

Shlomo Sharan
Ivy Geok Chin Tan

Organizing Schools for Productive Learning



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*For Seymour Sarason:
Whose unparalleled wisdom about schools and
schooling is always sobering and inspiring.*

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The Purpose of This Book

Genuine educational change remains a desideratum. To achieve such change requires that the very essential elements of schooling be clearly delineated and set apart from the myriad of functions that transpire in schools. Large numbers of educational change efforts focused on critical but nevertheless partial features of schools, leaving other features to operate in their routine fashion. A view of schools limited to one or two select elements of schooling, such as curriculum, assessment, pace of instruction, time on task, or even instructional methods, has limited scope and restrict change efforts to the topics identified. Absent is an encompassing systems view of schools that stands a greater chance of directing efforts that will accomplish significant change.

We propose a short and compact formula that indicates the variables considered to be absolutely essential and irreplaceable for the proper functioning of schools. The formula focuses on six variables or features of school organization that constitute schools' "behavioral regularities" (Sarason, 1971, 1982, 1995). Our contention here is not only that schools cannot function without them, but that schools cannot undergo significant change without all of these elements serving as objects of the change process.

Our formula, presented and explained in detail in the course of this short book, has two versions. One is the version whose organizational and/or pedagogical reality prevails in today's schools and generally does not lead to productive learning for students (page 10). The other version is our proposal for restructured secondary schools that can potentially achieve the goal of productive learning for a large portion of the students (page 15).

The preceding overview of this book's purpose has employed several terms that appear often in the following text and which have not been defined or explained as yet. The terms referred to are (a) compact formula, (b) productive learning, (c) behavioral regularities, (d) genuine change, (e) systems, and (f) system-wide change. All of these terms, as well as the six variables appearing in the compact formula, appear in numerous publications by authors of articles and books on educational topics. Yet, few if any of those authors conceived of the six variables mentioned in the compact formula as constituting a "system" of interrelated events. Nor did they set these terms and/or variables in relation to the others with the aim of placing them within a single, connected, and coherent context. That step is taken

in this book. Our goal is to present a systems view of school functioning that provides a mental map leading to genuine change and, from there, to productive learning for students. To the best of our knowledge, the model presented here based on our compact formula for describing school organization and instruction is not found elsewhere.

Introduction

A major problem confronting schools is that many students are turned off from learning and are bored. Boredom is destructive of learning. The No Child Left Behind (NCLB) initiative of the US government (2001) stemmed from the claim – accompanied by sharp debates pro and con – that many schools in the United States fail to achieve basic educational objectives, and that many schools are doing a poor job for a wide variety of reasons and surely not just because of student boredom (Brigham, Gustashaw, Wiley, & Brigham, 2004; Essex, 2006; Goodman, Shannon, Goodman, & Rapoport, 2004; Sunderman, Tracey Jr., Kim, & Orfield, 2004). The model of school organization and instruction presented here seeks to provide an effective plan for significant improvement in secondary school education, one of whose central aims is to make students genuinely engaged in what they are learning. The NCLB legislation emphasizes, *inter alia*, the need for school improvement. Without it one cannot reasonably anticipate improvement over current levels in student engagement in learning and in academic achievement.

The NCLB literature frequently employs the term “school improvement” to refer to the quality of the teachers, such as their academic credentials, instructional competence, and their knowledge of subject matter. Similarly, “school restructuring” is said to include steps such as transforming the school into a charter school, replacing the teaching staff, or inviting a private company to administer the school. The use of those terms in this work is distinctly different.

In the following pages, we set forth a plan for reorganizing the structural/organizational features of the school and of the classroom. Our view is that, apart from exceptional cases, replacing staff rarely accomplishes significant change in schools, the very kind of change that charter schools often fail to implement. Consequently, teachers and students attend the same play with different actors. Discussions of school improvement or school restructuring too often omit mention of the fundamental organizational features of schools compared to the legal and financial aspects of the NCLB or the formal requirements for teacher certification. Teachers with advanced degrees will adjust to the requirements of a school and its norms, so that certification is, as widely recognized, a necessary but not sufficient condition for school improvement.

Of course the quality of teachers is a decisive variable that affects students’ learning, as the NCLB initiative asserts (Lane, 2004). No set of organizational or pedagogical

procedures circumvents the teachers. But highly qualified teachers frequently find themselves working in an organizational system that constrains and powerfully limits or even inhibits their ability to function at their best. Clearly, the mandate by NLCB to maintain a high standard of teacher qualification must be accompanied by an appropriate implementation of the instructional process (Smith, Desimone, & Ueno, 2005).

Students Are Bored in School

The chances are very great that, if asked to spend an hour observing a classroom in a middle school or high school, you would come away thinking that the students were bored and not interested in what they were supposed to study. Contemporary thinkers about teaching and learning in schools, including John Dewey in 1938, pointed out the ubiquity of student boredom in school:

How many students...were rendered callous to ideas, and how many lost the impetus to learn because of the way in which learning was experienced?...How many came to associate the learning process with ennui and boredom?

(Dewey, 1938, pp. 26–27).

A symptom of boredom is psychological shutdown: The mind wanders away from the current scene to matters of greater personal concern or to the land of fantasy and daydreaming. Most people are subject to that condition now and then. Students can be observed in that condition very often when they are subjected to relentless “direct instruction,” a euphemism for lectures:

Boredom is what eventually gets both the teachers and the students. This is why many programs that rely on direct instruction are often discontinued by schools after a few years. These programs do not believe in the power of teachers as learners or of students as thinkers and problem solvers

(Fullan, Hill, & Crevola, 2006, p. 11).

“School is not meant to be entertaining” is a comment one can hear fairly often. That must NOT mean that boredom in school should be tolerated. Being bored in school means that students’ learning is *unproductive*. Unproductive learning means that schooling does not stimulate students’ desire to learn, their need for learning, or their curiosity about subjects taught in school, which by all reports declines over the years of schooling. In short, students may learn something in school, but too many of them do not show signs of wanting to learn.

Readers should take notice of the fact that this book does not undertake to focus on the socioeconomic or ethnic-linguistic background of the students as factors that explain their level of engagement in, and learning of, academic subject matter. Our attention is directed here to what the school and its teachers do with the students who attend the school, whoever the students may be.

In addition to students’ desire to learn, the term “unproductive learning” also refers to students’ almost total concentration on the grades they will receive, with

little concern for the substance of what they learn. At the middle and high school level, parents too largely confine their interest in their child's schooling to the grades the children receive and do not inquire much about their interest in the substance.

Why the Boredom?

What causes student boredom and lack of involvement? Are incompetent teachers the cause? Is it irrelevant subject matter?

One frequently cited cause for students' boredom is the large number of courses students must study simultaneously. In the United States, students attend approximately 5 or 6 academic courses during a week; in Finland the number can rise to 10 courses per week in some schools; in Israel students take 14 courses per week, few of which meet more than once during the week. In high-level technological schools, students in Israel study 18 different subjects for up to 50 hours each week of class sessions. A study load of that kind is repelling. Few adults would be prepared to subject themselves to the rigor and strain of attending high school classes for 5 days a week, 5 hours or more each day, and with that time span chopped up into 14–18 pieces.

Another critical cause of students' boredom in school is the prevailing method of teaching by lecture: students are expected to pay attention to teachers who talk most of the time. Students are reprimanded, even punished, when they are unable to comply with that demand, especially when much of what teachers talk about appears to bear little relation to the students' lives.

Are the teachers the source of student boredom? In any moderate-size country there are hundreds of thousands of teachers, millions in the United States. Tiny Israel has over 150,000 educators who work in the schools. Such large groups encompass people with a very wide range of abilities and skills. Hence, it is unreasonable to view the teachers' personality as the primary cause of students' boredom. Nor could school systems dismiss large numbers of teachers even if they wanted to, and go looking for more able personnel. They are not available, no matter which country we are talking about.

There is evidence for asserting that teachers possess very limited knowledge about what constitutes productive learning for students. Rarely, if ever, do teachers in schools engage in serious discussion of that topic with their fellow teachers. Given that student learning is the very focus of their professional activity, the absence of debate over the nature of learning in school should be cause for dismay (Sarason, 2004).

Educational researchers and thinkers continue to study and write about school learning. But publications by academic personnel on the nature of school learning reach the teaching profession very slowly if at all. There is a "sharp divide between educational research and scholarship and the practice of education in schools and other settings" (Shavelson & Towne, 2002; Stevens, Wineburg, Herrenkohl, & Bell, 2005).

When teachers do become aware of the discussions of teaching and learning going on in the academic world, they may feel helpless to change anything significant in their schools. The major organizational decisions that affect their work are not in their hands. Too many teachers appear to accept student boredom as a kind of occupational hazard.

The Road to Productive Learning in School

Readers will undoubtedly identify the conception and design of productive learning that we focus on here as based on John Dewey's works about education (Archambault, 1964; Dewey, 1910, 1916/1944, 1938/1963) as well as on the seminal writings of Seymour Sarason, John Goodlad, and other luminaries of educational thought.

Schools engender productive learning when students are motivated and engaged (McCaslin, 2006). Many schools claim that they strive to make learning meaningful and motivating, alongside enhancing students' scores on achievement tests. What should schools do if many students remain apathetic or alienated from learning? Change for the better in the process of schooling is necessary if student learning is to become more productive. Basic patterns of schooling in secondary schools have remained relatively unchanged over a large part of the twentieth century. However much some authors emphasize the importance of the products of schooling rather than its process, nothing much can be achieved without a well-considered and well-implemented process. In the world of learning, the process is often identical with the product. Of course there must be a product, but schooling seeks to have students engage in learning and acquire an appetite for learning, and not only produce answers on tests. Hence, learning can be both process and product, although on occasion educators may wish to identify the products of learning apart from the process. Unfortunately, the need to document the nature or quantity of the product has often supplanted the importance of the process (Chubb & Moe, 1990).

The method typically employed for "improving" achievement is for teachers to repeat to students more intensively what they told them earlier. A certain percentage of the student population will reach some acceptable level of formally evaluated academic achievement even if teachers revert to brute rote learning, constant rehearsal of materials, and frequent testing. People learn in almost all circumstances. But, the prevailing concentration of schools on the results of achievement tests as the end-all of schooling belittles the entire educational enterprise and demeans the most human qualities of the students.

It is not our intention here to ask the question – important though it is – of what constitutes human learning. That question has occupied the attention of thinkers, scholars, and investigators since antiquity, and is still far from receiving satisfactory explanations. Our aim here is to discuss the conditions for enhancing learning that can be designed and implemented by schools and teachers.

One overview of the main features of learning identified a substantial list of uniquely human strategies for harnessing information and making sense of the world

through “an intentional process of learning” as well as many ways to enhance learning (Stoll, Fink, & Earl, 2003, pp. 26–28, quoted in Costa, 1996). Four central conditions that, to our mind, are decisive for fostering productive learning are as follows:

1. Teachers should determine their point of departure for the study of a given topic on the basis of what students think or believe. Teachers’ understanding of their students’ incomplete understanding, false beliefs, misconceptions, naive interpretations of concepts, and so forth, provides teachers with a guideline for instruction.
2. Teachers should help students categorize and connect ideas and relate them to their existing knowledge.
3. Young people can be motivated to become deeply engaged in learning by undertaking learning projects directly related to the wider community, possibly related to various kinds of problems confronting the community, by activities that allow students to make real decisions, by the opportunity to work with their peers in small groups to understand and “solve” problems, and to engage in activities and acquire skills that are expressly and visibly valued by other people (Elmore, Peterson, & McCarthy, 1996; Hargreaves, Earl, & Ryan, 1996; McCaslin, 2006; Sharan, Shachar, & Levine, 1999; Sharan & Sharan, 1992; Thelen, 1981).
4. Adequate time for the pursuit of meaningful learning projects is far more effective for stimulating productive learning than the truncated time slots for class sessions that prevail in today’s schools.

These four basic conditions for promoting productive learning are frequently absent in schools. Curricula determined primarily by central school authorities, highly constricted time slots for class sessions that impose uniform study and learning rhythms on large number of students, repetitive classroom experiences that fail to engage students, student isolation while surrounded by classmates with whom they are not supposed to communicate, and so forth, are the norm rather than the exception. Since schools fail to fulfill the conditions for learning that they themselves proclaim as valid, the indifference and boredom manifested by students are predictable.

Productive learning in schools can be achieved. For many schools that will entail a distinct change in the prevailing organizational norms. Many educators claim that schools change constantly and gradually “by themselves” without additional intervention. That view has been heard for decades, despite the absence of any significant change in secondary school teaching and learning through entire lifetimes (Deal, 1986; Passow, 1986). Even in schools that adopt alternative instructional methods, direct and systematic observations show that only too often those methods were practiced as interludes in between standard lectures, and the level of implementation of the new instructional approaches was haphazard and incomplete. Most teachers do not receive sustained guidance from experienced educators or consultants on how to employ alternative teaching methods. Sustained guidance over several months or more is needed for teachers to acquire some competence in the use of those methods, otherwise they are quick to abandon them. Many authors

agree that the NCLB initiative has the potential for producing radical change in schools. The decisive question is, as always, what changes will be implemented in practice (Karen, 2005). The question of “who” will be instrumental in implementing these changes appears to be decidedly of secondary importance, whatever complaints may be heard on that score (Dworkin, 2005; Karen, 2005).

Another potential hindrance to the adoption of alternative teaching methods is students’ objection to these methods unless the students are introduced to the skills and procedures necessary for deriving benefit from them. Unless informed to the contrary, students assume they will be tested on their knowledge of academic subject matter just as they had been before they were exposed to the new instructional method. The net result is that students can be very uneasy about spending time studying with the alternative methods. Teachers may forget to reassure students that their learning would be assessed in a manner commensurate with the way in which they studied and not with the standard format of tests to which they were accustomed (Tan, Sharan, & Lee, 2006).

Chapter 1

Two Models of School Structure

Structural Change: Necessary but Not Sufficient

In schools there is a systemic interplay between organizational and pedagogical elements. Change efforts must encompass all of those elements at one and the same time. Elmore's (1995) conclusion from his knowledge of the existing literature on school change was that changes "in structure are weakly related to changes in teaching practice, and therefore structural change does not necessarily lead to changes in teaching, learning and student performance" (p. 25). Elmore cited the sad example of a teacher whose reaction to being able to teach a 90 minute class instead of a 45 minute class was that now he would be able to show the entire movie to the students instead of just half of it. That is precisely why we present here a set of interrelated elements needing change, including methods of teaching, if teaching and learning are to be affected positively by a change effort.

In addition to Elmore's caveat, what deserves attention is the fact that providing teachers with new and improved teaching concepts and skills will also not lead to a change in their teaching behavior unless the school's structural features are aligned with the essential features of the new teaching methods. The new methods will be abandoned quickly if the classroom instructional period remains static, if the curricular demands of the school are not altered, and if the assessment of students is fixated at the level of testing. However well teachers master alternative methods of instruction, the structural features of the traditional school will prevent those methods from sustained use in the classroom (Elmore, Peterson, & McCarthy, 1996). These topics are discussed in the following chapters in this book.

If the tested and proven alternative (i.e., nonlecture) methods of teaching would be implemented systematically in a manner commensurate with their original conception, we would not be faced today with such a pressing need to make school learning more productive. Available instructional methods with developed theoretical foundations and each with a solid research and experience base have been presented in systematic fashion for the past 25 years (Calhoun & Joyce, 1998; Joyce & Weil, 1996). One need not look far to find alternative methods of teaching suited to the needs of a particular class or school. Yet, whatever changes schools accomplished on their own clearly do not affect their basic *modus operandi* sufficiently

to make any noticeable difference in student learning. The barely visible incremental changes that took place have not even made a dent in schools' operation for many decades, and how they continue to operate today, with the exception of the first three or four grades of elementary school (Deal, 1986).

Organizational Regularities in School

The One-by-One Formula

By and large, the same patterns of behavior and school organization that prevailed decades ago still dominate students' daily experiences today. Most of the permanent features of schools' operation, what Seymour Sarason (1971, 1985, 1996) called their "behavioral regularities," have resisted change and have been consistently ignored or circumvented by most efforts to effect change. Genuine change is not just an exchange of one textbook for another, the introduction of a new topic in the curriculum, or substituting one procedure for another. None of those impinge in any essential way upon teaching and learning. Included in the list of "behavioral regularities" that we focus on in this book are six fundamental organizational tasks that confront all schools and which routinely require decisions necessary for them to function:

1. Allocation of teachers to classes
2. Division of students into classes
3. Allocation of time to classes (length of class sessions)
4. Identifying academic subject matter for instruction in given classes
5. The manner in which subject matter is presented by teachers (teaching method) and in which students are asked to proceed with learning
6. Evaluation of student learning

These basic organizational tasks or functions, related to teaching and learning in schools, are implemented in practice by school systems almost everywhere in a remarkably uniform fashion. We represent that fact by means of a simple arithmetic equation called the "one-by-one formula":

$$1 \times 1 \times 1 \times 1 \times 1 \times 1 = 1$$

Translating the digits into words yields a set of statements regarding the fundamental rules of organization that prevail in schools today in many countries. Those statements are:

One teacher is allocated to
one class where
one subject or discipline is taught for
one class session (that regularly lasts for 45–50 minutes) with

one primary mode of instructional method (most frequently by lecture) after which students are evaluated primarily by **one** method (usually a test).

The arithmetic product of the one-by-one formula is 1, of course, because the multiplication of 1s in any series, however long, does not enhance the product! In other words, if we keep doing what we have been doing all along, nothing could possibly improve. The product of 1 will never increase.

The series of six statements is an interlocking system. The statements represent functions that usually are treated in conjunction with one another, and with additional tasks or functions of the school as an organization. School administrators everywhere apply the six functions with remarkable uniformity, and often without conscious awareness, as the very bedrock of their approach to organizing people and their work in schools. The principles of organization expressed in the one-by-one formula are adhered to often because they have become the organizational Ten Commandments inscribed on stone that educators live with as permanent features of the school environment. It does not occur to most educators to question the validity of these principles any more than people think about how they breathe. The organizational principles that comprise the one-by-one formula were identified repeatedly over the past few decades by several of the outstanding thinkers and researchers of the nature of schooling (Goodlad, 1984; Elmore, 1996; Fullan, 1993; Peterson, McCarthy, & Elmore, 1998; Sarason, 1971, 1982, 1996, 2004, 2006).

Too many educators and parents are locked into existing structures where anything other than individual teachers in separate classes, pupils graded by age, a curriculum organized into subjects and divided into lesson periods, secondary school department heads...vetoing any changes that might threaten their interests, and parents being contacted only at specific times in a year – is not considered to be ‘real school’ at all

(Quoted from Hargreaves & Fullan, 1998, p. 26. See also Elmore, Peterson, & McCarthy, 1996).

The “One-by-One” Formula and the Hierarchical Nature of Bureaucracy

The “one-by-one” formula of school organization embodies many of the classical features of bureaucracy formulated a hundred years ago by Max Weber. Most important among the basic features of bureaucracy are the division of labor, fostering specialization, documentation on paper of all events, and the demarcation of distinct territories of operation for personnel. All the basic features of bureaucracy are intended to promote efficiency and avoid conflict. These principles continue to retain ascendancy in public education. Bureaucracy as a theory of organization worked extraordinarily well for the needs of industry and commerce during the Industrial Revolution, and occupies an important place in many different types of organizations today. However, that is not true for the field of education.

Not the least of the negative implications of the bureaucratic method of organization is the fact that teachers relate to their students in much the same way as the bureaucratic organization of the school relates to them. Students are taught as separated from their peers even though they sit in the same classroom (with their backs to their fellow students in secondary schools). By and large they are expected to work alone – with some interaction with classmates now and then, and their efforts at learning are documented by intermittent tests. Classes in the same school have little contact with one another apart from sport activities. Many sports are team activities, but learning is perceived and practiced in secondary schools as an activity for individuals. Departments in secondary schools are unidisciplinary and jealously guard their separate identity vis-à-vis other departments (Johnson, 1990).

It is almost universally true that schools have little or no contact with other schools at the level of principals, teachers, or students, much to their own loss. School systems are actually not systems whose individual units interact with one another, but rather are collections of schools under a given administrative roof. The geographical distance between schools is not what prevents interschool contact from furthering their educational goals. Rather, it is the organizational conceptions of the people who run the school systems and the schools that keep them apart. Individualism, anonymity, and “territorial” separation prevail where mutual concern, interchange, and mutual assistance should be the rule (Nias, 1998; Sarason, 1983, 2004, 2006; Sharan, Shachar, & Levine, 1999; Smylie & Perry, 1998; Tan, Sharan, & Lee, 2006).

The very same kind of isolation affects the teachers within each school, a topic that was explored systematically in a well-known study by Dan Lortie (1975). In any given typical school (and there are quite a few schools that are not typical), teachers are “solo practitioners.” Generally, teachers meet once a week or once in two weeks, or perhaps less often than that. They teach a single class without any other adults in the room. Administrators, frequently bypassing teachers, decide on the most important organizational matters. Not infrequently teachers express the opinion that they prefer not to be burdened with school organizational matters and are actually relieved that the principal assumes that responsibility without their help. We have often wondered what the substance was of the once popular “movement” for “teacher empowerment.” In many places one would not be able to “empower” teachers if one tried because they have little or no decision-making power over their own professional activities in the school and classroom, and, as noted, may not wish to accept such power when offered to them (Sarason, 1990, 1995).

In short, schools are comprised of a multilayered and multiunit organizational array in which students are nested in classes, teachers are nested in departments, departments are nested in schools, and the schools are nested in school “systems” or collections of schools directed and administered by a central authority located somewhere outside the collection of schools. These various strata and units impinge upon one another or have contact with one another at given times in highly specified ways regulated by norms or rules. Students – teachers – departments – schools: each level in turn is considered a separate unit that need not relate to the other units at the same level.

At any given time, it is more than likely *that more public school classes in the world* are organized and taught in the manner presented in the one-by-one formula than in any other way. All of these features (teacher, class, subject, duration, instructional method, and method of assessment) taken together are included when educators talk about the big challenges of schooling, such as the problem of teaching large classes, closing the achievement gap between various groups in society, and so forth (Goodlad, 1984; Sarason, 1982, 1983, 1990, 1995; Sharan, Shachar, & Levine, 1999).

A Hard-Nosed View of the One-by-One Concept

In contrast with our interpretation of the one-by-one formula and its meaning for teaching and learning in schools, there is an opposing view that interprets the formula, or its consequences, very differently and in a positive light. That view notes that schools perform a clear social function that prepares the youth for a role in society. Their personal will or preferences, motivations, curiosity, or culture are beside the point. The latter goals were formulated by “soft-headed” psychologists compared to the hard-nosed perspective of sociologists with a broad view of society’s long-term needs: “[S]tandardized categories of graduates are produced (by the schools) through standardized types of teachers, students, topics and activities. ... The graduates are allocated to places in the economic and stratification system on the basis of their educational background” (Meyer & Rowan, 1977, p. 219). It is to be understood from this position that the provisions of the one-by-one formula are ideally suited to achieve these ends. The claim is that societies that must deal with masses of people who wish to find their niche in the struggle for survival must not become embroiled in the psychology of individuals.

One need not adopt a radical individualistic view of schooling or of social life in general to point out that the view of schooling presented above is mechanistic. Its message is that students are processed through the school system without much regard for the role of mind, thought, attitude, conviction, interest, involvement, or any other of the outstanding features of our humanity other than their instrumental role in the future body politic. Is it really possible to disconnect the future of society from the strivings, values, attitudes, opinions, and thoughts of its citizens, whatever formal roles those people may occupy in daily life? We do not wish to argue here that all cognitive-affective dimensions of human beings are accurately forecast in their years of public schooling. There is evidence to show that that is not the case. The “hard-nosed” view of schooling as preparation for social roles almost regardless of how and what the student learns asserts that there is a very direct line of development from a person’s school years to the time when they play a role in the socioeconomic system. The point of view espoused here does not depend on any claim of unbroken continuity between childhood and adulthood in terms of personality or social role. People receive a wide variety of cultural contents

and identities during their years of schooling that affect their behavior in the wide social domain outside their families. Their particular careers and what they do with those careers weave the fabric of society, as do their attitudes toward their country, their community, their families, their fellow citizens, and so forth. The sheer fact that students pass through the stages of public schooling cannot serve as a reliable basis for predicting just how they will live out their career lives.

To engage in serious thinking about how schooling affects students in the long run, one must acquire considerable information about how they perceive and understand the nature of their experience in school. Even then, life holds many unforeseen experiences for people after they leave high school. The “prediction” of how people will lead their lives based on their record in school is not just risky but potentially misleading and harmful in the sense of a self-fulfilling prophecy. It is best to leave the future to the realm of the unknown than to foreclose options for students on the basis of who and what they are today. They may become motivated later on and work hard to improve their lives.

On a more concrete level, the “standardization” claim is automatically wedded to the acceptance of tests and grades as reliable indicators of knowledge learned in school. The “hard-nosed” perspective asserts that students’ grades convey the outcomes of education and hence testify to their relative effectiveness rather than any assessment of the school’s pedagogical or organizational processes. That entire argument is subject to analysis later in this book. Suffice it to say that educators in academia no longer grant achievement testing the *carte blanche* status it enjoyed earlier and few scholars defend the validity of testing as a true indicator of student learning. Critics of alternative teaching and organization in schools that depart from the standard practices known in the past can no longer cover themselves with the fig leaf of test grades in defense of their positions.

The alleged standardization of people by schooling still leaves a very wide degree of diversity. Human behavior in many walks of life remains less than perfectly predictable on the basis of formal measures of academic “results.” Statistics are a marvelous tool for comprehending a wide range of diverse phenomena under one or another rubric, but we have not yet been able to foresee the nature of society from the methods of education employed in school. Continued reliance for statistical predictability on the basis of family or ethnic characteristics has passed its heyday. For many sectors of the population, much finer criteria must be employed to reach any meaningful results.

The Greater-Than-One Formula

In contrast with the one-by-one formula, implementation of an alternative formula for school organizational principles should enhance the “products” of schooling beyond those produced by the prevailing one-by-one formula. Our suggestion for a numerical formula, with its concomitant organizational options, reads as follows:

$2 \times 2 \times 3 \times 3 \times 3 =$ a product greater than one

We are not asserting that the alternative formula must contain these and no other organizational options represented in the formula by numerical values. What is indicated here is that most, if not all, of the numbers comprising our alternative formula should have values greater than 1. If one or more of the digits in the formula are increased to a value greater than 1, the product of the equation will, of course, also be greater than 1. It will become apparent to readers that we are *not* suggesting that significant changes in school structure can be accomplished by a change in only one of the variables in the formula. Furthermore, even larger numbers could replace some of the digits of 2 or 3 when the need and circumstances arise.

In school organizational language the alternative formula says:

Two or three teachers work together as a team to teach **two** combined classes (if appropriate; this element may be optional) for **three** or more sessions (e.g., 150 minutes or longer), and the curriculum would encompass the study of problems that are derived from **three** or more related academic disciplines (an integrated curriculum). To teach this curriculum, or more accurately, to have the students become engaged in learning, teachers employ **three** or more teaching methods, such as individual study, small group investigations in and outside of the classroom, discussions, debates, games, experiments, and the like, and evaluate students' learning by means of **three** or more techniques chosen from exhibitions, portfolios, dramatizations, models, tests, demonstrations, and others.

These methods or principles have been well known for decades. In fact, they occupy a substantial portion of the research and development literature on education in recent years, discussed in the following chapters in this book. Yet, few educators relate to them **together** as forming the parts of one coherent conception of school structure and its direct implications for instruction and learning. Indeed, the two series of digits convey the notion that all of their constituent elements combined lead to either the present low level of productive learning, in the case of the one-by-one formula, or to a distinctly higher level of productive learning, in the case of the second series of digits greater than 1 (i.e., school organizational practices).

A Policy of Instructional Coherence

The two formulae that are presented here highlight the need for policy coherence in schools if instruction is to be improved to some noticeable degree. The one-by-one formula shows that, willy-nilly, traditional schools adhere by default to a coherent policy as their style of organization and instruction. The greater-than-one formula describes school organization and instruction policy that is, at one and the same time, a departure from traditional patterns as well as coherent in structure

and method of implementation, but without attempting to impose uniformity of content on teachers or students.

The lack of coherence in schools' instructional policy has been discussed by educators for several decades, but they focused almost entirely on elementary schools, and almost exclusively in connection with the teaching of reading and arithmetic (Newmann, Smith, Allensworth, & Bryk, 2001). Here we wish to draw attention to academic secondary schools (excluding vocational schools) with their uniquely diversified and disconnected curricula, and their goal of educating students in the basics of general culture. Many secondary schools maintain little interaction between teachers of different disciplines, not to speak of a lack of any planned coherence in subject matter. The latter subject will be discussed in Chapter 5 on the Integrated Curriculum. Research reported by Newmann and colleagues documented the detrimental effects of little or no policy coherence in instruction, school organization, curriculum, and so forth. Of course the lack of coherence undermines efforts to introduce changes in school structure to accommodate alternative and improved instructional methods that can have a more positive impact on students and teachers. Principals do not seek to implement a particular instructional view or set of strategies. Every classroom is a separate dominion with its own culture and methods. On occasion, such schools display a potpourri of "innovative" programs imported top-down into the school by sundry agents with little or no coordination between them, what some authors called the "Christmas tree" approach to change projects: each decoration (project) hangs by itself on a branch. Lack of leadership, uncoordinated teaching strategies, next to total faculty discretion in the selection of teaching methods and curriculum, are rarely described as a lack of program coherence (Newmann, Smith, Allensworth, & Bryk, 2001, p. 310). Everything is explained in terms of the democratic value of granting professional discretion to teachers instead of acknowledging the absence of a thought-out and planned set of priorities.

The greater-than-one plan for school organization and instruction can be represented in the following diagram (Fig. 1.1, page 17)

If and when schools seek to enhance students' productive learning, they must deal with most if not all of the elements, as outlined in the second formula. The elements must be aligned with one another to construct a comprehensive educational policy for the school (Biggs, 1996; House & Mcquillan, 2005; Newmann, Smith, Allensworth, & Bryk, 2001; Sharan, Shachar, & Levine, 1999, pp. 81–87). Because efforts to improve schools typically focus on each of these elements as separate units unrelated to the other elements in the system, we are witness to the strange phenomenon of schools that apply different policies to different elements. As a result, schools have been known to work at cross-purposes, such that adherence to one policy can undermine the school's efforts to implement another of its own policies. One well-known example is when schools strive to accomplish the goals of ethnic integration along with stimulating considerable competition among students for high grades. Many teachers seek to "stimulate" students to learn by introducing competition among them. That places the responsibility for learning exclusively on students' behavior rather than requiring teachers to cope with the more ambiguous

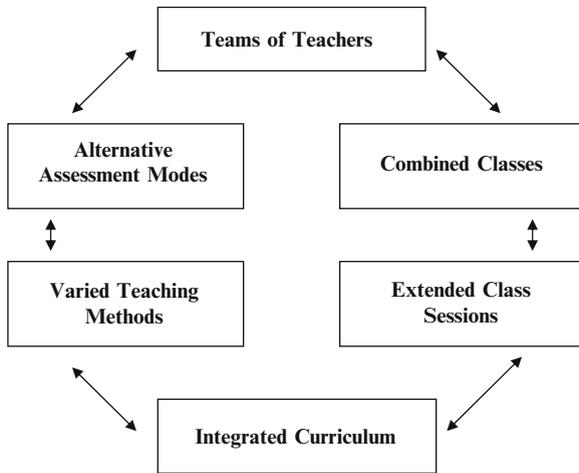


Fig. 1.1 Organizational model of the “greater-than-one” formula

goal of ethnic integration that must be based on cooperation among students during teaching sessions and in social relationships. Competition in classrooms and a policy of social integration are actually contradictory.

What about the controversy between the two views of the one-by-one formula? Is it desirable or necessary to introduce the $2 \times 2 \times 3$ formula as an alternative? Are we thereby undermining or softening society’s long-term goals for educating people prepared to assume their role in the standard categories and hierarchies of a highly organized society? If students are not required to fulfill demands for achievement determined by the authorities, will we not be producing a self-indulgent, somewhat pampered, or even infantile generation that devotes itself exclusively to its self-centered interests rather than to the public good?

Our estimate is that those questions are posed in an extreme and unrealistic way so as to ward off a serious reply before it is offered. The entire so-called controversy is a straw man: Why shouldn’t students’ engagement in learning be aroused with life-relevant topics of study that they investigate instead of just hearing pre-packaged curricular materials delivered verbally by the teacher? The latter frequently leads to lack of respect and seriousness about learning. And what would prevent graduates of that kind of education in taking a constructive and creative role in society? Does highly motivated learning corrupt the youth while boredom forges it in the crucible of suffering? Is that the underlying philosophy of those who would give the hemlock to flexible and challenging forms of learning? Isn’t the “opposed” view making the unarticulated assumption that *what is, is good*? Educators designed and implemented the existing educational structure. Other educators are suggesting now that traditional school structure is no longer responsive to the values and needs of life in today’s society even if it seemed so a century ago. If we do not accept the assumption of *what is, is good* because it was created by our forebears, it follows that *what is*, is not inherently superior or inferior to what could

be or what should be in light of our thinking today. It is patently clear that such an assumption is not valid. The accusations sound more like political bandstanding than like informed argument. The No Child Left Behind act of the US Congress does not sanction mindlessness, indifference to motivation or student engagement, mechanistic instruction, or any other of the features of “industrialized” schooling designed for the mass production of test automatons.

If we would continue to cling to this position a century from now, we would most likely be subject to the same criticism as we are attaching to the opponents of our current view. However much the educational thinkers and leaders cited here, such as John Dewey and his more contemporary “disciples” John Goodlad, Seymour Sarason, and others, are categorized as “touchy-feely” types who led education astray, none of them ever aspired to the claim of absolute authority, or said they descended from the pinnacle of Mt. Sinai in possession of the Ten Commandments (Holmes, 2005). They all owed allegiance to the values of critical thinking, broad knowledge and experience of the educational system, an explicit philosophical orientation, and a powerful devotion to the common good in light of human history and did not ignore it or be indifferent to it! None of them, or their like-minded colleagues, sought the introduction of far-reaching permissiveness, indulgence of the young’s every whim as the Holy Grail. None of them advocated that we abandon the imperative to educate our youth to assume moral responsibility to their society and understand the principles of their nation’s government, language, and literature (Hargreaves & Fullan, 1998, pp. 44–46).

In our view, the two perspectives are simply not on the same plane of discourse and do not constitute a genuine controversy because they refer to distinctly different aspects of the processes, methods, and goals of public education. One view relates to the question of how teachers can proceed to engage their students in serious learning instead of fostering chronic alienation that they encounter every day. The opposition view deals with the question of what life-course students will follow once they leave school. The proponents of one side really have little hard evidence to prove that productive learning in school has profound effects on students’ adult life in terms of a career, and proponents of the other side have no evidence for their claim that standardized lecture-type teaching, standardized allocation of students to cohorts, etc., deeply affect people’s later contributions to the societies in which they live.

There is a great deal of evidence to show that engaged and challenged students who feel they belong in the school and are accepted there have a far more positive adjustment to their social environment. They express a great deal more identification with their family, feel that they derive considerable meaning for their lives from their studies, and are more likely to complete their high school education than their alienated peers. A basic principle of modern pedagogy states that students’ engagement and involvement in learning *now* augurs well for their engagement and involvement in learning later in life. If learning means little or nothing to students when they are in school, they are less likely to find meaning in it after they leave school. Then again, life is full of surprises, and not a few adults suddenly understand that their neglect of serious learning has hampered their lives, and they turn

over a new leaf, so to speak. But let us not forget that those people are in the minority, and too many bear with them for a large part of their lives the burden of their difficult experiences in school that prevented them from appreciating the gifts of productive learning (OECD, 2000). Much remains to be learned about the long-term effects on students of boredom versus engagement in learning, and about the impact of disengaged social and cognitive functioning on the lives of students and teachers (Goodson, 2005; Hargreaves & Fullan, 1998; Meyer & Rowan, 1977).

The Discipline-Oriented Organization of Schools

A discipline-oriented conception of the school's proper organization dominates the design of curriculum, the practice of teaching methods, methods of assessment, and so forth (Stevens, Wineburg, Herrenkohl, & Bell, 2005). One reason why that view prevails is because few people, including academics in departments of education, stop to question its basic assumptions and validity in terms of its effects on student learning (Sarason, 2004). As noted, these elements are rarely treated in an integrated fashion, as mutually interdependent. Too many authors of works on education create the impression that they "would not be able to identify a school if they saw one" (as the colloquialism goes), precisely because their perspective is discipline-oriented rather than school-oriented. Investigators of curriculum design and its impact on student learning have formulated the problem this way:

[T]he structure of the school is an enormously powerful form of social organization that balkanizes the subjects, making them seem like entirely different and unconnected kinds of activities to students and teachers....The infrastructure of schools is organized to keep the subjects distinct. Time, space, materials, and teaching labor are all typically separated across subjects. This is less true in the earlier grades but increasingly true as students move through elementary, middle, secondary and post-secondary education. This increase in subject-specific organization of school suggests that students' sense of balkanization would develop as they progress through the system

(Stevens, Wineburg, Herrenkohl, & Bell, 2005).

The prevailing organizational approach in universities is to divide the field of education into separate departments, each with its own faculty, so that, for example, experts on assessment need not be concerned about teaching methods or vice versa. The division at the university level goes a long way toward perpetuating the separation of these features of the educational process at the school level by endorsing the subdivision of schools into a collection of units according to academic discipline. High schools too have divided the disciplines into departments, each with its own department head or coordinator, an appointment that carries a certain amount of prestige and organizational authority. When teachers in secondary schools are asked to identify their profession, they automatically cite the subject they teach (they are teachers of...) and not the fact that they are educators. Indeed, the course of study for acquiring a teaching diploma in secondary schools includes a smattering

of unrelated courses about education, such as Introduction to...the Sociology of...the Psychology of...and so forth. The so-called methods courses are tailored for the delivery of specific subject matter. Teachers of the future are almost totally focused on transmitting specific subject matter and not on the nature of learning, or on the challenge of creating the school conditions necessary for promoting productive learning.

For some authors, the concentration on disciplines is proof of intellectual vigor (Holmes, 2005). For others, it embodies the consequences of organizational and intellectual atomization (Sharan, Shachar, & Levine, 1999). Teachers of specific disciplines have been heard to express disinterest in participating in multidisciplinary teams of teachers because they have nothing to learn from teachers of other subjects, and because they fear that the discussion of teaching with colleagues of other disciplines might dilute their own professional identity. That outlook testifies to an unfortunate narrowing of intellectual and professional horizons in the teaching profession. The combination in essential ways of different subjects in order to create an integrated curriculum is discussed in Chapter 5.

An integrated perspective of the dimensions of school organization required for successful change efforts was emphasized by House and Mcquillan (2005). Those authors provide an edifying example of how the Green Valley School in a large city embodied and integrated the features presented here by the $2 \times 2 \times 3$ formula, and how the coordinated application of these features created an exemplary school (House & Mcquillan, 2005). Undoubtedly there are many exemplary schools, but their relatively small number cannot possibly exert recognizable influence on many nations' public school systems (Sarason, 1983).

The *combination* of the dimensions formulated by House and associates, or in the above section of this chapter, in a school-improvement effort should enhance students' productive learning considerably in terms of their personal engagement in the subject matter and in the process of learning. They should enjoy their **work** rather than perform their **labors** (Arendt, 1958, chapter 4), be interested in the substance of what is being studied, and acquire appreciation for the meaning of the academic materials. Work, interest, motivation, engagement, and enjoyment – these terms express the affective-emotional dimension of learning that is always present despite the fact that schools focus almost exclusively on the informational-cognitive aspect of learning.

[P]roductive learning of subject matter is both a personal and interpersonal affair in which thinking, feeling, attitudes and purposes are indissolubly present....Any conception of learning which does not take that seriously...is unrealistic and is defeating the purpose of schooling

(Sarason, 1999, p. 54).

We do not predict the improvement in students' test scores as a necessary outcome of school change. Students' test scores may not reflect the nature of instructional or organizational change and improvement, and does not lie at the heart of the conception we wish to invoke. Other means than tests must be used to assess student engagement in learning and their acquisition of knowledge over a given period of time (Hargreaves, Earl, & Schmidt, 2002; Supovitz & Brennan, 1997:

see the references in these two articles to the literature on assessment). The issues surrounding alternative assessment are discussed in greater detail in Chapter 7.

The one-by-one formula describes the actual organization of the personnel and curriculum prevalent in schools. School architecture is also designed to accommodate this prescribed form of organization and no other. Innovation in schools' social and organizational structure encounters physical barriers as well as social and psychological barriers to change. In some cases the physical barriers can be overcome while the other barriers remain implacable. An alternative organizational plan of classroom instruction may require a room large enough to accommodate the simultaneous functioning of two such classes merged into one. One of the primary benefits of two or more teachers working together as a team is to give them an opportunity to plan their work with the help of colleagues, of sharing ideas to enhance teaching and learning, and to share responsibilities. It might not be possible to implement team teaching in the sense of having both teachers and two classes meet together (Elmore, 1996; Peterson, McCarthey, & Elmore, 1996; Sergiovanni, 1994, pp. 148–150). The two or three teachers in the team would then meet at some agreed-upon time for cooperative planning of their work but their classes will not be merged and actual instruction takes place in separate rooms at different times, as the case may be. If and when the school administration adopts the alternative plan of two or more teachers working together in the same room, the technical solutions can be found to provide space for the double-sized class. Walls separating classrooms can be dismantled; large spaces in the school initially intended for nonformal school activities can be allocated to the large class, etc.

Such steps will be required until such time as the authorities responsible for the physical design of schools are introduced to the alternative conception of the school organization. The design of schools with large spaces appeared some decades ago in elementary education but not in secondary schools. It should be said that some schools later regretted the move to large spaces and had walls rebuilt to return to the separate-class concept. It seems that teachers did not find a way to cooperate with one another, and the administrators had not understood how to integrate the different variables constituting the structural system of the alternative form of schooling. The organizational and pedagogical implications of that kind of reform of schooling had not been explored with sufficient clarity to guarantee its survival (Sarason, 1990).

The principal of a community school elaborated on the following five points during an interview published in the *American Educator* (Spring, 1988; cited by Sergiovanni, 1994, pp. 42–44). Other experts agree with these principles of school change (House & Mcquillan, 2005), and they reflect the view proposed here:

1. Teachers in the school do not work as isolated individuals but as members of a team of 6–8 teachers. Each team is responsible for teaching three groups of 27–30 students.
2. Each team is responsible for the total education of their students and not just for teaching their subject.

3. Teacher teams and their students stay together for several years (in elementary school).
4. Teacher teams make all the instructional decisions that impinge on students.
5. Students are not forced to compete with one another but work together in cooperative groups. Competition separates people, cooperation brings them together.

Human Organization Is Contrived

Some authors in the field of education have warned against what they call “contrived cooperation” where teachers work together because the school requires it and not because they succeed in forming a genuine meeting of minds, or at least a voluntary and spontaneous group (Hargreaves, 1994, chapter 9). A situation of contrived cooperation in teams exists when a work relationship is set up exclusively on the basis of constraints operating in the organization without regard for the nature of the personal relationships between the people involved. Furthermore, the contrived aspect of collegiality is said to be in the service of implementing curriculum dictated by central-office authorities.

The discussion here of teacher cooperation certainly does not refer to intimidated teachers who become a rubber stamp for policies dictated by administrators outside the school or by principals. Both authors of this book have witnessed countless times the powerful effect of self-subordination at meetings by university faculty to people in authority. That phenomenon is not, and never was, the monopoly of school teachers. Studies of group behavior have long documented the persistent danger of collective thinking in groups (Janis & Mann, 1977) but that danger must not serve as an excuse to downplay or reject the potentially constructive role of teacher cooperation in teams (Sharan & Shachar, 1994).

What puzzles us in the warning about contrived cooperation is if the critics think that the nature of teacher organization in school systems with minimal or no cooperation among teachers in teams is a superior, noncontrived state of affairs. Why is the relative isolation of teachers and students in the traditionally organized school less contrived than the establishment of teacher or student teams to carry out their respective tasks cooperatively? If people were left entirely on their own to organize a school as they saw fit without preconceived ideas (a condition hardly conceivable in reality), would they impose the kind of isolation found among teachers and students in today’s schools? For the moment let us argue that the creation of cooperative teams is contrived by the school to replace or at least reduce teacher isolation and increase the impact of teachers’ contribution to the conduct of the school’s educational policies. Opposition to that plan would freeze the school’s organizational behavior in a status quo and impede needed discussion and clarification of the school’s and the teachers’ work.

Furthermore, we argue that the claim of contrived cooperation is strangely utopian (Hargreaves, 1994, chapter 9). It is utopian to think that the school as a workplace,

or almost any other social organization for that matter, can conduct its affairs through voluntary and spontaneous affiliations among colleagues. All organizations that involve teamwork bring people together who may have not known each other and who may not even agree on many subjects. Nevertheless, their cooperation in the workplace, temporary and somewhat impersonal though it may be, can make an important contribution to the school or organization. Committees have been the brunt of many cynical jokes and rightly so (e.g., a camel is a horse planned by a committee) but we cannot imagine modern organizations pursuing their complex tasks without committees. True, any committee can be dominated by “group think” and subordinate themselves to the express will of some authority, within or outside of the school. That is always possible whenever people abandon their independent thinking to find favor in the eyes of authority. The same is true for schools. How many people abandon their independent thinking when confronted by the need to cast their ballots in democratic elections? Teamwork in schools cannot circumvent patterns of social behavior in many walks of life.

Yet, recall that teamwork by teachers is relatively rare because schools fail to structure time and place for them to meet during the workday. Once meetings are accomplished in terms of time and place, many positive products can and do emerge from members’ collaboration. The claim that the products of “contrived” committee work are predictable is unsubstantiated and patently indefensible. Such a claim, for example, actually dismisses the work of a jury in courts as superfluous because their decisions are predictable. Universities, for example, would certainly collapse were it not for the work of committees set up by particular departments, although faculty members appear to have the right to refrain from participating in this or that committee. Members of those committees have little or no contact with one another outside the committee meeting. People in organizations do not, and generally cannot, choose their colleagues, even when the organization is based on a common ideology or common subject matter. It is unrealistic to expect that they would necessarily want to establish a noncontrived form of contact with their workmates. Undoubtedly, teams would function better, and people would be far more gratified with their work, if they could establish genuine relationships with colleagues that were purely voluntary and relatively permanent. But those conditions are utopian and are not feasible even in some of the best contemporary organizations. Nor has the case been made to demonstrate that those conditions are advisable, resulting as they are likely to do, in too many like-minded groups lacking a vital degree of controversy and divergent views. Schools can and do have a culture of cooperation with institutionally organized teamwork.

Teaching in teams has been well known for decades and has been thoroughly discussed by numerous educators (Kwong & Tan, 2005). For the past four decades or so, some school consultants have engaged in working with school faculties on cultivating productive teamwork, decision-making and problem-solving, and many other aspects of their collective tasks in schools. This work has been conducted under the title of Organizational Development (Schmuck & Runkel, 1994) and has yielded many impressive outcomes in terms of assisting schools to reach higher levels of team functioning. The work of Organizational Development in schools is

not founded on any assumption that teacher teamwork is largely initiated by the teachers themselves and hence is voluntary or spontaneous. Nor have any of the authors of publications on Organizational Development asserted that teacher teams reached predictable decisions allegedly anticipated or dictated by school authorities. It is unreasonable to claim that so many teachers sold their souls to the devil in a Faustian contract (Hargreaves, 1994) and passively relinquished their free time in schools to meet organizational constraints. Even Goethe in his incomparable skepticism would not make that claim. Teachers were convinced that the designated use of their time was to serve worthwhile goals with which they concurred, and hence they viewed that time as serving legitimate and educationally beneficial purposes. The authors who expressed the notion about the “contrived” character of cooperative teamwork in schools are aware of the arguments mentioned here in support of teacher teams. The patently pejorative term “contrived” is misleading when applied to teachers’ cooperative work in teams intended to cope with the major challenges posed by schools on any given day.

The very same situation obtains with students. All forms of cooperative learning in classrooms involve the formation of small groups of 2–5 students who are to cooperate with one another on academic tasks, according to the procedures typical of the different cooperative methods (Sharan, 1994). The students may not have met each other before entering the class, and they may not see each other in any other class in large secondary schools. Their association in a learning group can be based partially on voluntary membership, but only to a limited degree since not all students will be able to join the group they wish to select. Nevertheless, they can learn to work together constructively to the benefit of each member, to the group as a whole, and to the class. That conclusion was reached by investigators concentrating on a constructive implementation of the No Child Left Behind act of the US government regarding instruction in science (Marx & Harris, 2006). Aren’t these groups based on “contrived” cooperation? Perhaps, but that is not a factor that need impede the groups’ academic work, their emotional engagement in their work vis-à-vis the subject, or with their groupmates. Nor can we expect teachers to devote the time, effort, or skill needed to create the kind of interpersonal relationships between group members that go beyond their interaction during the period of their cooperative learning effort. Indeed, groups that generate an amicable and constructive ambience for their work, and are able to avoid intrusive competition, jealousy, or antagonism among some members (be they teachers or students) are certainly to be judged as successful.

What Structure Cannot Do for Teachers

At this juncture, it is imperative to introduce a caveat not to be missed. It is important to state explicitly what we are attempting to do and what we are *not* attempting to do here. School organization cannot solve all the major challenges confronting educators who wish to make significant progress in supporting productive learning among students. The formulae presented in this chapter state that all six elements

are of decisive importance in the structure of schools, and not any one element alone apart from the others. *The primary concern of the present book is to relate organizational and instructional features of school structure, together with students' learning activities, so that they are understood as constituting a system.* Disregarding one element will undermine the optimum operation of the other elements. Similarly, exclusive emphasis on one or several elements will not provide the conditions necessary to change the remaining elements in such a way that their practice will be aligned with the renewed character of the school. Thus, if we manage to restructure basic features of school organization and give teachers the opportunity to work in teams, to participate in decision-making about curriculum or other critical matters, to integrate several disciplines to create an integrated curriculum suited for alternative teaching methods, we will certainly have made a great deal of progress. However, all of that together does not provide teachers with the concepts and skills needed to practice alternative teaching methods in classrooms to their satisfaction. They still require the educational experiences and guidance necessary to acquire those tools for their teaching. Hence, we cannot view school organizational change as a panacea for achieving the goal of improved student learning, although the absence of such change ensures lack of progress.

A report about how research lessons improved education in Japan is a case in point (Lewis & Tsuchida, 1998). Teachers undertook to implement a series of changes in the way teachers worked with their colleagues. Taken together these changes were called "research lessons" referring to how teachers researched their own and colleagues' classroom teaching. In and of themselves, the research lessons appear to be admirable, to say the least. But, none of these features of the Japanese research lesson mentioned having students engage in research. The entire conception deals exclusively with teachers' behavior to improve the way THEY planned and delivered lessons. No one doubts that the students derived great benefit from the way the teachers designed their instructional behavior, but, as noted, that design did not require substantial alteration in the way curriculum was adopted or in the way students learned. The organizational changes were exemplary but nothing significant was changed in the learning behavior of the students so that the pedagogical aspects of the change effort were of secondary importance.

In short, we might say that organizational change, at least in the variables mentioned in the two formulae, is a necessary but not a sufficient cause for pedagogical advancement. It is also true that pedagogical change in the absence of organizational restructuring produces transient and ultimately frustrating consequences for teachers who will see their efforts gradually, or swiftly, eroded by an inflexible and intransigent school structure. More often than not, agents of school change focus on organizational aspects of the school with which they are most familiar, and leave classroom teaching to the teacher to decide on and control. Those school change projects that included the planned change of teaching methods as a central component of their effort appear to have been far more successful than change projects that omitted that component (Smylie & Perry, 1998). In fact, those change projects that did not offer teachers an opportunity to become competent in alternative teaching methods ultimately fell short of their primary and proclaimed goal of

improved student engagement in learning and improved productive learning (Smylie & Perry, 1998).

School Organization and Teaching Practices: A Summary of Our Goals

The greater-than-one formula specifies the elements of the vision advocated here for secondary schools, to replace the one-by-one formula still practiced in most schools today.

1. Classes and schools should strive to create a sense of community – of mutual assistance among teachers and students, mutual accessibility, and peers as sources of support, rather than the isolation of classes and individuals promoted by concentration on separate disciplines.
2. Teachers should work in teams for decision-making and for planning and implementing classroom instruction.
3. Alternative instructional practices (non-lecture) are much preferred over the prevailing teacher presentation approach in classrooms, particularly methods that include student investigation of problems, as individuals or in small groups.
4. Student assessment methods should stress providing teachers and students with information about the process of teaching and learning to facilitate students' academic progress, in place of the current fixation on grades that eclipses the significance of long-term learning and intellectual curiosity.

An integrated transdisciplinary curriculum can enhance the pursuit of knowledge as an ideal or goal of schooling rather than emphasizing the accumulation of information.

Chapter 2

The School *as* a Community; The School *in* the Community

Like many concepts in education, the term community school expresses diverse meanings and goals. One popular use of the term relates to schools where parents participate in planning social events, field trips, ceremonies, or a certain small portion of the curriculum. That kind of community school has its virtues, but it is *not* what is intended here. Our concern here is, first and foremost, with *creating a sense of community within the school*. In Part 2 of this chapter we will discuss the idea of the school *in* the community.

Part 1: The School as a Community

A community exists to provide its citizens with support for their well-being and for living their lives as members of the community. The primary mission of the community is caring for its constituents (Noddings, 1992; Sarason, 1985). Without an adequate sense of belonging to a community, teachers and students will be unable to cultivate their abilities to their own satisfaction.

The teachers are the primary residents of the school community and the relatively permanent members of the school's organization. The students are the major clients of the schools' and teachers' educative efforts. However, since students most often spend several years in a given school, they are members of the community for the period of their residence in the school, thereby being in the double role of clients and members of the community at one and the same time. The teachers, therefore, must cultivate a sense of community for themselves and for the students.

From one point of view, teachers can construct what is called "a community of practice" that emerges from "dense relations of mutual engagement organized around what they are there to do" (Wenger, 1998, p. 74). Including teachers in the essential matters pertaining to the conduct of the school is decisive for the development of a community of practice among teachers and administrators. Teachers must also have the opportunity to negotiate the terms of, and their need for, their mutual commitment, to underscore their participation in a collective effort in which they all have a stake. Insulation of teachers from one another, and from the process of decision making about school policy, has severely impeded the progress of community

building in many schools, a fact noted by several generations of investigators of schooling (Goodlad, 1984, 1994; Hargreaves & Fullan, 1998; Sarason, 1990, 1995; Sharan, Shachar, & Levine, 1999).

Research on students' sense of belonging to their school informs us that administrators and teachers are in a powerful position to influence students' sense of being members of a school community (Hargreaves & Fullan, 1998; Ma, 2003; Sarason, 1974; Sergiovanni, 1994; Sharan, Shachar, & Levine, 1999; Strike, 2004). Ultimately, the community character of a school will impact in a variety of ways on the students, including the enhancement of learning academic subject matter. What is emphasized here is that "the practice of communal schools in which, among other things, interpersonal relationships are emphasized to create affective bonds among all school members, may be instrumental in developing students' positive sense of belonging to school" (Ma, 2003). The term "affective bonds" does not refer exclusively to a conflict-free atmosphere in relationships among teachers. There will inevitably be disagreements and perhaps emotionally charged confrontations between members of the staff when they have the opportunity for working together instead of being separated all the time "behind the classroom door." Teachers have cited that reason for their preference to guard their privacy in schools. "In real life, mutual relations reflect the full complexity of doing things together... such as power, pleasure, competition, collaboration and so forth" (Wenger, 1998, p. 77). A strong case can be made for the claim that in the long run, mutual engagement among teachers is far more rewarding for all concerned, including the school as an entity, than the kind of teacher insulation seen so often today in schools (Sharan, Shachar, & Levine, 1999).

School Organization and Community

To arrive at a view of the school as a community, we must look at it in its entirety and not concentrate exclusively on its component parts, such as the specific academic disciplines taught in the school. The view of the school as a community requires a systems concept of interactive and mutually dependent parts. The separate sections of the school may lack the coordination needed to achieve the coherence, continuity, and consistency necessary to give teachers and students a sense of being accepted citizens in a single society. Schools as communities are better suited to sustain productive learning than schools whose varied functions are distributed among separate sections of the school.

Coordination of the school's various parts, component elements, departments, or other aspects of the school's organization is a subject that requires some attention here. The discussion in this chapter places great significance on the need for people to care about each other if they are to establish and maintain a sense of community in a school. But – and there is a big BUT – the school, or any institution, supports or impedes expressions of caring and of people's concern for one another through the medium of

its organizational practices, its social-structural features, and its rules and regulations. No amount of preaching about the need for caring and compassion will guarantee its existence in real relationships within the school. The way schools operate has a powerful impact on all aspects of behavior that contribute to a sense of community.

Many people would prefer to think that personality decides how they will behave in given situations. Certainly no one can disregard the great significance of personality characteristics and their impact on a person's relationships. Yet, many thinkers, authors, and investigators in the field of human behavior – in this case in the area called Social and Organizational Psychology – have shown repeatedly just how powerful an influence the organizational environment exerts on behavior, often unnoticed by the actors involved. Behavior frequently is so extensively affected by peoples' perceptions of what the environment expects of them that they adjust their behavior accordingly without giving the matter a second thought. The landmark work by David Katz and Robert Kahn (1978) influenced generations of people interested in this subject. They demonstrated decisively the determining influence of organizational environments on people's behavior and feelings. Their thesis about the importance for understanding the nature of behavior in organizational settings can be ignored only at great risk. Not a few educators treat this knowledge with a disarming and simplistic naiveté to the effect that each individual administrator or teacher has complete control over their professional behavior in schools. The latter most frequently leads to pious wish fulfillment or gross denial that leaves our schools ensconced in the same place they have been for a long time and subject to the same destructive, exploitative, or just plain ineffectual forces that have operated heretofore. This near-“unconscious” or habituated behavior is, as mentioned earlier, what Sarason calls “behavioral regularities” displayed by people in every institutional setting, schools included (Sarason, 1971, 1982, 1983, 1996).

Are we claiming that people in institutions of various kinds behave mechanically, without thinking, with a very high level of conformity and lack of individuality? That is one extreme view of our position on the matter. However, it is closer to our intention to say that people adapt themselves to institutional norms for a multitude of reasons, one of which is a desire to receive the benefits of the particular institution as a client or as an employee. People are known to consider their best interests carefully, and that is certainly not intended as a pejorative statement. They want to keep a job or benefit from the services offered. Novice teachers may be idealistic but they cannot survive in a school system if they charge into a school like a bull in a china shop. Nor do they have the political clout or influence to achieve much in the way of change. The same can be said for many individuals, novices, or veterans, who must tread lightly in the political waters of an organization if they are to remain there for any length of time. Some organizations with extraordinary leadership protect their employees in such a way as to make it safe for them to express their opinions about the organization and their experiences there. That feature of organizational life is not equally distributed in the population of institutions (Senge, 1990). Schools whose “products” are hard to identify and whose faculty do not receive palpable rewards for honest criticism or for superior functioning are, by all accounts, one of the more conservative organizations in society.

Professional tunnel vision also impedes the view of the school as an organization, and hence serves as a barrier to an awareness of the need for changing organizational norms or regulations. Schools rely on consultation from members of very different professional orientations. Curriculum experts, guidance counselors, or remedial teachers, and so forth, whose services are vital to schools, frequently express views emphasizing the centrality of their expertise to the humane conduct of the school and its character as a community. They and others might be inclined to ignore the organizational environment of the school, if for no other reason than the fact that they are neither empowered nor professionally prepared to cope with that environment. That environment often is perceived as remote from the substance with which they are most competent to deal. In their view, if curricular issues, the special needs of learning-impaired children, or the deliberation over a course of study are not central to the school's concern, the school cannot make progress and students will be alienated and neglected.

The ecological-organizational view presented here certainly does not seek to limit the functioning of these professionals in any way whatsoever, and their contribution is indeed vital to the proper conduct of the school. The view proposed here, and by educators with a holistic view of the school as an educational community, asserts that help offered by professional educators to individual students, while vital and humanly necessary, cannot substitute for the systematic design of schools' organizational environment as the determining factor in their social-educational operation.

Communities and Other Enterprises

The overarching goal of the community is not the production of palpable products such as achievement or quantities of knowledge. The industrial model of schools is so rampant that many educators have adopted it as a worthy vision for schools (Schlechty & Joslin, 1986). That vision serves the needs of a product-oriented approach to society typical of the time when the world was in the grips of the Industrial Revolution. That vision of the school as a *gesellschaft* or commercial organization (see Sergiovanni's (1994) discussion of this term and its opposite, *gemeinschaft*) was, or should have been, left behind decades ago (Sarason, 1999). Visions and beliefs die slowly or not at all. Many countries or districts still cling to the industrial vision of schooling, even as the old model of industry is being replaced with the knowledge-based information society. We persist in educating students for the world of yesteryear. Schools function more effectively and more humanely when they are less concerned about generating capital like banks or industries, and more like communities whose goals are supporting human contact and caring (Noddings, 1992; Sarason, 1974, 1985, 2006; Strike, 2004). That does not imply in any way that contact and caring are the *only* goals that the school strives to accomplish. It does mean that schools should take seriously their primary and fundamental purpose of caring for and supporting faculty and students.

Before all else, a school must acknowledge the presence of individual teachers and students. Who is he or she? Do the people in a school know at least those colleagues or peers in their cohort, class, or grade level? Admittedly, given that many schools today are very large, some with 1,000 or 2,000 students (elementary schools are usually smaller), no principal, teacher, or student can get to know all of their colleagues or peers. Large organizations or social settings, including schools, foster a great deal of student anonymity, and a large portion of the teaching staff knows few colleagues. Too many students are isolated and almost unknown. In secondary schools where students attend 5–7 classes per day, and teachers find themselves in three or four (or more) classes a day, each with 35–45 students, the inevitable consequence is widespread isolation among students who have no friends in school or whom no one knows. Neither teachers nor students are highly motivated in an environment from which they are alienated in the sense of not having relationships with others who care about them (Epstein & Karweit, 1983). Remarkably, there are teachers who actually know the names of each and every student in every class they teach. Those teachers must be in a minority because it is extremely rare to find people anywhere who at any given time remember the names of over 150 people.

High schools have incorporated the alienation and anonymity of the modern metropolis. The parrot-like repetition by educators of the cliché that “schools reflect society” is no comfort or compensation for the children who get lost in the shuffle of huge schools. In fact, that seemingly unassailable expression is dreadfully wrong. Schools are educational organizations charged by society to cultivate the minds and morals of the young. What other social institution was given that charge? Look at any urban society and it immediately becomes obvious how utterly different they are from schools, and how vastly different schools are from any other organizational entity in society in terms of their goals. Schools certainly lack some of the extraordinarily positive aspects of large societies, such as the breadth of opportunity afforded to a very large number of people. Nor were schools ever intended to possess such a range of opportunity due to the nature of their social mission. Only because schools accept almost all of the children in society, they are said to reflect society despite the obviously narrow range of goals and processes relevant to schooling.

Of course, schools are organizations. As such they share many features with other social organizations, and can derive much benefit from learning from other organizational settings about the effective conduct of organizational life (Sarason, 1999). But, there is no parallel between schools and any other form of social organization in terms of their social mandate to educate the entire body of society’s younger people from kindergarten through the 12th grade for a given number of hours each day and for approximately 44 weeks a year. The school community must seek solutions to its own challenges and problems in terms of its singular and distinct characteristics, whether these be unique, rare, or shared by other kinds of organizations because all of the latter’s problems are mixed with those that are rare or even unique. Organizational developers or consultants who do not understand the conditions prevailing in schools that differ fundamentally from conditions present in the institutions with which they are acquainted cannot apply experience from other types of organizations automatically.

The Goals of the School as a Community

What then are the goals of schooling in the view of the school as a community? We have already mentioned the goal of having students develop a sense of belonging to the community. The internalization of the community's values and identification with them nurture students' sense of belonging. The school community also seeks to induct students into the world of learning as well as into the broader social environment in which they live. Schools strive to have students develop their understanding of subject matter so they can gain some perspective on who and where they are in the history of humanity, and share the language, criteria, standards, and practices of human knowledge in many fields of intellectual and social endeavor, including the nature of community itself. That vision values the socialization of students into a shared social or intellectual order rather than accentuating private aspirations such as economic gain. The industrial-economic approach to appreciating the nature of education turns education into an instrument for achieving rare commodities for which each student must compete in the adult world. In doing so through the medium of test scores, it discourages the cultivation of shared purposes with peers and colleagues, as well as with the broader society or nation. It fails to educate students to engage in dialogue with their contemporaries to explore the meaning and understanding of facets of their culture and of their world (Dewey, 1910; Marx & Harris, 2006; Sarason, 1995, 1999; Strike, 2004).

When teachers care deeply about the ideas and substance of their instructional effort, they convey their commitment to students. What is being studied is valuable in its own right and not just a means to achieve a grade on the report card. But for that message to make an impact on students, the school as a unit must directly as well as indirectly, through its more formal procedures, express that message to the students. The substance becomes a means whereby teachers and students can form a bond as a community of learners. Much too frequently, the status of a school on the five scales tends to be toward the right side of the scale, indicating its affinity with the notion of *gesellschaft*, far more than its relationship to the school as a *gemeinschaft* or community. The rules and norms of school organization stemming from the assumptions of the one-by-one formula pose a daunting impediment on the road to becoming more of a community than a factory. Again, that is particularly relevant for secondary schools and for the higher grades (five and six) of elementary schools. The clairvoyant John Dewey said as much in his pedagogical credo:

I believe that the school is primarily a social institution. Education being a social process, the school is simply that form of community life in which all those agencies are concentrated that will be most effective in bringing the child to share in the inherited resources of the race, and to use his own powers for social ends....[M]uch of present education fails because it neglects this fundamental principle of the school as a form of community life. It conceives the school as a place where certain information is to be given, where certain lessons are to be learned, or where certain habits are to be formed

(Archambault, 1964, pp. 430–431; first published as a pamphlet in 1897).

Sergiovanni employed (Parsons, 1951) (1951 series of five pairs of variables to characterize social relationships in schools. These pairs of variables can provide a succinct overview of some of the interpersonal features of community discussed

here. They also can be formulated as a set of five scales to evaluate the extent to which teachers in a school display the characteristics of relationships typical of communities or of schools that function primarily on the basis of strictly formal organizational features. The pairs of variables, followed by the five scales, are (Sergiovanni, 1994, pp. 23–26):

- Affective – Affective neutrality
- Collective orientation – Self-orientation
- Particularism – Universalism
- Ascription – Achievement
- Diffuseness – Specificity

1. Affective versus Affective neutrality

	Affective					Affective neutrality					
Teacher–Student	5	4	3	2	1	0	1	2	3	4	5
Among teachers	5	4	3	2	1	0	1	2	3	4	5
Administrator–Teachers	5	4	3	2	1	0	1	2	3	4	5

Are participants in a given situation interested in each other or disinterested?

2. Collective Orientation versus Self-orientation

	Collective orientation					Self-orientation					
Teacher–Student	5	4	3	2	1	0	1	2	3	4	5
Among teachers	5	4	3	2	1	0	1	2	3	4	5
Administrator–Teachers	5	4	3	2	1	0	1	2	3	4	5

Are participants to a given situation motivated by common interests or primarily by self-interest?

3. Particularism versus Universalism

	Particularism					Universalism					
Teacher–Student	5	4	3	2	1	0	1	2	3	4	5
Among teachers	5	4	3	2	1	0	1	2	3	4	5
Administrator–Teachers	5	4	3	2	1	0	1	2	3	4	5

Do participants in a given situation make decisions based on the features of the specific situation, or primarily on the basis of rules and regulations?

4. Ascription versus Achievement

	Ascription					Achievement					
Teacher–Student	5	4	3	2	1	0	1	2	3	4	5
Among teachers	5	4	3	2	1	0	1	2	3	4	5
Administrator–Teachers	5	4	3	2	1	0	1	2	3	4	5

Do participants in a given situation value each other for who they are, regardless of their achievement, or always base their evaluations for each other on their accomplishments?

5. Diffuseness versus Specificity

	Diffuseness					Specificity					
Teacher–Student	5	4	3	2	1	0	1	2	3	4	5
Among teachers	5	4	3	2	1	0	1	2	3	4	5
Administrator–Teachers	5	4	3	2	1	0	1	2	3	4	5

Mutual evaluations are called diffuse when they allow for broad interaction and focus less on defined roles, while specificity relies largely on defined roles and role expectations.

Community and Academic Disciplines

No one thinks that if we call the school a community everything will be peaches and cream. Every civilized society has laws that govern people's conduct to protect citizens from abuse of all kinds and from intrusion into their privacy and property. Schools like other institutions of society need rules and laws, and law enforcement, to make their community viable and safe.

Democratic societies elect legislatures to formulate its laws. In classrooms, where the number of citizens still permits face-to-face contact, it is possible, and recommended, that everyone participate in the formulation of the laws governing their conduct, a kind of classroom constitution that the students and teacher agree to live by (Sarason, 1983). Many students will probably know what laws are necessary. Some might suggest rules that are too stringent and restricting, while others might possibly suggest rules that are too permissive and allow for behavior that can be disruptive. Of course the students' age will have a decided effect on the degree of realism in their suggestions for rules and regulations in the classroom.

Sergiovanni is of the opinion that some set of non-negotiable "ten commandments" should be set out by the adults in the school that determine the overall limits of everyone's behavior in the school and classroom setting (Sergiovanni, 1991, pp. 135–136). Some of the rules adopted (in 1992) by a particular school are mentioned in his book. That list of rules reported below does not contain any positive commandments about what students *should* do, only what they *should not* do. When thinking about rules and regulations for schools, we must not forget that schools are about what students can and should do, only secondarily about what they should not do. Most of the following rules are obviously relevant to schools today as they were then, such as:

1. No weapons, whether real or toys
2. No pushing, tripping, hitting, or fighting
3. No drugs
4. No classroom disruption or refusal to follow teacher's directions
5. No stealing or damaging other people's property
6. No hiding in empty rooms
7. No alcoholic drinks, drugs, or cigarettes in the school
8. No touching fire alarms or firefighting equipment (fire extinguishers, hoses, etc.)

Students today might suggest other rules not mentioned above as necessary for the safe and orderly conduct of teaching and learning in school. One such rule might be: "[P]eople unaffiliated with the school in some capacity, exclusive of students' parents, are not allowed on the premises." On the positive side, we wish to recommend

that the first commandment in any set of rules for students' behavior in school read something like this: "Learn the best you can. Learning can help you be a better person and understand yourself and this big world of ours." A second positive "commandment" could be: "Help your classmates learn and they will help you." All the "shalt nots" should be listed after the positive rules.

The Biblical Ten Commandments have exercised enormous influence on Western society for 3,000 years. We are all aware of the fact that many, if not all, of them were ignored by individuals, groups, and nations throughout history, and that any set of rules proposed in today's world, however democratically legislated, will be disobeyed by a small but not negligible portion of the population. Responsibility for estimating the severity of the infraction of the law and the consequences for the offender devolves upon official bodies. The laws that govern a host of concrete situations set standards for societies and their institutions, and are vital components of civilized life everywhere. Educators can design social processes for schools and classrooms that invite students to regulate their community life so that serious infractions of the law are both rare and dealt with fairly.

The regulation of community life to guarantee the safety and integrity of its members is vital for classrooms, schools, and for all of society. In that sense, the classroom can become a miniature society (Thelen, 1981) and provide students with the experience of a semi-democratically organized setting. Democratic societies elect their leaders. Representative leadership as an essential element of democracy is not practiced in schools, and is not likely to be, just as it is not practiced in many institutions within democratic societies. Hospitals, banks, industries, courts of law, police, fire departments, and so forth are also not "democratic" settings. Students must become aware of the limits of the democratic regime appropriate for the school setting. Too often the term "democratic" is employed as a sacred incantation that no one dares object to. Adults should not mislead students into thinking that schools are democratic settings. "Democratic" institutions of government do not negate or set aside the conventions of society regarding the relative status of individuals' roles in society: Presidents, elected officials, and people who occupy various positions in social institutions do not forget the respect and recognition to be accorded them by the citizens, and the same is true for schools. On the other hand, relationships between people can be characterized as more or less democratic. It is important to cultivate democratic relationships between teachers and students with the understanding that teachers are to be accorded the civility and respect they are due as teachers and adults.

Qualities of Leadership

The ideal leader is said to embody humility and determination, what one author called "the paradoxical blend of personal humility and professional will" (Collins, 2001, quoted by Fullan, 2003, p. 10). Leadership in schools has attracted considerable attention from scholars and authors of works on education (Fullan, 2003; Sarason, 1998;

Sergiovanni, 1991, 1992; Stringer, 2002). School principals in most instances are appointed, not elected, to their post, so they are not “democratic” leaders. There is little doubt that principals are the gatekeepers of change in their schools. In too many cases they play that role in a negative sense, that is, as resisters of, or impediments to, change rather than initiators. If principals would be more proactive and less conformist, schools would not look like they do today (Sarason, 1982, 1995). Principals would be in the forefront of organizational and instructional development. Secondary classroom teaching and learning today have not changed much over the past few decades, or even over the past half-century or more. Principals must bear some responsibility for that fact when they direct their vision for the future.

Part 2: The School in the Community

The importance of the broader community of which schools are a part must not be ignored here despite the fact that we focused primarily on the creation of a sense of community *within* the school. The two uses of the term community are very distinct: the one relating primarily to human relationships within a given setting (Part 1 of this chapter), the other to the range of institutions, services, residential settings and the residents thereof, and so forth, found in a given geographical area (Part 2 of this chapter). A substantial professional literature is available about the relationship between schools and the external community, particularly in regard to the nature of the relationship between schools and the students’ parents (Hargreaves & Fullan, 1998). Suffice it to say here that we certainly recognize the great importance for schools of initiating and maintaining productive and mutually supportive relationships with parents. It is also of decisive importance for schools to gain support from community organizations in order to implement needed changes and advances in organization and teaching.

The Community as a Site for Learning

Our purpose here is to explain how the community can serve as a site for learning for students who attend school: how the community can be viewed and creatively utilized as one of the richest sources of learning experiences that society can offer to schools, teachers, and students, if they would only take advantage of that opportunity. Seymour Sarason dealt at great length with the subject of communities as a resource for learning and human services (Sarason, 1983; Sarason, Carroll, Maton, Cohen, & Lorentz, 1977; Sarason & Lorentz, 1979). Setting up and maintaining networks with community organizations for the purpose of having students conduct part of their study tasks at those settings require considerable skill. If educators will acquire these skills, their schools will reap enormous benefits for the students and teachers.

The idea of conducting study projects outside of the school in the community is not revolutionary. It has been referred to in several publications under the title of “service learning” where the central notion is for students to provide services to community settings (Johnson & Notah, 1999; Tan, Cheah, Kwong, & Kumar, 2005). Student learning occurred, in this conception, apropos their service experiences that meet community needs. Service learning was also conceived as being “integrated into the young person’s academic curriculum” although, once again, the emphasis is on the students’ project as directed primarily at provision of a service to the community. One of the various forms of service learning is called “academic service learning,” which is what we call here “the community as a site for learning.” Accordingly, the proposal here is for schools to conceive of the community as offering a rich variety of settings where students pursue planned projects to investigate aspects of life in the community in all its manifestations. It certainly can be beneficial to have an element of “service” built into the project if appropriate.

Of interest is the fact that theoreticians of service learning recognized the essential relationship between that approach and Dewey’s philosophy of education. He sought to make possible a sense of continuity between life inside and outside of schools, so that education is not preparation for life but life itself. Learning encapsulated in schools creates the opposite impression on students, as if the study of academic subjects is decoupled from life and takes place within the walls of a building called school (Dewey, 1938; Sarason, 1983). Research on service learning is not yet sufficiently developed to reach any conclusions (Tan, Cheah, Kwong, & Kumar, 2005), while research on the Group Investigation method which typically included a community-based component has yielded more positive support for students’ conduct of investigations of academic topics outside the school (Sharan & Sharan, 1992).

In practice, schools are tightly barricaded behind bureaucratic and legal impediments to taking students out of the school building, except for the prearranged school trip that rarely if ever is part of a systematic study project initiated by, or planned with, the students. Schools do take students for trips now and then, but that hardly qualifies as conducting serious study projects *in situ*, where the “action” actually occurs in real life. The idea of studying phenomena in real life, so basic to all of human research, has been almost summarily precluded or disregarded by schools.

The failure to take community sites into consideration as potentially powerful places for learning stems not only from the bureaucratic barriers school systems have erected to make sure students are all accounted for inside the building; the barriers to conducting learning activities outside the school include a conceptual bias about the nature of academic studies entertained by schools and teachers. Sarason (1983) pointed out that schools consider academic learning as a category of event that occurs almost exclusively *inside* and not *outside* of schools, and that the learning that goes on outside the school is not related to academic learning as defined by the school.

That highly limited conception of learning is one way in which schools protect themselves from intrusion into their affairs by people from the community.

The concentration on learning within the school as the sole source of legitimate academic learning also protects the erosion of teachers' status by numerous people in the community with specialized or general knowledge that teachers may not possess. All in all, keeping students shut in behind the school's doors, and not only behind the classroom door, gives school personnel a great deal of power and control over the students' academic careers. Schools that maintain a highly differentiated departmental structure along disciplinary lines, so that school organization is atomized internally, are not easily convinced that the overarching goal of generating productive learning among students can be served well by having students investigate broad topics of knowledge outside of the school where separate disciplines are hardly discernible (Johnson, 1990).

Some authors assert that departmental and disciplinary separation is the hallmark of intellectual standards, as is common in research and higher education (Holmes, 2005). In the view expressed here, schools sustain enormous losses in many domains due to this misguided policy. We will mention only two such areas of loss to the school: one, the failure to arouse a great deal of motivation and interest, even enthusiasm, in students by virtue of the opportunity provided by on-site learning to connect academic subject matter to students' lives and thereby engender productive learning in the best sense; second, no school can possibly encompass the breadth of activities, resources, events, and human diversity found in communities (Sarason, 1983). By necessity communities have extensive resources capable of generating learning of all kinds that schools can never conceivably offer students. In all likelihood, those resources would be accessible to students if schools would make the effort, and pave the way, to obtain access to them. Many settings in society and their personnel would be more than happy to provide students with a chance to observe and study the particular processes that unfold daily in those settings (Hargreaves & Fullan, 1998). People and various institutions in society do not necessarily seek close partnerships with schools, or wish to participate in the determination of school policy, in exchange for offering students an opportunity to learn about the nature of those persons' or institutions' functioning. That is especially true if the visiting students can be helpful in some ways, and if their study of a particular site will not be a one-time affair.

For many years the first author conducted a graduate seminar on the subject of *The Community as a Site for Learning*. It is not possible to relate a fraction of the imaginative and highly instructive study projects that students planned and carried out, with their classmates serving as learners, as part of the class project they were asked to submit. Students invariably surprised themselves at the rich resources for learning they uncovered and the exciting opportunities that awaited teachers for involving their students in site-based learning outside the school building. Many of the graduate students were principals and supervisors in the school system. They were skeptical, at best, about the idea, and at worst, staunchly opposed to it. After their experience that required them to work in small groups of peers to identify, plan, implement, and report in detail on an out-of-school academic research project applicable to their students, they became enthusiastic advocates of the idea.

Their experience taught them that study projects centered in the community did not require any substantial increase in budget, except for occasional expenditures for short-distance travel. No new teaching personnel were needed, although the assistance of parents was always very helpful. No special books or curriculum were required. Often, relevant publications were available in local public libraries. The central commodity demanded by the outside-of-school study project was teachers' and students' willingness to pursue a project outside the school (with the backing and support of the principal), and their imagination regarding what was most worthwhile to investigate "out in the world."

The backing and support of the principal for initiating study projects outside the school building is a topic that deserves attention. Once schools acknowledge the potential value of the larger community as a site for learning, the school's relationship with the students' parents immediately comes to the fore. Perhaps the most recommended manner of supporting the idea of out-of-school learning projects is to win over the parents to that idea as a basic school policy to enhance learning and not for another field trip. It is certainly not advisable to postpone obtaining parents' permission to the last moment and take them by surprise. Several meetings of parents, teachers, and the principal can be utilized to formulate school policy regarding the entire matter, and to enlist parents' volunteer support as a significant contribution to their children's education. Of course parents should be encouraged to accompany small groups of students during the implementation of the study projects. Some parents predictably will remain opposed to the idea. It is often amazing to see just how conservative parents can be and how they will oppose plans for vitalizing student learning because those plans suggest procedures that differ from what the parents experienced when they were students, or from what they see in other schools. Some parents, perhaps even a majority, can participate in planning a schedule for implementing the projects in the most appropriate communal settings. Participation of parents in these projects is likely to make the job much easier of enlisting potential sites and settings in the community where students will be welcomed and helped to gather the information they need.

In many discussions of school-parent relationships, mention is often omitted of the fact that a small school, usually an elementary school, with 400 students, has a parent population of close to 800 people. Rarely, if ever, will 800 people be prepared or interested in taking part in any aspect of the school's activities. Nor could a school conceivably deal with such large numbers of people. A school will have to pay attention to who are the parents willing to collaborate on joint educational projects with the school. Are these parents representatives of the parent population through the Parent-Teachers' Association, or are they parents who volunteer on a random basis? It seems advisable for schools to establish representative parent groups based on student membership in given classes so that all of the classes in the school have three or four parents who attend relevant activities. Given that the school has approximately 20 classes, a group of 60-80 parents is a group with whom a school can conceivably function well and effectively. In turn, those parents can report to the larger body of parents twice a year at parent-teacher meetings.

This idea is NOT the same as the notion loudly touted some years ago called the School Without Walls. We are not suggesting that schools no longer meet in specific buildings, or that all of students' academic studies can or should be conducted outside of the school building. But again, this is not an all or nothing proposition, and there are many intermediate degrees of implementation possible between the current zero use of the idea and the idealized 100% of learning outside school buildings. There is a middle ground between the two extremes that can be employed with extraordinary benefits for all.

In passing it can be observed that cooperative learning in its investigative form is particularly suited for application to study projects conducted outside the school. Students can undertake powerfully motivating and enlightening studies in small groups in such places as industrial and commercial enterprises, health services of all kinds, the judicial and law enforcement systems, the school system itself, the world of architecture, music of all kinds and their performing artists, ecological studies including geographical–geological–biological topics, extending investigations to colleges and universities, and so forth (Sharan & Sharan, 1992). It is not realistic to ask entire classrooms of students to visit places outside the schools as one large group. A large group would overwhelm most institutions or individuals who in principle are prepared to offer their assistance to schools, unless we are referring to a large museum. Small groups of students are eminently more manageable both in terms of the communication among the group's members, and in terms of appearing together on a site in the community.

Site-based learning in the community is the royal road for schools to translate into reality Dewey's famous dictum that school is not preparation for life, it is life itself, instead of clinging to the present encapsulated school as the royal road to boredom and unproductive learning.

Chapter 3

Student Engagement in Learning

A Cognitive-Affective Concept

The concept of “student engagement” requires elucidation. In our view, engagement is one of the critical goals of education, and a criterion for evaluating its effectiveness. Research on the subject has defined engagement in three ways: “*Behavioral engagement* draws on the idea of participation; it includes involvement in academic and on-task behavior... *emotional engagement* is related to... student attitudes and student interest and values... *cognitive engagement* is related to... motivational goals and self-regulated learning.” Engagement in the context of students’ learning in school is thereby conceived as the interaction or fusion of behavior, emotion, and cognition in the process of learning (Fredricks, Blumenfeld, & Paris, 2004). Engagement is thus a much broader concept than “motivation to learn” although the two overlap to some degree. Engagement also overlaps with student interest, attachment to the school, achievement motivation, self-regulated learning, commitment to learning, and/or the investment of energy in learning in general, and other related terms. Engagement encompasses all of these ideas, so that it is a broad, multidimensional concept. It is appropriate that a concept with such complexity serve as a goal of schools’ educative efforts and of students’ educational experience.

Engagement also means that students find a personal connection to the teachers and not only to the subject matter. Schools must demonstrate to students that teachers know them, pay attention to them as individuals, and attribute great significance to the teacher–student relationship. Indeed, a deeply personal atmosphere should pervade the entire classroom, an atmosphere that tells everyone that the teacher is there for them, to accept them and help them succeed in their studies and in the relationships with one another. A very large part of human motivation to learn derives from our connection to, and identification with, other people, including parents, teachers, and peers. People do not learn just for the sake of learning, or only for the sake of acquiring knowledge of a particular subject. There are, of course, rare individuals who cultivate that value during the course of their lives. Most often they do so after years of schooling, after the human and interpersonal meaning of learning is acquired, hardly ever as young children. Then again, human nature is so varied

and complex and sufficiently unpredictable to warn all would-be prognosticators that they risk being wrong or even harmful by foreclosing options. That said, students who perceive their teachers as indifferent to them are at risk of becoming alienated from the subject at hand. Hence, teachers who do not learn about some of their students' important characteristics and who are unable to design aspects of classroom teaching and learning appropriately are unlikely to be able to "reach" those students and involve them deeply in the pursuit of knowledge.

Students' experience in school is similarly a very complex and multidimensional phenomenon that should not be reduced to any collection of grades written on a report card or in the students' record. The term engagement has been used for the past two decades or more in relation to reading engagement, classroom engagement, task engagement, and so forth. We will not undertake here to discuss the manifold problems of definition that have occupied several authors in recent years. Rather, we adopt the definition advanced by Newmann and colleagues (1992) that engagement is the "student's psychological investment in and effort directed toward learning, understanding, mastering the knowledge, skills or crafts that the academic work is intended to promote" (p. 12). Our only reservation about that definition is the absence of sufficient reference to the motivational-affective aspect of engagement that we wish to add here.

Positive engagement in learning is, therefore, a cognitive-affective condition in which students want to learn. That is one of the main indicators of the concept of productive learning employed here. Research confirms that student engagement has a positive effect on academic achievement at different levels of school, including middle and high school. A singularly important finding of research notes that students who are rated by teachers as positively engaged in learning in the first year of elementary school do well in school during the following four years and beyond. Positive engagement also appears to "prevent" students from dropping out of school: Low ratings of engagement in the first grade can predict students' drop out of school at the high school level. Low levels of engagement can be called disengagement and, as noted, can predict high school drop out. That finding highlights the decisive importance of students' emotional and intellectual attitudes toward learning. Those attitudes, included under the term engagement, affect their entire future in school far beyond the matter of their achievement scores alone (Fredricks, Blumenfeld, & Paris, 2004).

Engagement and the Learning Environment

The assessment of students' engagement in learning precedes the point in time during the academic year at which they will receive a grade for their work, including marks on whatever examinations they had. That means that evidence from research about engagement, regardless of the explicit goal of any given study, documents how the *process* of (teaching and) learning precedes and predicts the *product*. The product, usually students' achievement scores, is inadequate as the decisive indicator of the importance of school learning, or of how and what students learn.

Our model of productive learning represented in the greater-than-one formula (Chapter 1) indicates that the design of the process of learning precedes the assessment of student outcomes, however creative and “formative” assessment may be. Educators focused on assessment may, in their enthusiasm for their profession, tend to ascribe to assessment a predominant role in the educative process, placing assessment ahead of the acquisition of knowledge. Assessment can certainly play a formative role in the planning of instruction. But replacing the instructional process with assessment is to put the cart before the horse, or even to forget altogether that the cart must be drawn forward to get anywhere before asking where we are located.

Not all instructional methods are equivalent. At times some and not others are more appropriate, depending, as is well known, upon a host of circumstances too numerous to relate here. Too often the instructional process is conceived to be the situation in which a teacher tells a class what they are supposed to know, so that formative assessment consists in ascertaining where a student’s “knowledge” or reservoir of information stands at a given time, what experts in measurement often call “proficiency” scores. With that piece of information, says this approach, the teacher can determine where to proceed with the transfer of more subject matter. The greater-than-one formula draws attention to an alternative, more complex, view of teaching and learning than the informational-transfer notion that unfortunately still occupies a significant place in the prevailing conception of school learning.

Equally important is the finding from research that student engagement is affected by a host of environmental factors, including students’ peer group attitudes, teachers’ instructional behavior, the challenge of the learning tasks, and more (McCaslin, 2006). Students’ opportunity to work cooperatively with their peers on learning tasks also stimulates their interest in learning (Fredricks, Blumenfeld, & Paris, 2004; Schmuck & Schmuck, 2001; Sharan, 1994; Slavin, 1990). The subject of cooperative learning is discussed elsewhere in this book.

Engagement and Students’ Conceptions of Learning

Some investigators of student learning have shown that the students’ conceptions of the classroom environment affect their approaches to learning and teaching. Students whose conception of learning is a qualitative or constructive one (Biggs, 1996) will be concerned with understanding the meaning of the academic subject matter and connecting it to knowledge acquired earlier. Students whose approach is quantitative or reproductive view learning as the accumulation of information: The more you know and the more questions you can answer on a test, the better student you are. The qualitative approach tends to delve deeply into subjects, while the quantitative one remains on the surface of the subject. Of interest too is the finding from research that the teachers’ instructional strategies and assessment techniques can affect students’ view of learning in the direction of a qualitative or quantitative approach. Hence, the students’ approaches to learning are not solely

the product of their personality, as some people still think, but are significantly influenced by the manner of teaching they encounter in classrooms (Dart, Burnett, Purdie, & Boulton-Lewis, 2000). This latter finding shifts the burden of engaging students in meaningful learning from being placed exclusively on the shoulders of the students, and views the school and the teachers as equally responsible for that role. Indeed, to attribute student engagement in learning primarily to the students themselves, their histories, personality, or socioeconomic status is similar to making patients exclusively responsible for the outcome of surgery, while the contribution of the surgeon is peripheral. Classroom teaching and learning is in its very essence an interactive social-intellectual undertaking in which all parties to the interaction contribute to its character and impact (McCaslin, 2006).

Undoubtedly, students' personality, talents, interests, and habits play a very significant role in influencing their learning in school, as they affect many other aspects of their lives. But to highlight the role of students and underplay the role of the school and teachers disregards decades of knowledge about the impact of schools and teachers on student learning. It is close to limiting the function of schools and teachers to that of "information delivery systems" to students whose history preordains what and how they will learn. Consequently, neither the delivery system nor the receptors of knowledge can display much flexibility or openness to the considered and purposeful design of schooling. That may be one reason why the public seems so indifferent to the manner in which schooling is conducted. Everything is hunky-dory as long as the kids are in school.

Ultimately that view leads to a highly individualistic and deterministic approach to education, one that has been decisively refuted. The individualistic view states that the structure of the organizational environment in conveying expectations, norms, incentives, motivations, and so forth hardly affects students. Moreover, the environment has relatively little effect on students because their personal histories dictate current behavior almost completely. Those views run counter to what is known about human behavior in various kinds of social settings, as discussed earlier.

Meaning and Student Autonomy

Learning tasks become meaningful for students when they are able to learn about topics that are important to them, or that they have had a say in selecting. Rarely are students given a voice in the matter, contrary to the decisive evidence that links student engagement in learning to their participation in the selection of study topics and materials. Learning tasks are much less meaningful when they are imposed by others. Students, like adults, want to feel they can act on what they consider to be related to them, to feel autonomous and not perpetually and relentlessly directed to do what authorities have decided in advance (Sharan & Sharan, 1992). Unfortunately, schools assume that it is their sacred duty to present students with study tasks decided upon exclusively by authors of the curriculum who typically have no knowledge of, and are totally unrelated to, the students. Decisions regarding the

contents of what students are taught are generally made by curriculum consultants or by teachers in the school. Teachers have explained that refraining from “teaching” everything presented in the formal curriculum is like cheating the students out of an education. For adults and children alike, imposed tasks generate a sense of being coerced into laborious activity. Autonomy in the selection of tasks creates a sense of working at a personally meaningful activity (Arendt, 1958). The latter is consistent with engagement in learning, while imposed tasks often produce students’ disengagement. The personal meaningfulness of learning is another of the essential components of productive learning.

However, the importance of students’ participation in the selection of learning tasks does not constitute unqualified support for students’ control of curriculum that schools deem important for students to learn. This topic is discussed in Chapter 5.

Students who receive support from teachers and from peers, especially when they have an opportunity to interact with them while performing a learning task, and one which they have participated in selecting, enjoy schooling and become involved in learning far more than students who do not receive such support from teachers and peers. In general, people do not like working in places where they feel isolated or neglected, no matter what their age. Productive learning is closely related to productive teaching in the broad sense of that term, namely when teachers are able to sustain a supportive and enjoyable social atmosphere for themselves and for the students, as well as providing support for their academic activities. Teachers will provide that support and acceptance for their students when they themselves feel a sense of belonging to the school, when they are recipients of caring from their colleagues and administrators (Ma, 2003; Scherer, 1998; Sarason, 1985).

Academic researchers in disciplines such as educational psychology have devoted an overwhelming portion of their attention to students. We must remember that students’ experiences in school are determined to no small degree by their teachers, in addition to their relationships with peers. A much greater effort at comprehending the condition, and predicament, of teachers in schools is required to provide interested people with a more comprehensive and in-depth understanding of schooling.

Chapter 4

Class Size and School Size

What Is a Large Class?

Educators in Western countries generally consider any classroom of 25–30 students to be large and, consequently, to present difficult challenges to teachers to achieve their instructional goals. Educators focused on the “large class” with the goal of providing ways for teachers to cope with a situation that has become a norm in many school systems (Carbone, 1998; Cherian & Mau, 2003; Nolasco, 1988; Pat, 1992). Yuanshan and Mau (2003) stated that a class of 50 or more was “defined” as large by educators in China after an effort was made there to reduce class size from much larger numbers (such as 150 students) that had glaringly negative impacts on teachers and students. What is large for China or India is more likely very different than what is conceived as large in Western countries. Remarkably, in a very small country like Israel, whose entire population is a fraction of the size of any major city in China, official class size is 42, common only in very large countries.

An adequate definition of a *large and difficult to teach* classroom in Western nations must take into consideration several other factors in addition to the number of students present at any one time. At the very least those factors include the physical size of the room, and the number of teachers functioning at one and the same time in that room. A fascinating elementary school in the United States (We do not know how many such schools exist) consists of one huge round room whose space is divided into areas of different sizes by bookcases or by movable room dividers that are approximately three or four feet high. Classes of different sizes, depending upon the subject matter, the amount of interest in that subject as an elective course chosen by students, etc., meet in these areas for varying periods of time. In some areas/classrooms there is one teacher, and in others there are two or even three teachers working together. Some large classes, in terms of number of students, are housed in relatively large physical areas with more than one teacher, as occurred often in the British Open School. Students have ample space to move around, work together in groups, and prepare drawings, models, maps, etc., of fairly large size, without being cramped or interfering with others. Surely this class, which might number more than 45 or 50 students, with two or more teachers or adults guiding the students, and whose

temporal duration could be 90 minutes or more, is likewise not included in the definition of what is known as “the large class.” Clearly, the number of students in the class is *not* the sole criterion for categorizing a class as large, and “large” classes do not necessarily constitute a hurdle that challenges the teacher’s capacity for getting through the day under conditions reminiscent of an obstacle course.

The “density” of the classroom is a function of the number of students relative to the size of the space available to them, as well as of the number of teachers available to lead the class. In the majority of instances around the world, there is only one teacher per class. Regarding the physical size of the classroom, in Singapore, rooms are usually 90 square meters for 40–45 students. In Finland classrooms are typically 64–70 square meters, but there are rarely more than 20–25 students per class. In Israel, where the standard number of students per class is 42, the room size is 52 square meters. The latter certainly qualifies as a “large class” in terms of the meaning usually attached to that term by educators, namely a class with one teacher that meets for relatively short periods of time that has a relatively high level of density compared to other countries.

The “large” class often displays features in addition to the number of students and the physical size of the classroom: Students’ desks or tables face a solo teacher (or in a rectangle with one end open). Furthermore, the teacher’s typical mode of instruction is to transmit information verbally to the students about a given subject over a given unit of time dictated by the school’s schedule of classes. Of course that is the only form of instruction in the countries of the Far East, notably China and India, where large classes of 50 or more are the norm rather than the exception. Remarkably, it appears that uniformity of instruction by teacher lectures is the only desired style of instruction in many countries in the West as well as in the Far East, and not simply as a necessity in light of class size. In the latter countries, the teachers’ sole “technological” aid is a piece of chalk and a blackboard (Yuanshan & Mau, 2003).

Some studies of class size conducted in the United States and the United Kingdom do not state explicitly what constitutes a “large” class, although they might indicate the number of students in classes called “small.” Fewer than 20 students in the class was identified as a “small” class by investigators who documented the significant connection between those classes and positive student behaviors, including their engagement in learning and prosocial interactions with classmates. We must assume that “large” classes in the US study typically did not include more than 35 students. But not all studies concur that small classes have a positive effect on students’ peer relations, although there is little dispute about its positive effect on learning and achievement. A study in the United Kingdom suggested that aggressiveness among classmates was more likely in small than in large classes, perhaps because students in large classes spend more time with each other and less in contact with the teacher than in smaller classes. Hence, the latter may cultivate fewer friendships with their classmates (Blatchford, Edmonds, & Martin, 2003). The effect of superior academic achievement in small classes is generally attributed to students’ greater attentiveness to learning and less distraction, a friendlier atmosphere for student peer relations, as well as to more opportunity for teachers to give individual students more, and a better quality of attention. Teachers’ morale is higher in small classes as is their satisfaction with their teaching. But, relatively recent reviews of

research are not as unequivocally positive about the effects of class size as were conclusions drawn by investigators from their review of the research published up to the 1980s (Elmore, 1995; Finn, Pannozzo, & Achilles, 2003; Glass, Cahen, Smith, & Filby, 1982). Nevertheless, research results thus far favor small over large classes on a list of critical behavioral features of students' classroom learning *if the size of the class is at the lower limits of 20 or less students* (Finn, Pannozzo, & Achilles, 2003, 332), although, like almost every other topic in education, that view is contested by several researchers (Buckingham, 2003).

Large classes "coerce" teachers into a highly uniform pattern of instruction. That is the situation deemed by many, for good reason, to be the bane of well-meaning teachers. That kind of classroom inevitably must generate a lack of attention to the teacher by a sizable portion of the students present, perhaps as many as 60% or more. Prolonged lack of attention and disruptive behavior by some of the students accompany the application of the one-by-one formula. Students will begin to draw the teacher's attention to them, away from the tasks of teaching, and ultimately will interrupt the concentration of other students in the class. As a result, teachers frequently have the frustrating sense of being ineffective. Of course some teachers have the capacity for making strikingly dramatic presentations along with a generous use of technological teaching aids to complement their verbal presentation. Those teachers can manage to attract the attention of the majority, perhaps 70%, of the students in the room. Such teachers are certainly far fewer than their less dramatic colleagues.

Given the incessant demand of teachers and parents for smaller classes (Bennett, 1996), as well as the positive findings in some studies about student academic achievement in small classes, it most likely appears anomalous for a progressive plan for school organization to be suggesting that the size of classrooms could be doubled for the purpose of producing superior effects on students and teachers. For readers who have followed the argument presented here on behalf of a restructured instructional process, the suggestion to double the size of the class will no doubt be more transparent. One study did find that smaller classrooms may lead to the gradual emergence of individualized instruction (Zahorik, 1999), and it certainly can be one of the positive steps to be taken to improve schooling. Nevertheless, creating "smaller" classrooms (with 20 or less students) than the "large" ones (40 or more) will not lead automatically to a noticeable change in the manner of instruction. That statement runs counter to decades of the accepted truism that teachers "lecture" to classes because they have no alternative due to the large number of students in the class.

Teaching Methods Omitted from Studies of Class Size

Research on class size, and reviews of research, including the classic analysis of the literature by Glass, Cahen, Smith, and Filby (1982) and the extensive review by Finn, Pannozzo, and Achilles (2003), did not consider the possible impact on students of variation in the instructional method employed. Their "theory of class

size” does not mention the subject (Finn, Pazonno, & Achilles, 2003). The critical importance of “good” teachers compared to the less important feature of class size was emphasized by Buckingham (2003), but she did not relate good teaching to the choice of particular methods of teaching. “Good” teaching apparently consists of “interesting” lectures. Class size with given limits remains the primary independent variable in educational research, except for some “subject variables” such as the students’ socioeconomic level, ethnic or racial background, and so forth, not how the students were taught or their level of motivation to learn. The latter subjects mattered little for the researchers of class-size effects. The authors of one extensive and detailed publication noted that teachers of small classes typically did not change their method of teaching compared to teachers of large classes. Classroom observations do not support the perception that instruction in small classes is more individualized, and that there is a change in the overall structure of lessons or content covered (Finn, Pannozzo, & Achilles, 2003). Many observers of classroom teaching (Goodlad, 1984; Sarason, 1971, 1982, 1990, 1996) stressed that teachers’ classroom teaching styles change very little if at all, even over long periods of time. Following the study by Stasz and Stecher (2002, p. 29), Finn, Pannozzo, and Achilles (2003) noted that “teaching practice is resistant to change and that teachers adapt their practices slowly and marginally as new materials and techniques are introduced.”

A particularly thorough and thoughtful examination of research and thinking on the subject of class size is offered by Herdberg, Atputhasamy, Tan, and Lee (2005). Most of the work referred to in that, and all other reviews, were done in elementary schools than in secondary schools. In view of the almost total absence of research that included teaching method as a variable, or where the duration of class time was taken into consideration by researchers, the following statement summarizes what we consider to be an appropriate conclusion from research on class size:

Given the fact that there is one teacher with a class of 20 students or less, and the teacher lectures to the students about a given subject for a period of 30 to 45 minutes, students will generally remember on a test more material than their peers in larger classes because they are likely to have been less distracted by classmates and hence paid a bit more attention to the teacher, and because they probably received more attention from the teacher. Students in classes with more than 20 and perhaps even more than 30 or 35 students who were also taught with the lecture method by one teacher for the same amount of time will probably remember less than those in the smaller classes.

The suggestion offered here that research on class size should take into account the manner or method of instruction used in the classrooms under study is actually making a critical statement about research on class size, namely: Class size covaries with other important variables of pedagogy. How does the teacher guide student learning with the aim, *inter alia*, of having students become engaged in learning? Nonproductive learning may be more rampant in large classes because, as has been observed, teachers are less able to give adequate attention to all the students. In relatively small classes, teachers are able to give more personal direction to students. No one would deny that students can benefit from an increase in teacher guidance by whatever method it is offered.

However, public school classrooms in most countries are generally much above 20 students in a class (Elmore, 1995). Under such conditions, teacher guidance to individual students is unavoidably diluted compared to the “small” class, and the mountains of research on the effect of class size have little to say about these “large” classes. Students from those classes who achieve lower scores on tests ostensibly do so because they learned less effectively. Yet, we know little about differences between groups of students in small or large classes when it comes to the problem of productive learning. It is necessary for experiments on class size to include instructional method as a co-independent variable along with class size. When that will be accomplished we predict that the “large class” effect of depressed achievement would be considerably reduced. A study of class size that employs teaching method as a co-independent variable would, at minimum, have the following 2×2 design.

Evidence from existing research strongly suggests that there would be a difference in student learning outcomes as a function of variation in both size and instructional method simultaneously. For the experiment whose general structure is suggested above in Table 4.1, a possible hypothesis would be that there would be no difference in student achievement (however defined or measured) between the small and large classes taught with cooperative learning methods. In fact, there is some basis for predicting that the large class of 35–40 students taught with cooperative learning methods will achieve higher scores than those achieved by either the small or the large class taught with the Frontal method; there might be a difference between the small and large classes taught with the cooperative learning method, but the direction of the difference, whether favoring the small or large class, cannot be predicted at this time. Again, what can be predicted is a distinct improvement in students’ engagement and interest in their studies, and an increased investment of effort that results from the infusion of some enthusiasm into their classroom learning.

Cooperative learning means dividing the class into small groups of two, three or four members each. Those groups are the social units that engage in studying academic subjects through mutual assistance, discussion, frequent interaction about how to proceed, and so forth (Sharan, 1990, 1994; Sharan & Sharan, 1992). The larger class recedes into the background as the members of the small groups relate primarily, almost exclusively, to one another. This feature of the class divided into small groups becomes quite visible to anyone standing on the sidelines and watching the students at work. The main criticisms about the negative influence of the large class are that students are more easily distracted and teachers less attentive to students. Those drawbacks of the large class are distinctly less true for the class that has been divided into small working groups. The large group can serve as a forum for presentations once the small groups have concluded their tasks or projects, but it is not the functional instructional unit during the process of the small groups’ learning activities.

Table 4.1 Suggested design for a classroom experiment with teaching method and class size as independent variables (dependent variables not specified)

Method	<i>Frontal</i>		<i>Cooperative learning</i>	
Number of students	20	45	20	45

Variation in teaching method means much more than different kinds of activities that can be accomplished as “seat work.” Genuine variety demands a distinct change in students’ environment, such as laboratory experiments, library work, visiting sites outside the classroom or outside the school, interviewing or just talking to people who have knowledge or experience students seek to acquire, building a model, etc. All of these activities can focus on a given theme as long as they engage students in the active pursuit of knowledge and first-hand experiences. Once teachers abandon the one-method approach to instruction where teacher talk occupies 80% or more of instructional time, students’ questions are almost nonexistent, and genuine discussions in groups of students rarely take place, and schools exchange the one-by-one formula of organization for the more complex structure as suggested here, the importance of the time factor for determining the duration of class sessions can be dealt with effectively.

Does Class Size Inhibit Innovation?

One important consequence of class size has not been evaluated, namely the extent to which the number of students in the regular-sized classroom with one teacher affects the likelihood that such teachers will adopt alternative methods of instruction, such as cooperative learning with small groups of students, or the pursuit of study projects outside the classroom in settings such as industry, the judiciary system, etc. Does the presence in the class of 35 students or more inhibit teachers’ willingness to learn new methods, or to apply them even after they have learned new methods? Student outcomes can be an *indirect* function of class size as an inhibitor of instructional innovation, a possible finding that requires a different kind of research than that published heretofore. In the kind of study suggested here, class size is conceived of as an intervening, not as an independent, variable. Official bodies, such as ministries or government departments of education, rarely if ever take such possibilities into consideration in the formulation of policy regarding class size, and existing research has helped mislead them in this matter. School authorities in some places are prepared to spend many millions of dollars for large-scale evaluations of students’ achievement on standard achievement tests, but there is still no sign that instructional methods are considered to be a vital and even decisive factor in students’ productive learning and should be considered in the design of research (Nye, Hedges, & Konstantopoulos, 2001).

In all due fairness to the potentially complicated consequences of class size, mention should be made of the economic dilemmas that confront governing bodies who are responsible for deciding official policy on the question of class size. In some countries, counties, or cities, significant reduction in the number of students per class (e.g., from 42 or 35 to 25) would require enormous expenditures for new school buildings and for the addition of many teachers to the salary rolls to accommodate all of the students in new classrooms. The increase in expenditures for teachers’ salaries and support personnel may be the lesser of the two sums needed

to finance a change in class size. Citizen groups clamoring for reduced class size could be frightened off by the realization that their fellow citizens will not vote in favor of the new expenditures, just as automobile drivers dismayed by the delays in reaching destinations due to traffic jams will back away from their demands to build public transportation systems such as subways when they realize the vast sums entailed. Both situations in which the better solution will be abandoned due to the increase in budget are unfortunate but probably realistic on the political level. That is precisely what has occurred in some large cities in the United States and elsewhere. We suggested earlier in this chapter that class density should be a determining guideline for deciding about class size, namely the number of students per square meter of space in the classroom, and not just the sheer number of students alone. Those schools with relatively small-sized classrooms in terms of space are urged to make the effort to reduce the number of students in a given class.

For now, let us lay aside financial considerations and concentrate on the educational aspects of the problem. Parents continue to press for reduced class size as a means for generating what they believe will be an automatic and dramatic improvement in their children's learning and even intelligence. They give almost no attention to the changes in human behavior, such as school organization and teachers' instructional behavior in classrooms that must occur alongside reduction in the number of students in the class, if worthwhile educational goals are to be achieved. Behavior, particularly professional behavior, can be changed through different educational methods and experiences, but there are no grounds for anticipating that it will change by itself without such experiences! Teachers cannot perform their instructional tasks differently in ways they never learned however small or large the number of students in the room; nor can changing that number by itself produce such changes in teaching approach.

One of the unfortunate consequences of official policy regarding class size is that even those teachers who are prepared to implement innovations in instructional methods are effectively dissuaded from doing so. The structural features of the school and classroom as they are officially mandated (the 1×1 syndrome) embody a maximum degree of separation of classes, and of people within the classroom, from one another. That fact renders schools highly resistant to change, especially by teachers who do not wish to share methods or contents with colleagues due to the competitive atmosphere that develops in schools where teachers are accustomed to being solo practitioners. It is the rare teacher who has the determination, or the time and energy needed, to withstand the pressures of official policy or of competition with colleagues on the basis of pedagogical considerations and work toward fundamental changes in school organizational procedures.

School Size

Elementary and secondary schools in the United States, and presumably in other countries as well, have grown in size enormously in recent decades. High schools in some large cities typically number over 2,000 or 3,000 students. The first author

attended a high school in one of the major cities in the United States of approximately 10,000 students. Getting from one class to another on time was a challenge.

Between 1940 and 1990, the total number of...public schools declined 69 percent...despite a 70 percent increase in the US population (Walberg, 1992; Howley, 1994). Consequently, the average school enrollment rose more than five times...in today's urban and suburban settings, high school enrollments of 2,000 and 3,000 are commonplace

(Cotton, 1996).

Large schools demand a very high level of educational leadership and managerial skills from school administrators, qualities that by all accounts are in short supply. Face-to-face interactions between administrators and teachers and between teachers become more limited and difficult to arrange in large schools, and identification with the school as an entity is much more tenuous in larger than in smaller schools. Creating and maintaining a sense of community in large schools is difficult at best, and bureaucratic relationships predominate (Bryk & Schneider, 2002).

One argument on behalf of large schools claimed that they could provide a more variegated curriculum and hence more opportunities for students to learn subjects that met their needs. Small schools were said to be unfair to students by virtue of their limited choice of course offerings. However, findings from research did not substantiate that claim. A 100% increase in enrollment yielded only a 17% increase in the variety of offerings (Monk, 1987). In his study of school size, Monk concluded that "it is possible to offer at the 400 pupil level a curriculum that compares quite favorably in terms of breadth and depth with curriculum offered in much larger settings" (Monk, 1987, p. 27).

Nor were claims of the cost-effectiveness of large schools supported by research findings. Many small schools are operated economically while many large schools have exorbitant per-pupil costs (Cotton, 1996). Findings from research on students' social behavior in large schools were very clearly negative: "Behavior problems are so much greater in larger schools that any possible virtue of larger size is canceled out by the difficulties of maintaining an orderly learning environment" (Stockard & Mayberry, 1992).

Some communities have undertaken to downsize schools. The prevailing consensus is that the ideal size for elementary schools is about 350 students while high schools should not grow larger than 600 students (Cotton, 1996; Fullan, 2003, p. 75; Sharan, Shachar, & Levine, 1999). Short of downsizing schools, one solution to the problems posed by large schools is known as the "school-within-a-school" plan. The plan calls for subdividing schools into relatively small organizational units or "houses" that may number 250 students and avoid the need for investing huge sums of money in new school buildings (Sizer, 1993). Each house has its own staff and is organizationally and pedagogically independent. The set of houses under "one roof," so to speak, can maintain a school council of representatives who discuss common problems. However, the separate houses need not be constrained to adhere to a common curriculum or instructional policy. Subdividing schools into small constituent units will certainly give rise to many problems, but it seems to be a solution much superior to that of keeping the large school as a single unit. The smaller "house" size of the organizational unit is more than likely to have a positive

effect on class size as well. Larger schools are frequently found in the largest school districts, and the consequences for class size are predictable. The effects of large versus small-sized secondary school have yet to subject to systematic investigation.

Given that classrooms are nested in schools, and schools are nested in school systems, it seems reasonable to anticipate that some of the features of the larger system will be embodied in the patterns manifest in the smaller embedded systems. The organization of classrooms for pursuing investigative work in small groups, whether the classrooms are small or large in size, is an important paradigm for restructuring large educational units. Schools can be subdivided into constituent houses that facilitate teachers' interaction with colleagues and students, and students can interact with peers. In that manner, the school as a social system will embody the fundamental feature of systems that include the flow of information between parts of the system, rather than maintaining the character of most contemporary schools where teachers and students retain a large degree of "individualism and privacy," which often is a euphemism for isolation and lack of peer communication.

The analogy between large schools and large classrooms is inherent in the systems concept. We pointed out earlier that we do not support the claim about the benefit of the large class. Yet, it might be necessary to create large classes so that teachers can work together as a team and then reduce the size of the interacting units of students within the class by introducing cooperative learning in small groups. The same principles apply for large schools through the "school-within-a-school" plan. Large armies are subdivided into many levels of organization, into units within units within units (divisions, brigades, companies), until one arrives at the small size of a platoon with its own leaders and patterns of interactions. Schools have yet to become accustomed to dividing themselves into subunits with their own leadership and policy-making processes. In our day with the ever-increasing size of secondary schools, that pattern of organization may well be inevitable and overdue.

Chapter 5

The Integrated Curriculum

The Fusion of Academic Disciplines

An integrated curriculum is one where several related disciplines provide the basis for the topics that students are asked to study. The broad context of a multi-subject study program is more easily recognized as affecting the students' lives than the relatively narrow context inherent in the unidisciplinary course of study. Teachers and curriculum consultants can formulate fundamental problems for investigation by small groups of students that impinge upon political life, government, social problems, questions of human values, history, and problems of the sciences, as well as how questions of human health and survival are related. Such questions should be linked directly to the lives of the students, but they can also reveal the nation-wide, regional or worldwide scope of the topics studied. Given an environment where students can see how this knowledge functions in the real world, there is a relatively high probability that they will be genuinely involved in, and curious about, these topics of study. That kind of curiosity and involvement may not be typical of students before the age of 11 or 12 years. Secondary schools are the appropriate level where various academic disciplines fused to form broad intellectual domains can be most effective.

Some decades ago the integrated curriculum was called the interdisciplinary curriculum. A definition of the interdisciplinary curriculum offered by the *Dictionary of Education* stated that it is "a curriculum organization which cuts across subject-matter lines to focus upon comprehensive life problems or broad based areas of study that brings together various segments of the curriculum into meaningful association" (Good, 1973). That definition deals directly with the question of the relevance of school studies for students' lives as discussed below.

One of the less obvious implications of the one-by-one formula is that both teachers and students are literally compelled to function in school as isolated individuals. Neither time nor place are available for them to work with their peers and to benefit from their exchange of ideas, observations, knowledge, and all other personal resources that people can offer each other. The one-teacher one-class principle of school organization inevitably results in the absence of cooperation among teachers in the planning, implementation, and analysis of their teaching

(Sarason, 2006, see letter 13, p. 79ff). Nor does the standard 45–50-minute class session provide students with time for interacting with peers as members of study groups or investigative teams. They are constrained by the pressure of time to pursue their assignments as quickly as possible, given the quantity of academic material presented to them during the course of an average day in school. Remember, students in secondary schools encounter five or even six teachers every day, each one of whom may assign homework or announce a test in the near future. In some countries students meet from 10 to 15 teachers a week or maybe more. The large number of teachers these students meet means a staggeringly heavy burden of topics studied at any given time. It also results in the atomization of knowledge students are asked to acquire with little or no attempt at integration by teachers of the ideas they teach in each of the disciplines (Sharan, Shachar, & Levine, 1999). The fragmentation of curriculum is embodied in the isolation of teachers dictated by the prevailing procedures of school organization, including the separation of disciplines into departments that many teachers view as their home, rather than the larger unit of the school whose faculty encompasses teachers of a variety of disciplines (Johnson, 1990). However, it is difficult to establish which is the cart and which the horse, i.e., is school organization the *result* or the *cause* of curricular fragmentation? When embarked upon a process of school change, the cart-and-horse distinction may not carry any serious implications. Both ends and means must be addressed.

The one-by-one formula expresses this fragmentation while the alternative formula involving teacher teams and an integrated curriculum along with multiple pedagogical and assessment methods expresses a much more interrelated and unified perspective on how schools organize teaching and learning. Indeed, fragmentation is the chief feature of the schools dominated by the principles of the one-by-one formula, while integration and synthesis are the chief features of school organization guided by the alternative formula. The latter approach also holds the promise, without guarantees, of a more cooperative student-to-student form of learning (Cohen, 1994; Johnson & Johnson, 1991; Sharan & Sharan, 1992; Slavin, 1990).

The integrated multidisciplinary or transdisciplinary curriculum is another idea that educators have contemplated and written about for decades and which still waits its turn to be adopted in secondary education (Lake, 1994). Organizational norms, centrally dictated rules and regulations prevailing in school systems, and external testing imposed by centralized school authorities, have effectively prevented the adoption of an integrated curriculum by many schools that may have wanted to do so. If and when schools decide to go that route, there is a substantial number of publications available to help them (see Tchudi & Lafer, 1996 as an example).

The Problem of Relevance

We and other authors have stressed the *relevance* of subject matter to the lives of the students. The notion of relevance is problematic and requires clarification. Does the idea of relevance necessarily refer to the students' wishes here and now?

Undoubtedly, teachers and curriculum planners certainly can think that a particular subject is very relevant to students' lives even when the students themselves do not see its relevance. Schooling cannot rely exclusively on what particular students perceive as relevant at any given time. That requirement would leave the entire process of schooling on the brink of intellectual bankruptcy. Without a developed perspective on life, including the importance of scientific or historical knowledge for understanding the human predicament, or man's place in the world, how can young people comprehend the relevance of many topics for their own lives? No simplistic understanding of the concept of relevance is satisfactory if we seek to cultivate students' knowledge about who they are and where they are.

The immediate challenge to educators is to create the conditions for learning whereby students will gain an appreciation of the extent to which a given subject matter does indeed impinge on their lives and affect them directly or indirectly. Surely that goal constitutes a challenge for learning in general and for schools in particular. That is one of the components of what is conveyed by the term "the search for meaning" in relation to the design of curriculum and the process of instruction. It is unrealistic to plan what students will study by assuming that they will comprehend the relevance of a topic immediately upon exposure to it. *Looking for relevance is in fact part of the learning process, not an unequivocal precondition for learning.* Adopting a constructivist view that stresses the active role of people's cognitive capacity to make meaning out of facts or events does not imply that education should wait on the sidelines until each individual encounters the information required from which to construct that meaning. Every individual need not reinvent the wheel; nor can we relive all the experience of the past, except in the world of our mental functioning (Collingwood, 1946; Dray, 1995). There is important and vital knowledge or information that society conveys to its members, young and old, without their direct experience. That is an essential component of civilization – that it can transmit and employ knowledge without the need to rediscover it endless times. It seems that in our time that view of knowledge is not self-evident in light of the widespread belief that everything good is new, and most of everything old is useless or, at best, of no interest (Bury, 1932). "That's ancient history" is a common expression in today's world conveying a sense of irrelevance and uselessness. In the Renaissance and earlier eras that expression would mean that the subject under discussion is to be revered or at least admired.

The responsibility of educators is, therefore, to answer for themselves the questions of *what* constitutes the relevance of given subject matter for the particular group of students gathered in their classes, and *how* that relevance can be explored so that it will become evident to them. Implied in that statement is the caveat that the substance of school studies is not *automatically* relevant for students just because someone or some group charged with the formal responsibility for preparing curriculum included a given topic in the official curriculum. Educators who evade confronting the question of relevance for their students and ignore the problem of how to bring their students to appreciate the relevance of certain topics are most likely to find themselves addressing a disengaged and apathetic audience.

Contemporary theoreticians of curriculum argue that the decision about relevance is dependent upon the perceiver, not on any objective quality of the subject matter. That position seeks to establish authoritative equivalence of all knowledge, making the judgment of relevance a psychological event of the student (what he or she thinks or feels as relevant) rather than an informed decision by adults. The assumption is that such equivalence is a logical requirement of postmodern thought that has dethroned any “absolute” hierarchical categorization of knowledge. For theoreticians who support that view, one could argue that the *Book of Genesis* or Tolstoy’s *War and Peace* would be on the same par as Henry Miller’s *Tropic of Capricorn* or Batman comics. Copernicus would certainly not argue, were he alive today, that his theory of *The Revolution of the Heavenly Orbs* should be studied in our time just as seriously as Einstein’s Theory of Relativity. Who in the United States argues that students in the appropriate grade level should not study the Constitution of the United States or the history of the Civil War, or that students in Israel should not study parts of the Bible and the history of the Jewish people? Do British citizens think that the signing of the Magna Carta and the tennis matches at Wimbledon are of equivalent significance for student learning in school? Students in each and every country are asked to study parts of their nation’s history and culture.

If scientific and historical knowledge is totally relative, with no part more or less important than any other, as some people argue, education does confront an almost insoluble dilemma. Also, if education’s striving to cultivate students’ interest is completely subordinated to their immediate perception of relevance, aren’t we faced with the denial of the importance of knowledge itself as a fundamental criterion for making decisive decisions in our life? We constantly face the need for making informed decisions, and we constantly seek knowledge on which to base those decisions. If we can have no recourse to criteria of valid versus invalid knowledge (“feasibility” is not a criterion of validity of knowledge), then all explanations of knowledge become equivalent. Magic becomes as decisive for life as logic or values such as the sanctity of life, the laws or survival of the nation, or any other human value. Ignorance and thorough acquaintance with a subject are both enshrined as identical in value, and the claims of sales agents should be as acceptable as an independent evaluation of the products’ effectiveness. The adults who assume responsibility for educating the younger generation at all stages of development must make decisions about the relevance of knowledge with the aid of some objective criteria of validity, or they have abdicated their role as educators. Those decisions are inevitably based on value judgments. Human society cannot conceivably free itself of values or of judgments based on those values. School curriculum, or the knowledge we present to our own children, is no exception. Decisions regarding curriculum must be based on values, not exclusively on popular appeal. The cultivation of a social and historical consciousness on the part of students is one critical value; the importance of school studies for students’ lives is another value. These two and others must be weighed and carefully integrated and not perceived as contradictory, mutually exclusive, or opposite ends of a scale.

The previous discussion deals with the strategies of curricular decision-making. It does not deal at all with the tactics of instruction at the level of a specific group of

students at a specific time. We are certainly not voicing any reservations about a situation in which a teacher comes to the conclusion that Batman comics can serve the goal of productive learning regarding a given domain of knowledge. It would be ludicrous in our eyes if the teacher would engage students in the study of Batman comics as equivalent in importance to a profound contribution to human society. Teachers must be free to employ creative and unexpected tactical measures of pedagogy to engage students in an ultimately meaningful pursuit of knowledge.

It is far from our intention to deny or dilute the importance of having students or teachers select topics of interest to them as the subject of study in school. Asserting the need to grant the opportunity to students to choose topics of study does not exclude the obligation of educators to affirm the need for a portion of the curriculum to be required of students, alongside their right to elect other topics. School curriculum is not an all-or-nothing proposition in terms of teacher and student options for choice. It is always the case that our search for knowledge changes as we become more knowledgeable, so that the key to the teaching of knowledge is knowledge itself. That truism applies to teachers and educators, and certainly to serious students of the various knowledge domains including knowledge about schools and curriculum, and not only to students. The following statement by Kenneth Strike sums up the position espoused here:

[T]he crucial educational question is not whether we should permit students to follow their interests or generate incentives for them to do what adults believe is good for them; instead, the real question is: "How can we help students to see the education they are offered as expressing a praiseworthy set of goals and values which they share with us because they are goals and values of communities of which we and they are members?" If we ask this question, we will not see ourselves as engaged in getting children to learn what we have decided is good for them. We will see ourselves as sharing with them practices and ways of living that are of value. This question warrants setting expectations for children by adults, but it also seeks to avoid disengagement and alienated learning by seeking to develop a community of shared educational commitments with students

(Strike, 2004).

The Problem of Integration

One of the six basic principles of school organization and principles articulated here in the greater-than-one formula calls for a multidisciplinary or transdisciplinary course of study in given knowledge domains, rather than the subject-specific approach. That principle has yet to be adopted by formulators of curricula in most school systems, leaving the responsibility for constructing the integration of different albeit related disciplines to schools and teachers. One approach to curricular integration identifies four domains of knowledge taught in schools as a gross guideline for educators, namely: Natural and Biological Science, Humanities (History, Literature, Geography, Philosophy, Psychology, Sociology) the Arts (Music, Dance, Painting, Sculpture, Architecture) and Languages. Curriculum integration can refer to formulating problems for students' study that incorporates aspects of

some or all of the disciplines that comprise a given domain. It could also refer to study topics that incorporate ideas from different domains (Stevens, Wineburg, Herrenkohl, & Bell, 2005).

Table 5.1 presents the features of the subject-specific curriculum with those of the integrated curriculum.

The various features presented in Table 5.1 do not necessarily represent the extreme ends of a continuum. For example, the item termed Flexibility places “choosing from an existing repertoire” on the side of the existing curriculum, and places a minimal need for choosing from existing curricula on the side of the integrated curriculum. In practice, both statements could lead to the same curriculum because choice of existing topics can be minimal, or can provide considerable assistance to teachers in deciding how to develop the curriculum for their particular class of students. It need not lead to a decidedly preexisting, predetermined, and dictated curriculum.

Table 5.1 Curriculum attributes and means for evaluation (Table by Tamar Levine in Sharan, Shachar, & Levine, 1999)

	Contemporary curriculum	Desired curriculum
Coherence	Artificial, external framework, discipline-based	Organic, a meaningful organizing anchor enhancing thinking and creativity
	Relationships among different disciplines	Coherence between internal and external worlds produced spontaneously through contexts
	One-time appraisal prior to introduction	Emerging and being appraised at every moment and retrospectively
Validity	Assessed on basis of “scientific” reliability and accuracy	Assessed using skeptical scientific approach
	Academic-logical in nature	Validity based on intellectual, social, cultural, academics, and justified personal perceptions
	External requirement of fairness toward different groups	Fairness is a crucial aspect of pluralism
	Formal pedagogical considerations: appropriate/inappropriate	Unique pedagogical considerations: significance, interest, productivity (richness)
Relevance	Means of demonstrating and stimulating interest; scientific-academic updating	Significant point of departure and critical condition: source of generating meaning for man and society and for broadening interest domains
Authenticity	Episodic (authentic tasks); loyalty to external sources	Significant resource: important source for ongoing curricular development
Flexibility	Choosing from existing repertoire while focusing on well-defined sequences	Maximal freedom and minimal (only when essential) compulsion

(continued)

Table 5.1 (continued)

	Predetermined structure, congruence with external objectives	Dynamic, unpredictable
	Guided by outside authority	Autonomy
	Unequivocal outcomes (predetermined criteria)	Unique outcomes (using contextual criteria)
Clarity	Absolute, certain, unequivocal, concrete, unidimensional, simple, external	Evolving, complex, loosely defined, internal dynamism on a clear-fuzzy scale
Creativity	Provides diversity, entertainment, “decorative” assignments	Vital element in the evolving curriculum
Congruence between planning and implementation	Material coverage, perfect performance	Evolving, flexible, and unique planning; continuous interaction between teachers, students, and experts due to a constructivist philosophy of knowledge, learning, and development
Potential for renewal	Limited due to closed and linear structure; easier to repeat than to renew	High potential owing to recursive processes; curriculum evolves based on needs defined “here and now”
Measures of success	Student attainment of skills, contents, and attitudes	Teacher and student development: knowledge construction, intellectual development, inner satisfaction, ability to tolerate ambiguity, cognitive and metacognitive development
	Congruence with goals	Links school to real world/life

As noted above, teachers cannot be expected realistically to reinvent the wheel for every group of students they teach. Few school systems can take the radically drastic step of giving teachers a full-time job for teaching one class. That might be all teachers could cope with if they were asked to design a curriculum for each and every student, or even for each and every class of students. In short, descriptions of existing versus integrated curricula need not be entirely mutually exclusive, depending, of course, on how they are understood and how they are used in practice. In no way are these comments intended to detract from the basic assertion here that teaching must pay serious attention to students’ individual abilities and interests within the context of a class (Sarason, 1995). If teachers will rely on selecting curricular materials from those provided by the school system without ongoing and significant adaptations to the students present in their classes, the alienation of the students and their unproductive learning are predictable. The features listed on either side of the table are intended to serve as guidelines, not as dogmas in the service of still another absolute truth that can redeem education from its morass. Professional informed judgment must not be replaced by dichotomous thinking.

A general definition of the concept of the integrated curriculum, much like the subject of student assessment discussed in Chapter 6, is inadequate for teachers as a basis for actually preparing integrated topics of study. In practice, the notion of the integrated curriculum may pose impediments that teachers may find difficult to overcome. One author reached the following conclusion:

The integrative merits of any given connection depend upon the reasons for integrating. Yet...like many...professional publications...(it) gives the impression that integration can and should mean whatever individual educators wish it to mean. The effect of this is to seriously undermine curricular integration efforts

(Case, 1994).

The same author noted some of the difficulties teachers face when they undertake to construct integrated topics of study for their students.

We argued earlier in this chapter that the primary purpose of curricular integration is to enhance the relevance of the topic for students. Case (1994) argued that a thematic curricular unit constructed from the fusion of several disciplines or topics from several different domains of knowledge may not bear any relationship to how students perceive the relevance to themselves of subject matter. He reported that some teachers claimed that, in their experience, the use of varied teaching strategies and allowing students to select their topics of study were equally or more effective in promoting students' perception of subject matter relevance than the study of an "integrated" topic.

Still more problematic is the degree to which teachers may succeed in constructing a truly integrated curricular study project. A series of learning activities can be chosen from the point of view of their relationship to a single theme, and still fail to form an integrated topic. The elements of the unit remain distinct and do not contribute to increased comprehension of the allegedly integrated conceptual framework. Examination of many examples of integrated study units has revealed precisely this flaw. Teachers asked to plan their own integrated units have engaged in freewheeling associations to come up with topics related to one another, when in fact, those topics have in common only the name of the theme, such as "flight," "consumerism," "forests," or some such broad category. The net result is greater fragmentation rather than integration of subject matter because the integration is attempted by a mechanical juxtaposing of topics, and not by carefully identifying common characteristics of several topics or disciplines that bear essential connections with one another. Considerable knowledge and thought are required to achieve that goal that teachers may not be able to achieve due to the pressures of time or lack of adequate foundation in the subjects at hand.

Educational reform movements, such as the integrated curriculum, can be accomplished with the proper attention to the challenges of implementation (Sarason, 1990). One of the "remedies" suggested here is the consistent use of teacher teams for planning and carrying out classroom instruction. Of course the teams need time for systematic discussion among colleagues, and they may also need assistance from consultants. Given the ability of the teachers to work together constructively, which can be problematic, along with the proper allocation of time

and access to consultants, genuine thematic integration of varied topics or disciplines may indeed be accomplished (Sharan, Shachar, & Levine, 1999). That may provide added incentive to students to devote their energies to learning.

A team of teachers working together can plan a curriculum that potentially will stimulate students' enthusiastic participation in learning. To realize that potential of the curriculum, the manner, or method of how teachers help students learn is also of critical importance. "What" to teach is tightly linked to "how" subject matter is taught. We are often amazed by the extent to which that basic "law" of **productive teaching** is ignored, or even worse, unrecognized in the educational world. Subject matter that some educators might claim as being remote from students' lives (such as the history of the ancient or medieval world) can be actively pursued by students when the manner in which they are asked to study those subjects is motivating and engaging.

A large double-sized class directed by a team of two teachers who plan their teaching together, in method as well as in content, could produce that effect, especially when supported by students' access to a rich variety of learning resources including potential learning sites outside the walls of the school building. Learning in such instances is potentially far more motivating than hearing about a subject from the teacher. Moreover, study of real-life events as they unfold, in industry, health clinics, courts, stores, laboratories, and so forth, allow students to investigate phenomena that have a direct impact on the conduct of their lives and involve considerable knowledge that otherwise might be viewed as purely "academic," hence boring and irrelevant.

When two or perhaps even three teachers work together as a team, they can accommodate a large class and lead the students to productive learning experiences. Fifty or so students in a class can form 13 small groups where students can interact and exchange ideas (Sharan & Sharan, 1992). We are not suggesting that classes *should* number 50 or more students, or that classes should be large rather than "small." The suggestion here is only that, if there is no budgetary alternative, a class of that size can be productive and provide positive learning experiences for the students. Again, attention must be given to the availability of learning resources of a variety of types.

Chapter 6

Duration of Class Sessions and the Problem of Teaching Method

Significant changes in school organization and the processes of teaching and learning must come to grips with the use of time in schools. Time is the avenue on which all life travels, so inevitably it determines a vast range of thoughts and acts in every human pursuit. The ordering of life in schools is, therefore, deeply connected to the manner in which time is construed and constrained by school personnel. Educators have written about time in schools in publications too numerous to mention here, ranging from philosophical and psychological approaches to the most practical questions of arranging class schedules (Hargreaves, 1994, chapter 5; Sharan, Shachar, & Levine, 1999, chapter 8). A glimpse of how thinkers from many disciplines have considered the meaning of time can be gotten from the volume edited by Fraser (1966), and from such diverse studies as those of the philosopher Henri Bergson (1910) or the renowned physicist Stephen Hawking (1988), the former near the beginning of the twentieth century and the latter toward its conclusion.

In this book we do not undertake to discuss the subjective or phenomenological aspect of time as experience (Hargreaves, 1994). Sarason's observation that changing school practices is like trying to change a wheel on a moving train (Sarason, 1983) is probably as close as we come to comprehending how teachers experience programs to change the way they teach, including significant changes in class schedules. There will always be wide variation in the experience of time by the many individuals in a given school during any given duration of time. In this chapter we concentrate on the specific topic of allocating time to classes when schools wish to adopt alternative methods of teaching and learning, particularly methods included under the title of cooperative learning. Consultants who have assisted schools implement their plan to adopt cooperative learning methods in classrooms know how often teachers have told them that those methods cannot survive in schools because there is no time to practice them. Consequently, efforts to change teaching from traditional frontal lectures to group-centered inquiry must confront the question of how to portion the time available during a school day and week.

One of the most eloquent and insightful documents published on the conceptions and use of time in schools is the booklet *Prisoners of Time* prepared by the National Education Commission on Time and Learning (1994). The opening statement calls attention to the remarkable fact that schools hold time constant while learning varies. Students' abilities and rhythms, curricula for different kinds of subject matter, even

different days of the week or month or year, comprise some of the elements that cause wide variation in learning, while the school schedule in most schools remains fixed. That single cogent observation indicts school organization as impervious to the needs of the teachers and students. Schools, particularly secondary schools, function in a strictly mechanical fashion when it comes to the arrangement of class schedules. Little has changed in secondary education over the years since the publication of that booklet in 1994. People in schools, including those who administer them, for the most part remain “prisoners” of time locked into schedules unrelated to the main task of facilitating productive teaching and learning in schools. *Prisoners of Time* explicitly relates the pressing need to unlock time in schools to the entire project of school improvement in all its manifestations.

The Anticipated Demise of the 50-Minute Hour

Generally speaking, a class meets for relatively short periods of time in the upper grades of elementary schools and in secondary schools. The duration of a class meeting ranges from 30 minutes (e.g., as in Singapore, although there is a growing tendency to schedule double sessions of 60 minutes) to 45 minutes in many countries, and to 90 minutes in numerous instances where classes meet for a double period. Given that a class session is an hour or less, students are usually scheduled to attend about six classes each day, including music/art and/or physical education.

A very large percentage of schools in Western countries whose exact number, for any given country, has never been documented, observe the 45–50-minute duration of the class session, excluding laboratory classes and physical education classes. The duration of the class session is not a function of the psychological ability of students to concentrate on their academic work. Students’ attention span or their capacity to persevere at academic tasks is *not* the real reason for setting class time duration at 45–50 minutes, contrary to many claims to that effect. We submit that it is the demand for prolonged listening and monotony of the standard lecture method of teaching that severely limits students’ concentration on their studies (Sarason, 1983). Monotony and boredom are produced by the predictable repetition of teachers’ lectures in one after the other of the five or more classes per day, and for one day after the other for the entire school year, mandated for secondary schools. A significant variety of learning activities and a clear relation of these activities to the lives of the students have the potential for stimulating and maintaining high-level student engagement in learning during long class sessions that can encompass from two to five academic hours (Carroll, 1990, 1994; Case, 1994; Sizer, 1993; Sharan, Shachar, & Levine, 1999; Sharan & Sharan, 1992). Newmann and colleagues (1992), Fenwick English (1993), and others stressed the negative nature and consequences of the “50-minute hour.” The following statements reflect their perspective:

[M]eaningful achievements outside school often cannot be produced within rigidly specified time periods. Adults working to solve complicated problems, to compose effective

discourse, or to design products rarely are forced to work within the rigid time constraints imposed on students, such as the 50-minute class.... Standard, predetermined time schedules that flow from bureaucratic procedures for managing masses of students in diverse course offerings, rather than from the time requirements of disciplined inquiry, can reduce the authenticity of students' work

(Newmann, 1992).

Particularly sharp is the comment by English (1993, p. 24):

[T]he school schedule assumes a perfect mechanical cycle that leaves out human will, any experience that is unique, and all that is known about how humans learn. It epitomizes the school as a dull, repetitive, lifeless place, devoid of any purposive inquiry....It views the school as an agency of social control. It links factory to school as near mirror images: The concepts of one are reflected in the other.

At least 10 minutes of the 50-minute hour is necessarily devoted to administrative details or to matters of discipline, so that 35 minutes or less is closer to the net time classes can engage in learning. MacBeath, Schratz, Meuret, and Kakobsen (2000) conducted observations in classrooms where they recorded the time spent on teaching and learning, what they called "good learning time." Their evidence showed that 28 minutes could be identified as good learning time out of a total of 51 minutes of official class time.

Alternative Teaching Methods and the 50-Minute Hour

Under those conditions, teachers typically slough off questions about alternative instructional methods to replace the standard presentation-recitation approach: "There is no time" is the prevailing explanation. Over the past two decades or more, educators have suggested alternative class schedules for secondary schools that provide for extended duration of class sessions in order to facilitate the adoption of alternative teaching methods. The duration of class sessions is closely related in teachers' minds to the use of innovative teaching methods, as Newmann observed. A problem-solving approach to instruction, as recommended in the Group Investigation method of cooperative learning, for example, requires more time than available in the usual class session (Sharan & Sharan, 1992). It seems that these suggestions have yet to reach school systems (Anderson, 1984; Anderson, Ryan, & Shapiro, 1989; Anderson & Walberg, 1993; Berliner, 1990; Canady & Rettig, 1995; Carroll, 1989, 1990, 1994; Connelly & Clandinin, 1993; Fisher & Berliner, 1985; Jenkins, 1996; Sarason, 1982; Sizer, 1993; Sharan, Shachar, & Levine, 1999; Wilson & Daviss, 1994).

We return now to our formula about the six fundamental principles of school organization and instruction. If class schedules are to be changed to accommodate teaching methods that require more than the 35 minutes of class time typically available to teachers, then something else in the school schedule must be changed as well. Fewer classes will have to be required of students because the time will not

be available for all of them. You cannot have your cake and eat it too, namely, both longer class sessions and many different disciplines taught during the school week. The trade-off that schools practice today of short classes and a multidisciplinary curriculum is an unfortunate choice that leaves the classes and the disciplines shortchanged.

One prominent approach to extricating oneself from that quagmire is, as noted, the integrated curriculum – along with its own bag of dilemmas and challenges. Another approach is called “flexible scheduling,” which accommodates itself to the school’s variety in subject matter, students’ temporal rhythms, and the teaching method employed (Cambone, 1995). With computer programs tailored to the special needs of flexible scheduling in schools, it is possible to implement class schedules that are not “poured in concrete” for an entire academic year, and that can be altered at will. Both alternatives can function in schools simultaneously. Schools can establish procedures whereby teachers can request longer or shorter class sessions when needed, and they can conduct classes that study or investigate topics whose main problems reflect several domains of knowledge. That approach avoids the pitfalls of the rigid schedule and the premature disciplinary specialization of secondary school students *as if* they were candidates for a graduate degree in a university.

More Alternative Schedules

There are other alternatives as well. Teams of teachers can teach different groupings of students at different times during the day (Elmore, Peterson, & McCarthey, 1996, p. 69). That arrangement fits well with the greater-than-one formula. Variations on that theme appear in different publications (see Sharan, Shachar, & Levine, 1999, chapter 8). One variation is called Block Scheduling, which sets a four-courses-a-day program, each of 90-minute duration (Hottenstein, 1998; Canady & Rettig, 1995). The program of four courses lasts for a semester whereupon it is exchanged for four new courses. The Block Scheduling approach itself has variations, one being a program with two blocks per day of 180 or 175 minutes each separated by a lunch period of 35 minutes, called the Copernican plan by its author (Carroll, 1990). Both blocks can be devoted to one subject area on a given day, or to two different subjects. In one case the subject can be a single discipline, such as a specific foreign language class and the second block consisting of an integrated study program encompassing several humanities or science subjects (Carroll, 1989, 1990; Canady & Rettig, 1995; Connelly & Clandinin, 1993; Evans, Tokarczyk, Rice, & McCray, 2002; Veal & Flinders, 2001). During the 3-hour-long language class, students will engage in a wide range of activities. Certainly they should not be asked to sit in their seats and listen to lessons told by the teacher, or even read portions of a text now and then. The long 175-minute period can include dramatizations, role plays, simulations: students can conduct a restaurant in the language they are learning, make up a menu, even cook some of the food, operate

a small business in the new language, play out a detective story, or simulate landing on the moon – all after they have prepared the vocabulary needed for those specific settings (Sharan & Sharan, 1976, 1992).

Still another plan calls for three 105-minute classes per day where classes are numbered from one to five. Each of the five classes meets three times a week, and each meeting lasts for 100–105 minutes. There is a 30-minute lunch period every day.

The most widespread form of the blocking schedule is the 4×4 plan where students study four classes per day (instead of the usual six or seven), each class lasting 90 minutes, and take four such courses during the week/semester. There is also the A/B block-eight design, which is a doubling of the 4×4 design, namely, students study four classes per day, but there are eight courses a year, each course studied on alternate days. Sometimes the courses alternate every few weeks. Obviously schools can design a variety of alternative scheduling programs all seeking to implement long class sessions and a more limited number of courses studied at any given time (Merchant & Paulson, 2001).

Once schools reach the fundamental decision to depart from the standard time divisions and adopt a more varied or even flexible form of scheduling for classes, teachers, and students, a multitude of possibilities will open up for them. The key to deciding upon and implementing alternative class schedules appears to be in the hands of teacher teams that meet regularly and make the decisions necessary for determining the schedule. A class schedule for the school can be a weekly affair, so that every Thursday or Friday, for example, a committee of teachers reviews the current state of teaching and learning in order to decide what will be their needs for the coming week. Some classes may have finished their projects and new projects can be undertaken. Others can be at different stages of work on the topics they are studying. This approach is part of the concept of flexible scheduling that entails frequent review of prevailing conditions and consequent rethinking of the best structural conditions where teachers' instructional goals can be realized in terms of the time needed to implement those goals. Flexible scheduling will also create the possibility for teachers to change plans for their classes in light of ongoing needs, and to take into account the progress of individual students who will need more or less time than originally anticipated to complete specific projects.

Extensive and Intensive Study Projects

In some subject areas, the notion of basic and irreplaceable knowledge certainly continues to be valid. In many more subjects, the knowledge explosion of the past half-century or less renders the idea of gaining comprehensive knowledge in a given subject more than a bit antiquated. A very large portion of our knowledge today about traditional disciplines such as philosophy or the study of ancient history in many of the world's great cultures from ancient Mesopotamia, Egypt, Israel, China, India, and even from the "modern" countries' of Europe, and certainly in the natural sciences or astronomy was not known or understood until recently.

In our time, the perennial argument over intensive versus extensive approaches to teaching knowledge in schools should be set aside in favor of intensive knowledge acquisition with a carefully selected approach to basic facts and ideas needed for appreciation of the background of the problem to be investigated. Therefore, *the intensive approach referred to here means an investigative form of study that concentrates on the various features of a multidisciplinary, integrated topic presented in the form of a problem.* We are certainly not taking a position in favor of an in-depth study of a very narrowly defined topic. Adherence today to the extensive approach translates into a ram-it-down-the-throat form of teaching that has indubitably demonstrated its counterproductive nature. The integrated topic is discussed in Chapter 5.

How Schedule Reform Affects Teaching: Some Research

Carroll's Copernican plan reduced the number of academic subjects studied on a given day to one or, at most, two. In addition, some time was devoted to a seminar, to music, and/or physical education, and "study hall" time or time for students to prepare homework in school and obtain teachers' assistance when needed. A long class would be 226 minutes when there was one per day, or 110 minutes with two per day (Carroll, 1990; Sharan, Shachar, & Levine, 1999). The results of evaluation of Carroll's program were generally very positive in terms of both teachers' and students' enthusiasm for the program. In that project, evaluation was conducted with teachers who had substantial preparation for dealing constructively with the new schedule (Carroll, 1994). Almost no mention of this "revolutionary" approach has appeared in recent years. Research results mentioned in the following discussion derive exclusively from the application of block scheduling which is most often a 4×4 structure, namely, four classes per day and four subjects per week, with class duration of about 90 minutes per class.

One survey reported that 30% or perhaps as many as 40% of all secondary schools in the United States adopted some form of block scheduling, although the reliability of that report is not convincing. Yet, it can be said with some confidence that the 50-minute hour continues to exert its negative impact on an increasing number of schools and teachers. Research on the effects of schedule reform is relatively extensive and decidedly of low quality, leaving readers with too many unanswered questions about the results and particularly about the research methods employed. Particularly striking about results obtained in these studies is the amazingly contradictory conclusions they present (Evans, Tokarczyk, Rice, & McCray, 2002; Gruber & Onwuegbuzie, 2001; Merchant & Paulson, 2001; Veal & Flinders, 2001). Even more amazing is why the investigators did not consider in advance the variables that affected their studies in such contradictory ways. Had that been done, the research performed could have yielded higher-quality results, and not presented the usual wisdom of hindsight that often dominates discussions of research results. Once again, the variable ignored by investigators is the teachers' command of

alternative instructional skills. Or, investigators employed standardized achievement tests in a particular study without knowing if those measures were relevant to what transpired in the block-scheduled classes. Moreover, had the research performed thus far distinguished between teachers who had received in-service training and school-based consultation on alternative teaching methods and those teachers who did not receive such assistance, results of the research on the effects of schedule reform would probably have been quite different.

Another reason why current research is of limited application is that each study concentrated on one school only, albeit very large schools. The school investigated by Veal and Flinders (2001) had 1,800 students, while the study by Merchant and Paulson (2001) encompassed 2,191 students from a school in Midwestern United States. Results from these studies are certainly suggestive but tentative nevertheless.

Teachers' Evaluations

On the positive side of the ledger regarding the effects of schedule reform, a large number of teachers and students reported that extended classroom sessions of 90 minutes or more allowed teachers to employ cooperative learning and laboratory work with relative frequency. Variation in instructional method depended on the subject matter, but also, to a larger degree, on teachers' instructional repertoire. Teacher lectures declined in quantity and in time consumed, and students were able to participate more frequently in independent study projects as well as presenting the products of their projects to their peers. Teachers stated that they were able to cultivate a better relationship with the students. The outcomes are consistent with the expectations expressed by advocates of block scheduling and other forms of schedule reform in secondary schools.

Strangely enough, many teachers related several features of their work as part of a blocked schedule that reflect a very different perception of the teaching situation from that anticipated by advocates of the method. Some teachers actually felt pressured to "teach" (i.e., tell) more rapidly and "cover" more material than they had in the traditional class schedule. Since the block schedule called for each subject to meet for longer periods of time but for fewer sessions than they would under conditions of the traditional schedule, teachers felt constrained to increase their pace of talking and to squeeze in more material into each meeting "to cover the content of two days into one block day" (Veal & Flinders, 2001). It became easier to fall back on the old lecture method in order to say as much as possible in the time available than to embrace alternative methods of instruction. One teacher remarked that transmitting large amounts of subject matter content could not possibly be relinquished: "We can't let go of content because we're high school teachers, it's who we are." That sentence says volumes about high school teachers' professional self-image, their perception and understanding of their role, and the extent to which they are profoundly wedded to the concept of teaching as telling, and telling at a fast pace and in huge quantities. For the authors of this book that sentence also says

loud and clear that subject matter content, conceived as it is by secondary school teachers, is one of the main obstacles to good teaching! Can anyone doubt what constituted their professional training in universities? Can anyone imagine that the teachers in the schedule reform effort were given an adequate introduction and preparation for what they were about to encounter (Sarason, 1990)? Moreover, schedule reform in the secondary schools reported in the research mentioned here took place without any change in the core curriculum demands and expectations for test results dictated by the central office authorities. The official curriculum and external tests militated against significant change in teaching no matter how the school schedule may have been organized.

Results Regarding Students

In terms of student learning and achievement, a distinctly larger number of students completed advanced placement courses in the block-scheduled classes compared to the previous year in the same school. An increase of about 30% from baseline measures of students' grades is explained as stemming from the extended time students had to clarify topics and review concepts they had learned. Students understood that they received more attention and assistance from teachers, and also that teachers knew them better in classes with block scheduling. Teacher–student relations improved, said students, not only because there was more time but also because often there were fewer students in each class than with traditional scheduling. That means that class size operates in tandem with schedule reform to improve teacher–student relations and student learning. Students were happy with the reduction in the number of classes they attended every day, the number dropping from six or seven to four. That gave them more opportunity to focus on subject matter and to clarify misunderstanding of ideas.

The negative features of block scheduling mentioned by teachers – presumably by teachers who had little or no preparation for coping with the new form of schedule – were echoed in the students' comments, in particular the fact that some teachers increased the speed of their verbal presentations. The investigators viewed that phenomenon as having undermined the benefits of the longer class duration. As noted earlier, some teachers felt constrained to “teach more content” because the double session implied that they would meet fewer times with their students. One study of students' academic achievement of block-scheduled classes returned a verdict that the new approach was detrimental to the students' achievement on tests (Gruber & Onwuegbuzie, 2001), while another study emphasized the importance of differentiating between subgroups of students: average and high achievers were most supportive of block scheduling, while low achievers were least supportive and complained of attention problems (Merchant & Paulson, 2001), apparently because the teachers continued to lecture as if nothing had changed. The latter study also highlighted a point mentioned in many other publications as well, namely that students who are absent from a class experience a great deal of difficulty trying to

“catch up” because each class is a double session. Neither of the latter two studies differentiated between subgroups of teachers!

Some Conclusions

Schools are making an attempt to adjust the duration of class sessions to the needs of student learning. A large part of that effort has appeared in the form of extending class time from 50 to 90 minutes. That effort has several commendable features, but falls short of providing a satisfactory solution to the rigid scheduling of class time still typical in schools. Block scheduling, decidedly advantageous in many situations, still partakes of schools’ organizational rigidity and mechanistic solutions to complex problems. Flexible scheduling is by far more responsive to the varying needs of instruction and learning. Flexible scheduling can be implemented in our time with greater facility through the aid of relevant computer programs that can accommodate changes in teachers’ instructional programming and students’ involvement in a variety of learning styles and locations.

Chapter 7

Student Assessment

The measurement or assessment of students' academic achievement lies at the heart of the No Child Left Behind Act of 2001. Results from such measures, usually tests, are employed for several purposes: the application of schools and school districts for funds from the government to support educational programs, to target students in need of special assistance in school in order to prevent their eventual drop out from school, to provide a basis for planning new programs, and so forth (Griswald, 2005). The purpose of the discussion here is not to cast doubt upon the predictive (i.e., power to account for variance in scores), statistically based effectiveness of achievement testing, either in elementary or in secondary grades in school. Rather, our goal is to provide a broad view of the role of assessment in understanding students' career in school as the pursuit of knowledge. Measurement of human behavior must follow our conceptions of people's capacity for mental functioning, and not have education designed by the cannons of measurement.

All forms of measurement can be manipulated or circumvented one way or the other by clients or by those who evaluate the measurements (Kim & Sunderman, 2005). The formulation and implementation of educational policy can be observed directly IF the observers adhere to objective reporting. On second thought, all forms of human behavior, measurement and direct observation included, are subject to distortion if the people involved are so inclined. Not even government initiatives such as No Child Left Behind can alter that fact no matter how much significance is attributed to testing students' academic achievement.

Assessment as Testing

For the past two to three decades, both educators and members of the public have expressed concern over the mechanistic way in which students' learning was being evaluated in schools. The dominant testing method distorted our view of students' progress in the acquisition of knowledge, as well as introducing various forms of bias that detracted from the status of children from different minority groups. The latter problem was particularly evident in multiethnic or immigrant societies. That distortion was also considered to misrepresent the difference in academic achievement

between boys and girls (Supovitz & Brennan, 1997). Perhaps the more important critique of the norm of testing that had become a standard practice in many school systems is that tests focused on students' memory of bits of information rather than reflecting knowledge acquired during the course of study. In particular, testing fails to evaluate students' ability to communicate about what they learn, to make judgments, to solve problems, and to express their involvement in the subject matter. Indeed, test scores tell us precious little about the process or context of learning, such as: the student's motivation to learn prior to the test, the manner in which teaching was conducted, the extent of the student's engagement with studying the subject matter at hand, and many other features that exert a decisive effect on the student's performance on tests (Sarason, 2006; Wolf, Bixby, Glenn, & Gardner, 1991). The relatively high correlation between students' achievement scores at the beginning of elementary school with scores obtained on tests when the students are in middle or high school does not counter the above criticism (Griswald, 2005; Kim & Sunderman, 2005).

To have students focused on grades as the objective of their school experience supports the perception of school as a factory and not as a community of learners. The effect of grades on teachers must also not be overlooked. Concentration on grading by parents and students limits teachers' discretion to make decisions about what, how, and when to teach particular topics and to get students involved in investigating those topics. The professional status of teachers is affected negatively and the range of their pedagogical judgment is severely limited when academic achievement defined in terms of grades on tests is demanded by the school or by the school supervisor. The net result is "teaching to the test," which almost automatically is synonymous with the lecture method of instruction. Assessment that rests on tests whose exclusive outcome is a grade is like the tail that wags the dog!

The explicit goal of the British-based journal *Assessment in Education* was to foster improved instruction, student motivation, and other admirable and lofty purposes. An overview of that journal's contribution and problematic consequences was published by the editors who wrote:

Research findings presented in this journal as well as elsewhere make it clear that this "empowerment" agenda [i.e., to encourage life-long learning – authors] cannot be achieved alongside the punitive use of high-stakes testing...that engenders... "teaching to the test" ...as well as anxiety and low self-esteem...and is bought at the price of turning many students off formal learning forever

(Broadfoot & Black, 2004).

Alternative Assessment

Academic personnel in the field of education seem to have been intrigued by the challenge of assessment as opening doors for them to contribute to the improvement of instruction (Black, Harrison, Lee, Marshall, & William, 2003; Chong, Tan, & Wong, 2005). That goal is certainly valuable. A question we cannot seem to ignore easily is: Why haven't the same people who seek to improve instruction and learning

through assessment devoted at least equal time and energy to improving instruction and learning directly, and not struggle to enter the domains of teaching and learning only through the side door? Narrowing the scope of expertise in education, as academia has done, only decreases the possibility for academics to effect change in schools. ***Schools cannot be improved significantly by focusing on each and every feature of schooling in isolation from the other features:*** That is one of the main messages we wish to convey here to provide some counterbalance to the phenomenon of disciplinary isolation so pervasive at almost every level of the educational enterprise, universities included. Apparently, most professionals in education have concentrated so exclusively on their specific expertise that the goal of improving schools does not occupy any place in their thinking.

Many educators search for signs of “the transfer” of learning from one discipline to another instead of focusing directly on the discipline that requires improvement or treatment. Clearly, “transfer of learning” does not occur between bodies of knowledge but with certain general skills. Writing essays in Literature can help people write essays in History from the point of view of the skills involved in writing essays but, of course, without any reference to the content of History or Literature. A connection between the two can and should be made, but before the transfer occurs, students and teachers must establish that connection: It will not suddenly blossom on its own. However, that complex subject lies beyond the scope of the present text.

Perhaps one answer to this query is that the academic focus on teaching and learning has been less prestigious in universities than the study of measurement in education from which assessment was derived. The work of teaching is taught in teacher education courses not necessarily as part and parcel of degree-granting departments of education. Much of educational measurement and research consists of evaluating the results of events or activities implemented in schools long before the academics arrive on the scene. Their work is often *ex post facto*, rather than as participants in the act of planning and implementing the events. Experimental research, in which the academic personnel design the “intervention” to be evaluated and which includes a control group, does not have a very illustrious history in the field of education as it does, for example, in Psychology or in the Natural Sciences. Teachers too express satisfaction at receiving assistance from academic personnel for conducting assessment procedures because they may have a relatively weak background in assessment, and especially when academic consultants do not presume to tell teachers how to teach, only how to assess what students have learned! Quite predictably, books on assessment focus on student learning or on how teachers use assessment to help students. They generally omit dealing with the process of teaching itself.

The products of formative assessment certainly can inform teachers about what ideas students lack, so teachers may help students close gaps in their knowledge. But it is the rare publication that directs teachers from the start to instructional methods that provide students with motivating challenges to engage them in learning. For that, teachers must turn to works on teaching (Joyce & Weil, 1996), not on assessment. Works on assessment are most helpful for learning about assessment, and only secondarily – if at all – for learning about instruction. Assessment will not

guide teachers in setting up cooperative groups of students whose members can stimulate each other's motivation, exchange ideas, pursue a common topic so it can be studied in depth, and so forth.

Having said that, alternative or formative kinds of assessment can provide a window into some of the important matters that illuminate the meaning, for students and teachers, of what they are learning. Alternative assessment refers to methods of evaluating students' learning other than testing. The express purpose of alternative assessment is

to motivate students to take more responsibility for their own learning...and to embed it (i.e., assessment) in authentic activities that...stimulate students' abilities to create and apply a wide range of knowledge....The point of alternative classroom assessments...is not [that] they are ends in themselves but that they are designed to foster...productive learning for students

(Hargreaves, Earl, & Schmidt, 2002).

Like other major educational innovations, alternative assessment depends upon teachers' professional sophistication and skills, as well as upon the availability of the time and institutional support needed to design and implement the new methods. These resources are more often than not in short supply. Careful study of the impediments to alternative assessment that have surfaced in school systems leads to some very sobering observations, as was painfully and clearly formulated by Hargreaves, Earl, and Schmidt (2002). The skills needed for teachers to employ *alternative assessment* (i.e., other than tests) are quite different from those required for the implementation of *alternative instructional methods* (other than the lecture method). Institutions of higher education that prepare educators are expected to meet these needs by making available to teachers, on both a preservice and in-service basis, the instruction and guidance necessary for their professional development.

Educators and politicians who deal with public issues of education like to believe that assessment stimulates the adoption of more effective teaching methods, as well as harnessing students to the tasks of learning (Griswald, 2005; Kim & Sunderman, 2005). That view proved to be more wish fulfillment than reality. Classroom assessment through testing is frequently intended to assist teachers to meet their bureaucratic responsibilities for documentation rather than to support student learning. Testing is also employed as a mechanism of control over the young. Political leaders subject to public accountability feel compelled to cite school grades as the one measure of learning understood and approved by their constituents without entering into convoluted explanations as to the goals or preferred methods of assessment (Sarason, 1995, 2006). Assessment and its products (most often some number or letter grade) thereby occupies a place of high public visibility compared to the very low profile of teaching methods that constitute a significant part of the process of education.

Summative and Formative Assessment

The distinction between summative assessment intended to provide educators with information about what students learned in a given topic up to a certain point, and formative assessment directed at helping students proceed further with their learning

has been around for many years. Formative assessment is not widely used as yet and still requires considerable research and attention from researchers and thinkers in education (Roos & Hamilton, 2005). Some authors advocate an elaborate approach of how to restructure the instructional process, including assessment tied to each lesson that will determine before the beginning of a new instructional unit just what knowledge students have of that topic, and then plan instruction according to that information (Fullan, Hill, & Crevola, 2006). That suggestion sounds particularly well adapted to the teaching of specific skills in elementary schools, most notably literacy and numeracy (i.e., reading and arithmetic), which are the subjects cited by Fullan and associates in their book. It sounds less than feasible, and not necessarily or particularly productive, for secondary education in most academic subjects studied in schools that are not based on a distinct developmental sequence of knowledge. A moderate or high level of prior knowledge is not a prerequisite for acquiring new knowledge in many domains of intellectual pursuit. Prior knowledge always helps learners obtain a broader view or deeper understanding of the subject at hand, and may help them learn the new subject more quickly, but the relative absence of prior knowledge need not impede the acquisition of new knowledge.

The word “relative” is critical. Students have some knowledge, however vague, of a multitude of phenomena. No one is a *tabula rasa*. Testing for prior knowledge is not required to ascertain if students in secondary and tertiary schools are able to identify where the domain of new knowledge is located in their world, to feel that they can possibly connect to that domain by virtue of its importance for their lives or the society in which they live. People without any knowledge of any details can appreciate, let us say, the need to understand the motives or methods of terrorists. Teenagers today have sufficient reference in their own experience and sufficient potential interest in the subject to investigate, or learn about, the events and background of 9/11, as well as the approach to combating terrorism undertaken by some democratic nations. Students will be able to study the complex ideas associated with Samuel Huntington’s concept of the “clash of cultures.” That concept can be subject to analysis, discussion, and debate against the background of historical developments in our day as in the wars between Islamic and Christian nations in earlier centuries, even if students had no substantial prior knowledge of these events and their consequences.

One form of alternative assessment that took root in many schools is the use of portfolios where students’ academic work over a long period of time is collected and judged on the basis of relevant criteria. That judgment can be made by a small team of teachers in order to be reliable, and not rely exclusively on the judgment of one teacher. The relentless press of time in schools with overambitious curricula can give teachers committed to the use of portfolios a sense of helplessness in trying to cope with the problems posed by this approach. Like grades, portfolios must be completed according to the school schedule for submitting grades that will be communicated to parents. Allocation of time resources that assist teachers to fulfill this task is a prerequisite for the long-term adoption of this form of alternative assessment as well as the acquisition of the knowledge and skills required (Hargreaves, Earl, & Schmidt, 2002). In fact, whenever a school considers alternative

methods of organization, instruction, or assessment, the space–time restrictions, and the lack of skills on the part of teachers who never employed the methods prior to that time, will interfere with their implementation. Suddenly schools are asked to undertake methods of assessment that do not fit into the time slots or instructional procedures allocated by a bureaucratically run organization. Schools' bureaucracy stresses uniformity in procedures as the preferred road to efficiency and predetermined products. Precisely the same encounter with the lack of time and skill (including professional concepts) occurs when schools are asked to adopt alternative teaching methods, such as various forms of cooperative learning. Only a broad systems view of the school that entails a serious review of how resources are to be allocated to achieve high-level products can extract the school from its dilemma. One approach to the school as a social system appears in Chapter 8.

More Alternative Approaches to Assessment

There are a host of other methods of assessment, all of which entail judgments of teachers and/or fellow students. Conferences with students, essays, independent studies, interviews, inventions, journals, observations, peer evaluation, portfolios, presentations by students, projects, reports, self-evaluations, videos, experiments, dramatizations, simulations, role plays, and construction of models, murals, drawings, and exhibitions are all examples of alternative evaluations (Kim & Sunderman, 2005; Sharan & Sharan, 1992; Sizer, 1993). They afford students an opportunity to express far more of the substance of what they learn and understand, and of what they create, than the short answers that must be produced on a test.

Students' self-assessment and peer assessment in groups (usually not as isolated individuals) are often insightful and motivating for students. Occasionally, criteria for self- or peer assessment can be set up in advance, before students undertake the learning project. Sometimes, formulation of the assessment criteria by students must wait until the project is concluded. Students can involve the teacher as well! If teachers believe that the students have left out an important element, they should suggest including that element, of course. By and large, teachers will find that students' criteria for evaluating their work reflect a good grasp of the subject they were studying and its meaning (Black, Harrison, Lee, Marshall, & William, 2003; Sharan & Sharan, 1992).

Peer assessment can be a classic example of formative assessment when students are given an opportunity to present their work to their group every so often, albeit not too often. On such occasions, peers can offer comments of a variety of sorts and not limit their remarks to criticism. These comments can serve as a basis for rethinking or improving the work that was presented. One brake on excessive criticism by peers is the knowledge that all members of the group are scheduled to present their work. It is to everyone's benefit to be accurate and still cautious of not alienating their colleagues. Presentations can reflect students' progress as well as reveal mistakes in thinking, formulation, or even fact. Mistakes of those kinds are

critical for enhancing learning, so the peer-review sessions can stimulate further learning and better understanding of the work accomplished up to date. If students create an atmosphere of mutual trust and reliability in their comments, they can build one of the best assessment systems that can be had.

The products adults produce in many walks of life are constantly judged by experts or by the public without undergoing a written test. People often select the kind of work or form of expression they are capable of performing. The world of work offers them a range of options that accommodates different talents and styles of functioning, although an appropriate avenue of expression may not exist for every single individual. No society could possibly afford to see vast numbers of its members experience failure in everyday life because they are unable to pass a specific kind of written test.

By comparison to ordinary daily life for adults, however, schools thus far offer an exceedingly narrow range of expressive modes and media for students to demonstrate the nature of what they have learned. The range of their expressive and creative abilities is not unlike that found in the general population, a fact that schools are a long way from recognizing formally (Hargreaves, Earl, & Schmidt, 2002; Wolf, Bixby, Glenn, & Gardner, 1991). Such variability in expressive talents or abilities is manifest in any large population, with or without multiethnic or multinational composition. Of course, the latter might expand the range of learning and expressive abilities considerably. In that sense, the rationale of alternative assessment is identical to the rationale for multiple methods of teaching needed to replace the dominant verbal presentation-recitation method.

All of the alternative assessment methods involve teachers in collaborative decision-making sessions with students and with colleagues, and occasionally with parents as well (Allen, 1998; Hargreaves, Earl, & Schmidt, 2002; Sharan, Shachar, & Levine, 1999). Musical or dramatic performances embody the entire breadth of the performers' skills and comprehension of the music or of the dramatic role, and not just what the student memorizes for the performance. A panel of judges often evaluates performances by students. Sarason (1999) has also explored the essential features of teaching as a performing art. Conservatories of music or schools of drama where written tests are largely irrelevant have practiced public performance as the principle form of assessment for generations. Written tests for musicians, actors, sculptors, painters, and so forth do not provide a means of expression that bears some essential relationship to the kind of knowledge that was acquired during the process of learning. Particularly evident in the music and drama tradition is the planned use of students' performances as an integral part of the process of learning, rather than as an end in itself. Exhibitions can perform the same role for the plastic arts. Students of music are called upon often to appear in recitals or mini-concerts as part of their musical education, and not exclusively for the edification or entertainment of the audience.

Teachers of music or drama are able to judge the quality of their students' performance because they are experts in the medium of expression being employed, such as instrumental performances or dramatic presentations. Those teachers need not acquire a set of skills that are distinct in any way from the performance itself.

Playing a piano sonata embodies all of the student's understanding and mastery of the music and its execution, and the piano teacher has mastered all of those elements. Not so regarding the use of alternative assessment techniques in education. We assume that teachers have mastered the subject matter, but they may not be acquainted with the specific technique of expressing that knowledge through media such as portfolios, inventions, simulations, videos, and so forth. Those methods of presenting knowledge require technical knowledge because they differ considerably from typical academic modes of expression that are primarily some form of a written document and which teachers are able to judge easily. That technical knowledge must be acquired in addition to teachers' mastery of the substance of their subject.

Of course, music and drama are aimed almost entirely at giving performances to the public in one form or another as their primary mode of expression, as exhibitions are for painters or sculptors, whereas school learning does not share that goal. Nevertheless, alternative assessment methods for school have inherited some aspects of the concept of the exhibition or of public performance cultivated by music, drama, and other arts.

Chapter 8

A Systems Approach to Organization and Instruction in Schools

Systems Integrate, Bureaucracies Separate

An examination of the school as a community naturally leads us to note the relationship between systems and communities. Communities are systems by virtue of the interconnectedness that characterizes their interpersonal and intrainstitutional connections. Some systems are not communities, such as armies, industries, commercial enterprises, hospitals, and so forth (Sharan, Shachar, & Levine, 1999), although as happens frequently, communities may be formed spontaneously within those systems. The news media have a penchant for citing “the international community” of nations, even though anyone would be hard-pressed to identify how they constitute a community in light of the competition or animosity so rampant between many nations. A quick glance at the UN and its proceedings will verify that view.

A social systems approach to school organization seeks ways of connecting people, departments, and subjects rather than separating them as generally practiced in light of bureaucratic theory. Systems theory emphasizes the free flow of information between parts of the system, which often entails direct contact between those parts or people. Organizations as systems rely heavily on the ongoing flow of feedback regarding their operations and the use of this feedback for problem-solving and decision-making (Kaufmann, 1980). Significant problems facing the organization, primarily those stemming from organizational policy, most often have more than one solution. The road to that solution is best identified by teams of participants rather than by a solo leader. Teams are far more effective than individuals for suggesting alternative solutions to complex problems, and all schools bar none are confronted by a myriad of complex policy problems all the time.

Foremost among these problems is the challenge of making day-to-day instruction meaningful for students. The conduct of a school with many hundreds, and sometimes thousands, of students and dozens of teachers whose time should be invested constructively in the pursuit of knowledge *ipso facto* arouses countless questions and problems; coping with those problems demands persistent attention from many of the people involved and a wide range of alternative solutions. The functioning of teams for feedback and problem-solving in a variety of domains

(class scheduling, teaching teams, multidisciplinary curricular studies, special projects, etc.) can inject a high degree of flexibility into the school's operation so that the diverse needs of teachers and students can be met in a satisfying and edifying way. The No Child Left Behind (NCLB) Act may not have initially sought to support any particular form of classroom instruction, but some investigators agree that the press for accountability of the NCLB legislation can be met, in part at least, by the adoption of the instructional principles and procedures emphasized in the approach to instruction of the Group Investigation method (Marx & Harris, 2006; Sharan & Sharan, 1992).

In contrast, many schools "solve" these problems by conforming to a mandated or inherited policy that the schools apply as uniformly as possible. What could very well be a majority of high schools in the world impose a quasi-military uniformity on their teachers and students, in terms of where to sit or stand, where to walk, how to teach, how to behave in the classroom, how to be tested, what to teach, how to learn, how to answer questions addressed to the class verbally by the teacher, and so forth. The goal is to retain maximum predictability in a situation that some people fear could potentially deteriorate into maximum disorganization unless a system of centralized control is strictly maintained. Visitors to high schools expect to see these regularities. Otherwise they are liable to think that there is a lack of discipline in the school. It simply does not occur to most observers that what they are seeing is the effects of mass control in what should be an atmosphere of inquiry, curiosity, and exchange of ideas and feelings among teachers and students, and not the sterility of a centralized and unified control system. More serious are "inner-city" schools where violence, drug abuse, gang warfare, and other antisocial phenomena have reduced the school to something more akin to a penal institution with the school premises monitored by uniformed guards, than to an academy in pursuit of learning. To date, these "schools" are still a minority.

Another feature of a systems approach, in addition to the functioning of different teams of teachers for problem-solving and the implementation of curriculum, is the need to view all the various subject matter departments and classes as connected and related to one another, rather than as self-contained units. Classes as well as individuals must be included in the continuous flow of information within the system. Today, most secondary schools make little or no attempt to relate or integrate the many subjects that students study at any given time. Subject matter integration and team teaching are two of the critical methods for dealing creatively with large classes.

A System Is Not a Collection

In order to transform a school from a collection of teachers, classrooms, disciplines, and students into an organization that functions as a social system, it is recommended that the principal and his/her administrative team view the entire school as interrelated sets of units, where the main components are: (1) the teaching staff, (2) the student body, (3) the contents (curriculum) to be studied, and (4) the educational experiences

(classroom instruction) to be employed (Sharan, Shachar, & Levine, 1999). The primary challenge confronting the school's leadership and staff is: How can these units or subsystems be related or combined to achieve maximum benefit for everyone, teachers and students? Any combination of elements, or parts of these elements, that can yield educational benefits for the staff and the students are to be pursued, without having these combinations determined in advance by age-based categories commonly accepted in schools and considered by academic educators as part of the school's "regularities," such as: 9th-, 10th-, or 11th-grade biology, physics, or history. Nor need the study of disciplinary or transdisciplinary domains be determined by an unalterable schedule of class sessions whose duration is immutable, such as 30-, 45-, or 60-minute classes. Similarly, students should not be viewed as collections of individuals, each one working in isolation from peers or other students of similar interests. One of the ironies of secondary schools is the separation of individuals, classes, teachers, classrooms, and subject matter departments from one another as if someone had added these elements together one after the other without having considered at all the need for their interaction. Is the cake supposed to emerge from just adding all of the components into a big bowl without mixing them?

Instead, the principles of relatedness, communication between elements (people), integrated domains of teaching and studying, flexible scheduling of classes, and cooperative teamwork among teachers and students can and should be applied to all levels of the school's functioning (Canady & Rettig, 1995; Carroll, 1990; Jenkins, 1996; Marx & Harris, 2006; Newmann & Wehlage, 1995; Sarason, 1997; Senge, 1990; Sharan, Shachar, & Levine, 1999; Sizer, 1993). Students, like teachers, can function in teams to pursue common goals or carry out projects cooperatively (Sharan, 1994). The image of the school as a conglomerate of elements decoupled from one another but all in the same place called a school has imprinted itself on people's minds to such a degree that they experience considerable difficulty in conceiving of the school in systems terms. It matters not that the word system is used all the time in referring to schools because the term is understood in its popular sense of some kind of organization and not in its "technical" meaning of an interconnected set of elements with feedback mechanisms, and so forth. The systems view of the school is emphasized here not because we wish to remain faithful to a theoretical concept, but because the concept points to the practical means for achieving extraordinarily valuable goals for the world of education in contrast with the bureaucratic conception that led to the prevailing structure of schools (Sarason, 1995; Sharan, Shachar, & Levine, 1999).

Weick (1969) defined an organization as a "group of groups." The school can certainly be viewed as an organization precisely in these terms, and much to the benefit of all concerned. The size of classes can be changed in many ways for short or long periods of time. Classes can be combined and led by a team of teachers or given a relatively short lecture (20 minutes) well prepared in advance by a single teacher, following which the class can be subdivided into relatively small groups for discussion or other activities associated with the topic, led by several adults. Classes can be divided into ten or more groups of four students per group, each group pursuing the same or different aspects of the topic under study, or even different topics if so desired (Sharan, 1994).

The school as a whole can be subdivided into “houses” (Sizer, 1993) that number 200 or 250 students, and a team of teachers assigned to each house, which is then subdivided in a variety of ways depending upon the prevailing circumstances (student interest, the availability of teachers’ aides, flexible scheduling allowing groups of students to spend several hours, or days, concentrated on a given project, etc.). Decisions regarding the manner in which the various houses within the school will function in terms of scheduling, instructional methods, curriculum, etc., must be made at the house level by the relevant staff, and not at the level of the entire school. Of course that does not rule out any opportunity for the school’s leadership from reaching agreement with the teachers in all of the houses regarding the nature of some core curriculum or common set of goals. Moreover, the houses can implement multiaged grouping or maintain traditional class levels, as deemed appropriate for the students involved. The school will be administered by a principal together with a steering committee consisting of representatives from all of the houses. No doubt that the larger the school, and the greater the number of subunits within the school, the more difficult is the task of leading and administering the school. Captains have a lot to learn before they can function as generals.

Classrooms as Social Systems

In the school that functions as a social system, the “large” class can be a viable environment for productive learning. That requires the introduction of team teaching, cooperative learning in small groups, broad domains of study, an investigatory approach to “the pursuit of knowledge” instead of the current “rapid information delivery service” typical of secondary schooling, flexible scheduling of classes to meet ongoing needs of students and teachers, and so forth. Teachers in high schools organized as they are today, with students meeting in classes limited to the 45- or 50-minute hour, and where teaching is almost exclusively by the presentation-recitation method, can hardly be expected to introduce cooperative learning methods into their teaching repertoire.

The basic concepts underlying cooperative learning methods derive from systems theory. Instead of individual students studying alone, where interstudent contact during class time is frowned upon and considered to be disruptive, small groups of students numbering three, four, or sometimes as many as five students work together as a group. They plan their studies together, cooperate in carrying out study projects, exchange information, discuss ideas, and so forth (Sharan, 1994; Sharan & Sharan, 1976, 1992; see also Marx & Harris, 2006). This pattern of multilateral communication within the small group, and on occasion between groups, lies at the essence of a social system. The group’s work to plan and implement study projects seeks to fulfill some of the salient psychological aspects of productive learning. In this fashion, students can be engaged in the process of learning and actually want to learn what their group has decided to study, within the constraints of the given classroom conditions and program of study. *“Students’ identification with one another in a collective*

pursuit of knowledge is probably one of the factors that account for the distinct increase in students' motivation to learn observed in classrooms with cooperative learning" (Sharan, Shachar, & Levine, 1999, p. 41; see Sharan & Shaulov, 1990).

A substantial body of experimental research has subjected cooperative learning methods to systematic classroom study in comparison with other methods of teaching, most prominently, the frontal, lecture method. Findings from these studies provide consistent support for the academic and social effectiveness of cooperative learning methods over traditional whole-class, direct instruction. Extensive bibliographies of this literature appear in Johnson and Johnson (1991), Sharan (1990), Sharan, Shachar, and Levine (1999), and Slavin (1990).

Teachers who have not received some systematic introduction to cooperative learning have been known to set up groups of 6–9 students or more. That fact discloses a basic lack of understanding about the purpose and functioning of small groups. Adults, and not only young people, would experience difficulty in working constructively in a committee of nine members. That number of participants demands advanced communication and organizational skills. Predictably, groups of nine members will subdivide into smaller units that facilitate communication and mutual assistance between group members. An organizational arrangement of that kind might be desirable in some cases, but it must be planned in advance so that the unit of nine members is not intended to function all the time as a single entity (Weick, 1969). Even with considerable guidance, students will find it difficult to make satisfactory progress in pursuit of the groups' goals when groups are of that size. It is recommended that groups be limited to three, four, or at most five students (Sharan & Sharan, 1976, 1992).

The cooperative small group gets input from the environment (teacher, sources of information, peers), it invests time and energy in working on its plan of study, which systems theory calls "throughput," and it produces a product appropriate to the nature of the task, which is its output. The small group, whose members are engaged in the process of interaction and communication, is the mini-system that operates within the framework of a larger system of the classroom. In turn, the classroom system is embedded in the still larger system of the school. At each level the distinctive processes of a social system should be evident.

First and foremost, the reference is to an ongoing connection and flow of information among the elements that comprise the system (von Bertalanffy, 1968). In schools and classrooms that condition is fulfilled by maintaining connections between groups of teachers and between groups of students in classrooms. That is one of the basic features lacking in bureaucratically organized classrooms and schools. When that feature of ongoing interaction and communication is fulfilled, classroom instruction is transformed completely. Student isolation is almost totally ended, except for one or two loners who do not find their place in any group. The teacher's role as the ever-flowing fountain of knowledge whose primary occupation consists of telling students what they are expected to learn and monitoring those who do not comply also undergoes an upheaval. Suddenly, teachers can move from one group to another and check to see if all the group members are participating actively, where they stand, and if they need help. Student anonymity is eliminated,

although the scope of mutual acquaintances in the classroom is not necessarily very wide. It does give each student a name within a group of peers and makes it possible for the student to be heard.

The organization and functioning of the teaching staff should display the same qualities of the free flow of information, peer cooperation, and interaction, and a sense of being heard by colleagues. From that point of view, the teaching staff and groups of students should be mirror images of one another. Indeed, teachers who do not practice cooperative staff work can hardly be expected to initiate and sustain that form of interaction among their students (Sarason, 1983, 1995; Senge, 1990; Sharan, Shachar, & Levine, 1999).

Can Schools Adopt New Principles of Organization?

Can schools move from adherence to the century-old model of bureaucratic organization to the dynamic organization envisioned in light of systems theory? Many commercial and industrial organizations have made this transformation in the past few decades, but schools lag far behind, and astute observers of the educational scene over the course of the past three or more decades remain skeptical (Sarason, 1990). Indeed, the professional and research literature on school change does not exude optimism. Nor have many schools, with notable exceptions particularly on the elementary level, demonstrated much responsiveness to new ideas that entail genuine, and not just cosmetic, changes, even when these changes hold out much promise for enormous improvement in the process of schooling (Fullan, 1993; Hopkins, Ainscow, & West, 1994).

One of the prominent reasons, albeit far from the only one, for the cautious view of schools' potential for change is the nature of teacher education. Publications on the subject of school change invariably stress the need to revamp current practices of teacher education to provide candidates for teaching with the concepts and skills needed for teaching in schools restructured along lines discussed in this book. Like school change itself, this is easier said than done. First and foremost, it impinges on another very conservative social institution, namely universities that will not eagerly embrace radical changes in their teacher education programs. Nor will faculty members in those programs be easily convinced to go through the "retooling" processes needed to change their professional behavior. Goodlad (1994) and Sarason (1983; see also Sarason, Davidson, & Blatt, 1986) recognized the central need for serious renewal of teacher education programs for ultimately implementing school change efforts. Darling-Hammond and Bransford (2005) have provided the most comprehensive treatment of that subject available to date. Within the confines of the present book we can do no better than to refer readers to those seminal works.

Perhaps some powerful force driven by factors outside the school system itself, such as statesmanship on the part of politicians, or concerted efforts by educators to influence the political officialdom of society (Hargreaves & Fullan, 1998), must descend upon the schools before the educational "powers that be" relinquish their hold on the reins of change. It seems that force must be a *deus ex politica*.

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