

The East Asian Version of Whole-Class Teaching

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One of the hallmarks of teaching in Japanese and Chinese classrooms is the whole-class method of teaching. The development of this approach, wherein the teacher leads all students in the class through the lesson, stands in marked contrast to efforts in Western countries, where there are increasing tendencies to reduce class size and individualize instruction by dividing students into small groups. In this article we attempt to describe the form of whole-class teaching found in Japanese and Chinese classrooms and to point out the benefits of this type of classroom organization and teaching when lessons are conducted by well-prepared, skilled teachers. Information was obtained from the authors' visits to East Asian classrooms and from data obtained in a large observational study involving narrative descriptions of the behavior of students and teachers.

AS Americans strive to improve the quality of the nation's education, many parents and educators argue that the solution lies in the adoption of a more child-centered, individualistic approach. This often means reducing class size and rejecting whole-class instruction as much as possible in favor of organ-

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izing the class into small groups. Having children work in small groups, the argument goes, allows dull lectures to be replaced by stimulating experiences of self-discovery. We argue that reducing the time spent on whole-class instruction can have harmful effects on children's learning because it reduces their opportunities to learn from experienced and knowledgeable adults—their teachers.

Faced with the relentless findings of cross-national studies showing American students falling below the average of other industrialized nations, we Americans are seeking models that will enable us to improve our status. In this quest, some of us have looked at East Asian education, a system that relies nearly solely on whole-class instruction and is producing students who are consistently among the world's top performers in comparative studies of academic achievement (e.g., Garden, 1987; Stevenson, Chen, & Lee, 1993; Stevenson et al., 1990). Some observers reject the East Asian teaching methods as being unacceptable; others—and we are among them—find many interesting ideas in East Asian teaching practices.

The Stereotype

If one asks the typical American about East Asian education, the answer usually conforms to a stereotyped image: tense, robotlike children and a stern, demanding teacher who stresses mechanical learning and rote memory. Lectures, choral recitation, and daily drill characterize the classes, they say, and resigned submission describes the students. The students are believed to lack creativity and problem-solving skills. It is suggested that they are able to attain their high levels of academic competence only by spending long hours in classes and grueling hours after school doing homework.

This high-pressure stereotype of whole-class instruction in East Asian schools may have been appropriate 50 years ago, but it is no longer a valid description of the typical East Asian classroom. Indeed, Westerners whom we have accompanied to classrooms in East Asia are shocked when they first visit the schools.

The Image

The first thing Western visitors to an East Asian elementary school comment about is how noisy the children are before school and during their frequent breaks between classes. Visitors inevitably say that they were unprepared for the wild activity that occurs on the playground, as scores or even hundreds of children engage in vigorous games of badminton, basketball, rope skipping, or tag. And they are surprised to know that the day is punctuated by 10- or 15-minute breaks that occur after every 40- to 45-minute class, so that nearly an hour a day is spent in recesses.

Noise continues as the children enter their classrooms. Then, with remarkable speed, the children assume a calm, attentive attitude when the teacher announces, "Let's begin." Expecting to find the teacher as the sole source of information and lone arbiter of what is correct, visitors are surprised by the frequency with which the teacher calls upon students for their opinions or explanations of a problem and then seeks the reaction of other students to what has just been suggested. Visitors who understand the language are impressed by the skill with which teachers guide students through the lessons. They often describe the teachers as skilled professionals who approach their classes with a confident intensity and who present interesting lessons to their large classes with enthusiasm and vigor. They are surprised by the teachers' clear organization of the lesson and their polished mastery of teaching techniques.

All teachers are not equally successful, of course, but the pattern described above is evident in the vast majority of classrooms. The teacher does not assume the role of lecturer but acts as an informed guide who knows that teaching is most effective if students participate in the lesson and if students realize that they may be called on during the course of the hour for their opinions and reactions.

We found that Japanese children spent most of their time at school working, watching, and listening together as a class; they were rarely divided into smaller groups. American children, on the other hand, spent as much time working alone as they did working together as a class. American children worked on individual activities 47% of the time. This percentage was much greater than that for Japanese children (28%).

The Data

We have written descriptions of the teaching practices we have observed in Japanese and Chinese elementary schools (Lee, Graham, & Stevenson, in press; Stevenson & Stigler, 1992; Stigler & Stevenson, 1991) and of formal observational studies we have conducted in Japanese, Chinese, and American kindergartens (Stevenson, Lee & Graham, 1993) and elementary schools (Stevenson et al., 1987). These reports provide the background for the descriptions we present in this article. (For additional descriptions of teaching in Japanese and Chinese classrooms, see Lewis, 1984, 1989; Peak, 1991; Rohlen, 1983; Sato & McGlaughlin, 1992; Stigler & Perry, 1988; White, 1988.)

We rely in the present report on data from a large observational study we conducted more recently in elementary school classrooms in East Asia and the United States. We will describe the East Asian approach to whole-class instruction by concentrating our attention first on Japanese schools; however,

the conclusions we draw from the descriptions of Japanese schools also apply to the Chinese schools we visited. In a later section we compare the Japanese and Chinese schools.

We conducted our research in the metropolitan areas of Chicago and of Sendai, a large city several hundred kilometers northeast of Tokyo. In each metropolitan area, observations were made in representative samples of schools, including some of the least successful and some of the most outstanding. Ten Sendai schools were chosen to represent the range of elementary schools found in a large, traditional Japanese city. Twenty schools were selected in the city of Chicago and its suburbs. The large racial, ethnic, and economic diversity found throughout the Chicago metropolitan area required the larger sample of schools. We will also refer to data from the metropolitan area of Beijing, China, a third site for this research.

The results we quote are based on 480 class periods of narrative descriptions of mathematics lessons made by observers who observed one class period on four separate occasions in each of two first-grade and two fifth-grade classrooms in each of the Japanese and American schools. Observations were made only during mathematics classes, but on the basis of our own experience and of the data we obtained in an earlier study (Stevenson et al., 1987), we believe that lessons in other subjects do not depart greatly in form or approach from what we describe.

The essential features of the observational methods used involved having two observers visit each classroom at the same time. One observer followed a time-sampling procedure and noted the presence of certain predefined categories of behavior during brief, successive observational periods. The second observer, focusing on the teacher and his or her interactions with the students, wrote a narrative description of what occurred during each lesson. Other people then coded the narrative observations according to a scheme developed on the basis of our earlier experience in East Asian and American classrooms.

WHOLE-CLASS INSTRUCTION

We focus our attention on whole-class instruction, a type of classroom organization in which teachers teach to the whole class. This occurred in over 95% of the Japanese lessons. American teachers also relied on whole-class instruction: first- and fifth-grade teachers worked with the whole class between 75% and 85% of the time.

The whole-class approach gives the largest number of children the greatest amount of their teachers' time. We know that children can learn on their own or in small groups. The question is whether children can learn as effectively

or as fruitfully when they work by themselves or in frequent interaction with their peers as they can through the well-planned guidance of a skilled and knowledgeable teacher. Learning under the guidance of someone who has familiarity with the material derived from earlier exposure can, under appropriate conditions, be an efficient and rewarding way to learn.

Organizing the classroom into small groups limits the opportunities that each individual has for benefiting from the presence of the teacher, who must move from group to group throughout the class period. This means that any child or group receives only a limited amount of the teacher's time. With effectively managed whole-class instruction, all children receive the same amount of instruction during every lesson.

A basic assumption behind whole-class instruction is that all children should be able to learn the content of the curriculum if they are taught well and study diligently. Japanese elementary school teachers plan their lessons with this in mind. They present each topic thoroughly and systematically so that all students are given adequate opportunity to master the material. If students do not understand the material the first day they know they will have another opportunity the next day, for the pace of instruction is geared to the rate at which the majority of the children give evidence of understanding the content of the lesson.

Neither tracking among classes nor grouping by ability within a class occurs in Japanese elementary schools, despite the fact that the average class size is around 40 pupils. Children at each grade level are assigned to classrooms randomly with the restriction that, to the degree possible, there is an equal number of boys and girls in each classroom. Children with profound disabilities are enrolled in special schools, but extra attention is seldom given during the regular class periods to children who may have special needs, such as slow learners or gifted children. These children's needs must be met outside regular classes through individual sessions with the teacher, after-school classes, private tutoring, or attendance at *hosyu juku* (special schools) that provide remedial help for students who are falling behind in their work. (A description of provisions made for the education of gifted and talented children in East Asia may be found in Stevenson, Lee, & Chen, 1994.)

Japanese elementary schools serve the residents of each region of the city. However, in contrast to the differentiation of neighborhoods according to socioeconomic status that occurs in the United States, wide strata of society are represented in a typical Japanese elementary school. Thus teachers must teach in a fashion that will accommodate differences in rate of learning and learning style among students. Teachers must respond to the fact that some children in the class learn rapidly whereas others take much longer to master the material. They must also employ techniques that will help students who

learn more effectively by seeing than by doing or who understand more readily by hearing than by reading.

The Lesson

A distinction must be made between a class period and a lesson. The former is often conceived of as a period of time devoted to the study of a particular topic. Class periods may begin where the last class left off and proceed in a loosely organized fashion. In contrast, lessons, as they are typically presented in East Asian classrooms, follow a well-organized, coherent sequence. As in a good book, the lesson consists of an introduction, development of the ideas, and a final period in which all the information is brought to some kind of a conclusion. Lessons presented in this fashion are both informative and enjoyable.

Americans' strong rejection of whole-class instruction is partly due to the manner in which this type of instruction is conducted in many American classrooms. The most common pattern in the United States is for whole-class instruction to consist of lectures by the teacher, followed by seat work where students practice the skills and attempt to apply the information the teacher has presented. The teacher is the prime purveyor of information and judge of the relevance or correctness of the students' responses. This is not the type of whole-class instruction found in most Japanese classrooms.

In Japan, the teacher may begin instruction by presenting a word problem and asking the students to discuss the meaning of the problem. The students are then given time to think about how they would go about solving the problem and are asked to write down their solutions. After this, the teacher asks several students to write their approaches on the board and to explain their answers. The students selected are ones who have proposed a type of response that the teacher wants to address and discuss with the whole class. Before doing this, however, the teacher calls on other students to evaluate the relevance and accuracy of what the first students have reported.

Additional activities may consist of the whole class's reading, responding to problems or questions contained on worksheets, and drawing illustrations of the concepts being discussed, or of the teacher's reading a brief selection to the class. The teacher summarizes, clarifies, or elaborates the students' answers in an effort to provide appropriate feedback and to facilitate the children's understanding of the topic.

Rather than retiring to a desk in the front of the room while the children are solving practice problems at their seats, the Japanese teacher moves about the room, commenting to individual students about their responses, giving hints to others, and helping children to clarify their understanding of what they are doing. The class typically ends with the teacher summarizing what

was accomplished and, when relevant, providing the rule or law governing the material or processes covered during the course of the lesson.

Whole-class instruction of this type makes great demands on teachers. To maintain an alert, responsive, interactive mode of teaching requires mastery of the material, excellent preparation, great energy, and patience. Teachers also need time to prepare lessons, to interact with other teachers in order to benefit from their experiences, to meet with individual students, and to conserve their energy.

It seems paradoxical that this type of teaching should characterize educational systems that accept large classes as the norm. However, this form of instruction is possible, in part, because Japan and other East Asian countries have chosen to keep class sizes large so that teachers can spend more time outside the classroom preparing lessons and performing other noninstructional duties.

The ratio of teachers to students in Japan is approximately the same as in countries where classes are limited to fewer than 30 students. This means that Japanese teachers actually are teaching during less than 70% of the 8 or more hours a day they are at school. Even so, the job is a demanding one and Japanese teachers complain about how hard they must work.

The Pattern of Instruction

The typical lesson in Japanese mathematics classes consisted of several three-part cycles: a period during which information is presented, an opportunity to practice what was learned, and some type of feedback about the relevance or correctness of the students' responses. Advantages of this three-step sequence are obvious. Practice, as we know, makes perfect. And appropriate feedback informs both the student about whether the practice needs to be modified and the teacher about whether the children have understood the material.

Most Japanese lessons consisted of repetitions of this three-step sequence, as is evident in Figure 1. American teachers also followed this sequence at times, but, as is the case with other types of teaching techniques we will discuss, did so much less often than the Japanese teachers.

Individual Differences

At first glance, whole-class instruction seems to take little account of the fact that every classroom contains slow learners and fast learners, highly motivated and less motivated children, and children who differ in their responsiveness to the teacher's efforts. Discussions of American education make much of this diversity and of the difficulties American teachers face in teaching heterogeneous groups.

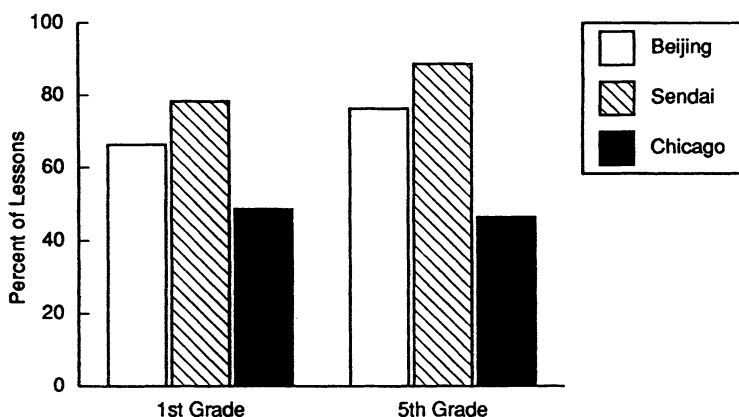


Figure 1. Percentage of Lessons in Which the Sequence of Instruction, Practice, and Feedback Is Used

Japanese teachers, like American teachers, must respond to individual differences among the children they are teaching. Because of the heterogeneity of Japanese neighborhoods and the absence of tracking, variability in Japanese children's performance on tests we have given is just as great as in American first-grade classrooms; by fifth grade, variability was even greater within the Japanese classrooms. We must emphasize that we are not talking about overall variability in the scores of Japanese students, but about *within-classroom* variability, the type of variability the individual teacher encounters. *Overall* variability in the scores of Japanese elementary-school children at the level of the whole city or region, but not of the individual classroom, tends to be less than is the case in the United States. This occurs for many reasons, including the presence of a national curriculum, textbooks that conform to that curriculum, similarity among teachers in teaching style, and the heterogeneity in socioeconomic status that exists within Japanese neighborhoods.

Japanese teachers put individual differences among children to good use. For example, they rely on individual differences among children to produce the diversity of answers upon which their preferred mode of instruction can build. Inappropriate or inefficient approaches discussed by some students may be just as informative to members of the class as hearing the most cogent and powerful approaches. For such reasons Japanese teachers are less impressed by the need for classes of small size than are most American teachers. They believe that without diversity of answers, students are deprived of

opportunities to consider the relative effectiveness of different types of solutions or suggestions.

Japanese teachers respond to individual differences among their students by using a variety of materials and techniques in order to engage and maintain children's involvement during each lesson. They also spend time outside class helping children who may need extra assistance. According to our interviews with teachers, they met with individual children outside of class three times as often as American teachers said they did (an overall average of half an hour compared to 10 minutes a day).

Another response to individual differences among students is to organize them in *han* (small groups). Rather than organize these groups so that they are homogeneous according to the students' level of achievement, membership is purposefully made as diverse as possible. All *han* in a classroom work on the same problem. By having slow learners work with fast learners, both types of student can benefit. Slow learners can observe the techniques of fast learners. Fast learners benefit from being forced to clarify their ideas as they try to explain concepts or operations to slow learners. Similarly, the intense interest and high motivation of some members of a small group may have a contagious effect and spread to other, less involved members. It is in this sense that Japanese teachers often practice the cooperative learning techniques espoused by many American educators. However, in contrast to many interpretations of cooperative learning that leave children to discover the basic concepts on their own, activities of the *han* are organized by and remain under the close surveillance and guidance of the teacher.

Members of the *han* work together in many other activities, such as in cleaning the classroom and serving food, and in games and discussions. Participation in the *han* is a central feature of the children's everyday lives in school and leads to a strong identification with the *han*, the class, and the school. Because of this identification with a group, the motivation of slow learners to work hard and perform well may be enhanced and the eagerness of the fast learners to help their slower classmates may be increased.

In addition to presenting information in different manners in an effort to accommodate differences in rate and type of learning, the teacher's use of different approaches has an alerting function for students. Every student in the class knows that he or she may be called upon to present and explain an answer to one of the teacher's questions or may be asked to evaluate the effectiveness of other students' answers. Knowing this, students are likely to remain alert and attentive to the teacher and to their classmates throughout the lesson. Part of the effectiveness of Japanese teaching appears to be due, therefore, to the fact that students are responsive to a much higher proportion

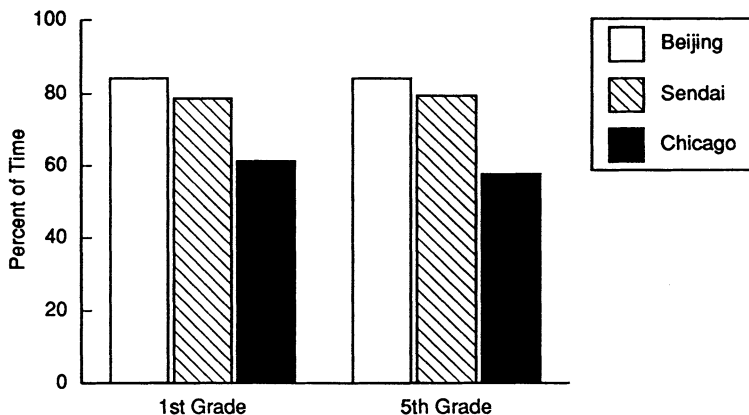


Figure 2. Percentage of the Time Children Were Attending to the Teacher or to the Task Defined by the Teacher

of what goes on during the course of their lessons than is the case with their American peers.

Paying Attention

Whole-group instruction clearly depends on the students' paying attention. Our observers who followed the time-sampling procedure devoted part of their observation to tracking the behavior of an individual child. The child was considered to be paying attention when he or she was either attending to the teacher or was engaged in the activity that had been defined by the teacher. It is evident in Figure 2 that the children's attention was remarkably high in East Asian classrooms.

There are several explanations of why Japanese children pay such close attention. First, basic subjects such as mathematics are taught in the morning when children are fresh. In American classrooms it is not unusual to observe these subjects being taught after lunch and in the afternoon when children are tired. Second, the frequent recesses appear to contribute to the children's ability to pay attention in class. Students become fatigued if they are required to participate in one class after another without a break. Third, teachers can bring greater vitality and enthusiasm to their teaching if they do not have to be in front of a class all day long. Finally, and perhaps most important, the structure of the Japanese lesson and the varied instructional approaches used by Japanese teachers are likely to engage children's attention and to direct their activities to a greater degree than occurs with the traditional lecture

method. Presenting a lesson effectively requires a skilled professional, one who has thought about the ways the concepts or ideas can be demonstrated, the kinds of questions that should be asked, and the times when individual practice or division into small groups can be most productive.

Teachers cannot maintain children's attention if the lesson is repetitious and uninteresting. Japanese teachers know this and, as has been discussed, use various strategies to avoid this pitfall. Even though each topic is taught slowly, instruction is not boring or repetitious. What impresses the observer is how lively and dynamic the lessons turn out to be. Japanese teachers also make strong efforts to present lessons in a meaningful context. Rather than beginning the lesson with definitions and rules, they typically begin the lesson by writing a series of questions on the blackboard or by describing a situation containing an everyday problem that needs to be solved. By engaging the children's interest in the general idea at the beginning of the lesson, teachers seek to increase children's motivation to attend to the details of the lesson. It is evident in Figure 3 that Japanese teachers are very successful in doing this; an effort was made in nearly all lessons to place them in a meaningful context.

Japanese teachers attempt to create classrooms where the contributions of all children are valued and the teacher seeks to be their knowledgeable, experienced guide. In fact, *teacher* is translated as *sensei* in Japanese, a word composed of two characters, the first meaning "before" and the second meaning "to live" or "to exist." We do not suggest that American teachers fail to act as well-prepared guides. They simply do so less frequently and consistently than Japanese teachers. The view that students must play an important role in producing, explaining, and evaluating solutions to problems not only helps to maintain children's close attention, it is also a critical element of successful whole-class instruction.

Seat Work as Practice

In classrooms throughout the world, the most common form of practice is seat work in which the students are given problems or exercises they are expected to complete at their seats. In our observations, seat work was assigned in over 90% of the Japanese lessons and in 85% of the American lessons. It occupied between 30% and 40% of the time children spent in their lessons in both Sendai and Chicago schools. There was an important difference, however, in the manner in which seat work was handled.

Japanese teachers used seatwork as a time for students to practice each segment of the lesson and for the teacher to evaluate the children's level of understanding. It was an integral part of each lesson. The Japanese seat work assignment typically consists of a few problems or questions involving the

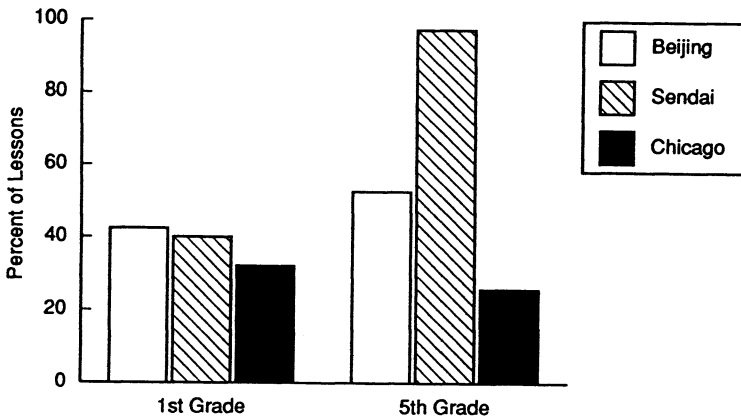


Figure 3. Percentage of Lessons in Which the Teacher Placed the Lesson in a Meaningful Context

application of what has been learned. Rather than being solvable by mechanically applying routines or formulas that have just been learned, the problems often require novel approaches. "Don't worry about getting the correct answer," the teacher may say, "just come up with your own way of solving the problem." Students, freed of the need to produce a specific solution and faced with nonroutine problems or questions, find seat work to be helpful rather than boring. The usefulness of seat work problems is enhanced by the fact that the teacher walks about the class, helping children correct mistakes, answering questions, and probing for more complete answers. In other words, seat work is not an excuse for abandoning the class, but provides an opportunity for the teacher to scrutinize each child's progress and to interact with individual students.

Observations recently made by one of us in a Japanese classroom indicate how a well-prepared, responsive teacher can give individual attention to children, even when 40 or more children must be faced every day. The teacher, following a common practice, had prepared a sheet containing the name of each child and the location of his or her seat. Below each name was a note, indicating the types of difficulties the child was having in mathematics. These notes served to alert the teacher to ways in which different children might need help. During the time children were engaged in seat work, the teacher glanced at a second sheet. On this sheet was a list of the common errors teachers had observed children to make in previous classes when the concept or information was being taught. The sheet also contained a summary of

techniques that had proved to be effective in responding to each type of error. By using memory aides such as these, teachers had a better understanding of how to help individual students and the class as a whole.

The American teachers tended to divide the class period into two parts, the first devoted to lecture and the second to seat work practice. Our impression is that American teachers, overburdened and fatigued, often use seat work as an opportunity to have a period of time by themselves. Whereas Japanese seat work nearly always involved teacher interaction with the children and discussion of the assignment, American teachers were much less likely to use seat work as an opportunity for feedback or discussion. This is evident in Figure 4, which contrasts the percentage of seat work assignments in which East Asian and American teachers provided the students some form of feedback.

The lack of immediate feedback after the seat work assignment in American classrooms was due, in part, to the fact that seat work was the last activity in half of the Chicago lessons—a situation that occurred in less than a quarter of the Japanese lessons. On these occasions, American children left the class not knowing whether they had solved their practice problems correctly because there was no opportunity for them to correct each other's papers or to discuss the problems. Teachers, in turn, often faced the task of preparing the next day's lesson without knowing whether the students had mastered the concepts being taught. Because it typically was poorly integrated with the rest of the lesson and failed to provide children with more than repetitive practice, seatwork often appeared to be an unproductive use of children's time in American classrooms.

Planning Time for the Teacher

Because Japanese teachers have a lighter teaching load than do American teachers, they have more time than American teachers to spend with individual students outside of class. Japanese elementary school teachers typically arrive at school around 8 in the morning and remain at school 8 or 9 hours a day. American teachers usually arrive by 8:30 and leave 6 1/2 hours later. According to the teachers' estimates, teachers in Chicago were at school an average of 36.5 hours a week and in Sendai, 53.5. Part of this difference was the result of the academic schedule; Japanese schools are open for half a day on Saturday. Although this practice has recently been modified so that schools are closed for one Saturday each month, the time spent in classes still adds up to a longer school week in Japan than in the United States.

Despite the fact that Japanese teachers spend more time at school, they actually are teaching in front of the class only a little more than 4 hours a day. American teachers, in contrast, are teaching nearly all of the time they are at

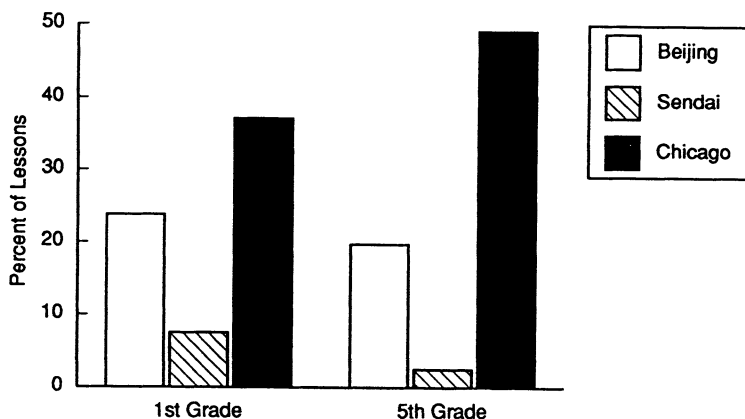


Figure 4. Percentage of Lessons in Which Teacher Did Not Provide Feedback to Children Concerning Their Seat Work

school. In Chicago, for example, 72% of the elementary school teachers were responsible for preparing four or more different lessons each day. Fifty-nine percent taught from five to seven courses.

The skill that Japanese teachers bring to their teaching is due in large part to the opportunities they have at school for interacting with other teachers, working together on lesson plans, and sharing ideas about teaching techniques. It is not uncommon for the mathematics teachers at a particular grade level to spend several hours planning a single lesson in collaboration with each other and under the tutelage of the head teacher of mathematics.

Chinese Teaching

Teaching in Chinese classrooms is similar in many ways to teaching in Japan. Chinese and Japanese teachers use similar styles of instruction. The whole class moves through the lesson together; teaching to the whole class occurred over 99% of the time in our observations of Chinese classrooms. Chinese children engage in rowdy behavior between classes, and classrooms are crowded. As in Japanese schools, children attend closely during the course of each lesson. In our study, conducted in 11 Beijing schools in the same manner as the study in Chicago and Sendai, students were attending to the teacher or to the task they were assigned 84% of the of time they were observed—slightly higher than the 80% found in Japan.

The three-step sequence of instruction-practice-feedback found so frequently in Japanese classrooms was also observed in more than three fourths

of the Chinese lessons. During these sequences, Chinese teachers, like the Japanese teachers, held the children's attention by varying the tasks. A single lesson might include using manipulatives, representing problems by using abstract equations, practicing calculations, and solving real-life problems. At times this involved listening to the teacher, and at other times the students were asked to engage in group discussions, to answer questions posed by the teacher, to present their solutions in front of the class, to complete seat work assignments, and to respond in unison as a whole group.

Despite the general similarities of Chinese and Japanese teaching practices, one important difference is immediately evident. Instruction proceeds at a much faster pace in Chinese than in Japanese classrooms. For example, Chinese students were engaged in an average of 20 different activities during each lesson compared to 14 during the Japanese (and 10 during the American) lessons. The fast pace means that many students are called upon to respond during each class period.

Chinese teachers, like Japanese teachers, emphasize conceptual understanding, but they expect students to think about problems and respond in a rapid-fire manner. During a typical Chinese lesson, 14 students were called on to respond to teachers' questions or to other students' answers. The corresponding number in Japanese classrooms was 8, and in American classrooms, 6. Every child in the Chinese classrooms knows that there is a high likelihood that he or she will be called upon during the course of the lesson and is aware of the importance of being alert and paying close attention.

What we have reported about Japanese classrooms, therefore, is relevant to the description of Chinese classrooms. The visitor is aware of being in a Chinese rather than a Japanese classroom primarily by the pace of the lessons, the alacrity with which students answer questions, and the teachers' expectations that rapid answering takes precedence over lengthy thought.

RELEVANCE FOR THE UNITED STATES

The argument is often advanced by American educators that one of the surest ways of improving American schools is to reduce class size. We believe this argument misses the point, for smaller classes do not necessarily mean that teachers will be able to pay more attention to individual students. After observing East Asian teaching practices and the outstanding levels of academic achievement attained by Japanese and Chinese students, we conclude that the problem in the United States does not lie in the size of the classes in our schools. Rather, we believe that the difficulties are derived from the fact that American teachers teach less effectively than they might, not because of

the size of the classes they teach, but because they are required to teach nearly continuously throughout the time schools are in session.

Effective teaching requires time for preparation and energy for imparting this information. Merely reducing class size is less likely to relieve the American problem than would reducing the teaching load. How can we expect teachers to be able to teach productively when we fail to provide them with the time necessary to develop well-planned lessons that deal with the subject matter in an interesting, coherent fashion? Until we realize that good teaching requires teachers who know the subject matter and have the time to organize their lessons effectively, we will continue to search for palliatives and will fail to acknowledge that the most important ingredient of good education is daily guidance of students by well-prepared teachers, rather than the size of the class or the frequency with which the class is broken down into small groups.

Attempts to attribute the poor performance of our students to the large size of elementary school classes is only one of the explanations shattered by careful consideration of what can happen in whole-class instruction. Many criticisms of whole-class teaching prove to be inappropriate. It is inappropriate to equate whole-class teaching with the way it is often exemplified in the United States: a tired teacher lecturing to an inattentive class. Nor is it portrayed properly through the stereotyped image of stern Asian drillmasters. Neither image accurately describes what can be accomplished when interesting lessons are presented in a well-organized fashion by a teacher who concentrates on involving all students in every lesson. Whole-class instruction ensures that each child will have the maximal opportunity to benefit from the teacher, because whether the students are working alone, in a group, or as a whole class, the teacher remains involved throughout the lesson as guide, interpreter, and ultimate source of information about the utility and relevance of students' ideas.

What we have observed in East Asian classrooms involves principles and approaches that would be regarded as sensible, productive teaching practices in any classroom. Indeed, when we describe them to American teachers, they insist that they already use such principles in their teaching. Our best teachers do work diligently to construct well-organized, meaningful lessons. But this occurs at great personal cost; in order to do this the teacher typically must work alone and at home after school hours.

We realize that practices that are effective in one culture cannot be transported intact to other, different cultures. Nevertheless, the study of teaching practices that apparently produce outstanding students merits our close scrutiny. We may require a mix of whole-class, group, and individualized instruction different from that found in cultures such as those in East

Asia, but before criticizing whole-class instruction as an unproductive approach to the education of young children, we can profit from considering the conditions under which this form of instruction can be highly effective.

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