a variety of ways" (p. 68). For SUPRAD educators, spatial flexibility was a key advantage of an educational park, allowing for organization of teachers and students in new ways.

SUPRAD educators developed the educational park concept inadvertently while imagining a facility suited to their programming. The best evidence for this claim is the history of the Nova School, an educational park built with EFL's assistance and designed to "utilize all the latest educational developments and techniques" (Hodenfield, 1963, p. d8). In addition to Nova, a number of planned but unbuilt educational parks show a SUPRAD influence, not just Berkeley's proposed park but parks as far afield as Chicago and the Northeast Bronx. In April, 1973, the *Akron Beacon Journal*, exploring the possibility of an Akron (Ohio) educational park, published an article on "similar ventures tried elsewhere" (Carringer, 1973, p. D1), which mentions a number of educational park projects, not only the three mentioned above (Berkeley, Chicago, the Northeast Bronx), but projects in Brooklyn, East Orange (N. J.), Cincinnati,[13] and Anniston, Alabama. Of the thirteen projects mentioned in the *Beacon Journal* article, detailed plans are available online for three—Chicago, Northeast Bronx, and Anniston—and together the three documents underscore SUPRAD's role in development of the educational park concept.

Described by its planners as a "cultural-educational park" (Leu and Candoli, 1968, p. A1), Chicago's proposed park was to be the city's principal means of "providing quality education and integrative experiences for a diverse racial, ethnic, religious, and social class population" (ibid., p. B1), twin goals shared by many educational park planners. Chicago's educational park, its planners explain, would not only "provide for controlled heterogeneity (economic class and race)" (ibid., p. D9), it would also (1) "feature experimental programs, evaluation, and diffusion of educational change" (ibid.), (2) "be staffed by teacher-paraprofessional teams" (ibid.), and (3) "work with local universities in the development of programs" (ibid.). A team teaching program guided by a local university is of course the SUPRAD model, raising the question: Were Donald Leu and Carl Candoli aware of the SUPRAD program? Likely not, although they were familiar with at least one SUPRAD school:

> Fort Lauderdale, Florida, currently enrolls students in an elementary school, a junior-senior high school, a junior college, a private graduate university and a regional media center on

[13] "Cincinnati received a $17,500 grant from Educational Facilities Laboratories to plan services and write educational specifications for the building." (Carringer, 1973, p. D2).

> its "Nova" complex. Eventually there will be kindergarten children to post-doctoral students attending school at the same complex. (Ibid., p. A4)

Aware of the Nova School, Leu and Candoli borrowed many aspects of its programming.[14] This awareness—rather than familiarity with SUPRAD pedagogy—explains their designing a school with SUPRAD characteristics.[15]

Plans are also available online for the Northeast Bronx Educational Park, which is today part of "Co-op City," an enormous residential development with thirty-five towers housing some 50,000 residents.[16] Designed in the mid-sixties by Cyril Sargent and Louis Rosasco of the City University of New York, the Northeast Bronx Educational Park was under Sargent's direction designed as a SUPRAD school, with each of its three sub-schools (primary, intermediate, high school) divided into four "units" of 700-1000 pupils,[17] with units in turn divided into "clusters" (of three classrooms), "each of which will cover a two-year age span" (NY Office of Education, 1966, p. 7).

> A team teaching center will be provided for each such cluster of classrooms. Occupying a central location in relation to the rooms in each cluster will be an additional instructional space, or "cluster instructional center". . . Means should be provided to isolate noise producing activities which will be quite common in the classrooms and central space. In addition, it should be possible to compartmentalize part of this central space or parts of each class space to make small group instruction possible in each cluster of classrooms. (Ibid.)

As in other SUPRAD schools, we find in the Northeast Bronx primary school a team teaching, non-graded[18] program housed in a facility designed for maximum flexibility, where classrooms can (if needed) open onto resource-rich instructional centers that can themselves be subdivided into smaller spaces. As the organizational structure of the Northeast Bronx park (schools divided into units divided into clusters) reveals, an important problem faced by Sargent and Rosasco was

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[14] By 1968, the Nova complex included a university, which worked with Nova's other schools in the development of programs.

[15] Comprising a number of magnet schools, the Chicago educational park would also feature nongraded classrooms: "The non-graded or continuous progression elementary school is presently being utilized in parts of the city and is included in the planning of the magnet schools." (Leu and Candoli, 1968, p. D-9).

[16] Supreme Court justice Sonia Sotomayor spent her childhood in Co-op City.

[17] The student population upon opening was expected to be 10,400. (New York Office of Education, 1966, p. 3).

[18] "It is expected that these units will be organized on a non-graded basis into three clusters of classrooms." (New York Office of Education, 1966, p. 7).

how to implement SUPRAD programming—with its focus on individualized instruction—in an enormous (size and population) school. Their approach to this problem is discussed in an essay, "Park Plan of Organization," credited to Sargent and appended to the Northeast Bronx report.

> The pupil "alone" [Sargent writes] can be provided for by the study carrel in the resource center, the library or the advanced science laboratory. The one-to-one relationship between student and teacher or student and counselor is provided for by teachers' offices, guidance spaces and the like. The group of 5-10 would require small 350-400 square feet seminar type rooms, the 20-30 size groups the standard classroom and the 75-150 a large group instruction area appropriately designed for this number of pupils. Larger groups would ideally be located in an auditorium which might be divisible to accommodate groups of 200 or more as well as the full capacity of the hall. (Ibid., p. 28)

Here we find Sargent and Rosasco confronting the same problem faced by SUPRAD educators since the late-fifties—how to design a school ready-made for team-taught classes divisible into groups of various sizes—before arriving at the same solutions embraced by their predecessors. One of EFL's (many) discussions of the problem is found in *Schools for Team Teaching*:

> The space must be able to accommodate groups of various sizes. . .
>
> The space must allow the rapid shifting of group size. (1961, p. 12)

The "space" in question—"school space" in EFL jargon (ibid.)—is the physical plant, and as in the Northeast Bronx we find a physical plant where (in EFL's words) "educational barriers built into the conventional school building [are] removed or significantly altered" (ibid.). Designers of earlier SUPRAD schools (Cyril Sargent was among them[19]) would have been, and perhaps were, impressed by the Northeast Bronx Educational Park, a SUPRAD school on a vastly larger scale (larger even than Nova).

Also posted online are plans for an educational park in Anniston, Alabama, a much smaller city (2023 population of 21,000) than Chicago or the Bronx. Like the Northeast Bronx educational park, the Anniston Park has a direct connection to SUPRAD, in this case through its design team—the architectural firm Caudill Rowlett Scott—a firm linked since the late-fifties to SUPRAD and Harold Gores. Caudill Rowlett Scott first enters the SUPRAD story in 1956 when Francis Keppel in his Basic Document cites William Caudill (the firm's founder) while making the case that the "self-contained classroom" may not be "the most useful basic building block for

[19] Sargent helped design both Grove Street Elementary School and Wayland High School.

school design" (1956a, p. 31).[20] In May, 1957, Harold Gores, also familiar with Caudill Rowlett Scott's school architecture, sent a memo to his SUPRAD colleague Joseph Young, suggesting SUPRAD make William Caudill something of an 'architect-on-retainer':

> Proposals relating to planning and construction of a second high school, [. . .] Consultation service from William Caudill, architect, in connection with proposed secondary schools in the three towns, and specifically on the preliminary plans for Newton's second high school. . . Such a review by an independent authority on such specifics of planning as placement of spaces, flexibility and sound control, the house plan, and educational implications of design, would give strength to any building. (1957, p. 4)[21]

Even outside the context of the Anniston educational park, this passage is significant, revealing (as does Francis Keppel's Basic Document) William Caudill's facility with what would become standard SUPRAD practices, most importantly designing for flexibility. In the 1950s and 1960s, Caudill Rowlett Scott designed seven schools profiled by EFL, planning in each case a school "adaptable to almost any kind of educational program" (EFL, 1960c, p. 1). Completed in 1971, Anniston's educational park is in many ways *the* archetypal SUPRAD school:

> The individual is the keystone of the architectural and educational process with emphasis on the student's progress at his own rate and within his own interests and capabilities. The material resource center rather than the old classroom is the student's "home base." The student experiences cross-currents of interdisciplinary learning but also grows with his peer group. (Caudill Rowlett Scott, 1968, p. 41)

In service of these premises, Anniston's educational park is designed to facilitate individualized instruction ("Each individual is on his own track and has a personalized course of instruction" [ibid, p. 8]), nongraded classes ("Grade levels as goals are removed" [ibid.]), team teaching ("There are no walls to fragment learning by dividing subject matter, teachers and children into rows of similar cell-like rooms" [ibid., p. 9]), and open planning ("A 'one-room' (or open plan) school provides an environment which encourages greater integration" [ibid.]). Although Caudill Rowlett Scott's design report doesn't mention SUPRAD by name, the report describes a school

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[20] In his Basic Document, Keppel cites a March 1954 Caudill article published in *Architectural Forum.*

[21] In June, 1957, Harold Gores met with Caudill, "who provided architectural consultant service. . . in connection with building plans at Newton" (SUPRAD, 1957n, p. 3).

with many features of a SUPRAD school, highlighting in doing so the extent to which the Space Age educational park concept emerged from the Harvard program. “Today in Broward County,” Caudill Rowlett Scott write in their Anniston report, “the Nova educational park is practically completed and operating. It has been termed a ‘total education center,’ and an effort has been made to establish strong communication among students and faculty of all the educational components with the aid of electronics” (ibid., p. 5). Stripped of its technocratic veneer, this passage presents Nova as a school where information reaches students and teachers efficiently and effectively—exactly what Caudill Rowlett Scott hoped would be the case in the Anniston educational park:

> Learning is definitely not restricted to the formal classroom situation. It can occur individually or in groups anywhere within or without the educational park. If the educational program is to remain vital and continue to make a contribution to the community, it must be dynamic. Anniston’s program is in a state of transition from a departmentalized, compartmentalized system of a few years ago to the flexible, completely personalized instruction of tomorrow. (Ibid., p. 10)

In a sense this was the SUPRAD dream: each student learning in the best possible way. As David Tiedeman said during SUPRAD’s 1959 retreat: “[We] are thinking of material, we are thinking of presentation, we are thinking of pupil, and we are thinking of time” (1959, p. 1). In Caudill Rowlett Scott’s plans for an Anniston educational park, each of these four elements is treated as infinitely malleable.

A compelling case can be made that SUPRAD’s legacy includes the educational park, specifically the educational park as envisioned by a certain group of Space Age school planners. These planners—many but not all linked to SUPRAD—saw educational parks as ready-made for team teaching, non-graded classes, large- and small-group instruction and individualized learning (Neil Sullivan’s “nongraded program”). Even planners unfamiliar with SUPRAD knew enough about SUPRAD practices to appreciate their value. In this context, it’s important to note that another group of educational park advocates had little interest in team teaching or nongraded classrooms, seeing educational parks as integrated quality schools where quality was tied not to innovative instructional practices but to state-of-the-art facilities. (“[The] park package gleams so handsomely,” in Robert Dentler’s words [1964, p. 22]). Here, for instance, is Max Wolff:

> Instead of a preponderance of second-rate facilities in many neighborhood schools, the very finest and most modern equipment can be provided in special purpose areas of the educational center. Science laboratories, unattainable in local schools; libraries so often lacking or inadequate in neighborhood schools; language laboratories with extensive equipment can all be made available even to the beginning pupils. . . In addition, teaching personnel in special fields can be most efficiently employed in the best equipped art and music rooms instead of working with the inadequate facilities found too often in the neighborhood school. (1964, p. 46)

Although Wolff mentions "teaching personnel in special fields," he neglects to mention what program the teachers will follow, let alone identifies that program as a team teaching, nongraded one. Like Max Wolff, most 1960s educational park advocates had no knowledge of or interest in SUPRAD programming, something that distinguishes these advocates from the educational park advocates discussed in this thesis.

Suggestions for Further Study

SUPRAD was only one of many Space Age school reform projects. In the late-fifties, for instance, J. Lloyd Trump—director of the NASSP's Commission on the Utilization of Staff in the Secondary School—published articles on such topics as teacher deployment, instructional practices and school design, asking (and answering) the same questions raised by Francis Keppel and other SUPRAD educators.

> Is it possible that the job of teaching can be made more professional and stimulating? Can teachers be more content in the realization that their professional services are being more effectively utilized? Must all persons who work in classrooms be treated alike? (Trump, 1957, p. 273)

In the wake of the 1955 White House Conference on Education, Francis Keppel asked the same questions, although you wouldn't know it from Trump's article, which doesn't mention Keppel. Writing the year of SUPRAD's launch, Trump is understandably unaware of Keppel's project,[22] suggesting that Trump's school reform project developed in parallel with Keppel's.[23] It's hardly

[22] That said, by early 1956, Francis Keppel was sharing his vision of hierarchical teaching teams in speeches, e.g.: "[Keppel's] solution would be to have subjects taught by teams of teaching personnel including a leader, certain specialists, and a junior staff." ("Educator urges scholar role," 1956, p. 20).

[23] Trump is aware of the Newton Plan, evaluation of which became a key SUPRAD project. (Trump, 1957, p. 277).

surprising, of course, that many Space Age school reform projects ran concurrently, but what is surprising is the degree of overlap between certain of these projects. If, for instance, both Francis Keppel and J. Lloyd Trump argued that because (in Trump's words) "teachers vary with respect to interest and ability to perform" (ibid., p. 274), schools should "[differentiate] between professional, semiprofessional, and nonprofessional tasks which teachers perform" (ibid.), then both Neil Sullivan and B. Frank Brown, principal of Melbourne High School (Florida), promoted nongraded classes in hopes of allowing (to quote Brown) "each student through intellectual inquiry and curiosity [to] experience academic success within his own capabilities" (Kauth and Brown, 1962, p. 132). In 1963, Brown published *The Nongraded High School*, an account of his experiences as principal of Melbourne High School, whose students, he writes, "have been reclassified according to their levels of achievement. They have then been assigned to fluid learning situations in each subject on the basis of their individual potential and competencies" (1963, p. 49). Neil Sullivan and other SUPRAD educators would have approved of such reclassifications, just as they would have approved of Melbourne High School's use of small classes and individualized instruction. A comprehensive treatment of SUPRAD would locate it in the broad context of Space Age school reform, comparing it to other school reform projects, Trump's and Brown's projects, certainly, but also projects affiliated with universities other than Harvard.[24] Was SUPRAD unique among Space Age school reform projects? If so, how? These and other important questions can only be answered by reference to the wider world of Space Age school reform.

Shifting focus from big picture issues to narrower concerns, each of my main topics (SUPRAD; Educational Facilities Laboratories; Neil Sullivan's career in education; Operation Schoolhouse) invites further study. In Chapter Two I mention exploring twenty-seven of sixty-seven boxes of SUPRAD material archived at Harvard, raising the question: What did I miss? Most boxes I explored held documents produced by SUPRAD's Committee on Teaching Teams (CTT), but even here I only looked at twenty-six of forty-seven boxes, with the ignored boxes (a finding aid tells me) holding documents from SUPRAD's middle and late phases, i.e., the years 1960-1964. In brief, the Harvard-archived SUPRAD documents I studied taught me a lot about SUPRAD's start but little about its end. Why not, then, study SUPRAD's later years, when the

[24] In 1959, the Ford Foundation issued grants totalling nine million dollars to nine universities working to improve American schooling. (Keppel and Perry, 1961, p. 177).

program was—presumably—fully developed? And beyond this, why not investigate SUPRAD's end. Why was the project terminated?

My study of Educational Facilities Laboratories also leaves questions unanswered, again because I wasn't able to study all relevant documents. Affiliated with Texas A&M's school of architecture is the CRS Center, a research hub named for the architecture firm Caudill Rowlett Scott. The CRS Center houses the Educational Facilities Laboratories archive, which certainly contains material bearing on EFL's relationship to SUPRAD. Was this relationship an equal one, or was EFL (as I argue in Chapter Six) SUPRAD's design arm? A visit to the CRS Center would help answer these questions.

I've long been puzzled by Neil Sullivan's decision to resign as superintendent of Berkeley schools. Did Sullivan quit because the BUSD moved on from educational parks? And if he did, what does this tell us about Sullivan's (lack of) faith in other desegregation strategies? Absent discovery (or release) of Sullivan's personal papers, these questions cannot be answered conclusively, which isn't to say they are not worth posing. Following Sullivan's departure, the BUSD lost its way, even moving away from integration,[25] suggesting not that Sullivan was right to resign, but instead that his vision of educational parks as "offer[ing] the greatest opportunity for the desegregation of schools, and a stabilizing of community life" (1971, p. 21) had merit. Did Sullivan resign because he saw educational parks as necessary for successful desegregation? If he did, it's worth investigating why Sullivan—identified by Martin Luther King as one of very few school superintendents with the stamina and skill to advance full integration (1967/1969, p. x)—felt this way about educational parks.

Operation Schoolhouse on its own is a worthy topic for a thesis. Why did Boston offload its school planning program on Harvard? Did Boston officials expect Operation Schoolhouse to succeed? Did these officials want it to? What part did Evans Clinchy (formerly of EFL) play in Operation Schoolhouse? Documents at Harvard tell only part of the Operation Schoolhouse story, revealing little of Boston's role. Presumably Boston, or its education department, has an archive containing relevant documents.

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[25] In May, 1972, the BUSD was notified by the U. S. Office of Civil Rights that two racially segregated experimental schools (Black House and Casa de la Raza) were "in probable non-compliance with Title VI of the Civil Rights Act of 1964." ("U. S. warning to sub-schools," 1972, p. 1). The schools were closed by federal order in 1973.

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