

BUILDING AN EXCELLENT TEACHER CORPS: HOW JAPAN DOES IT

BY CAROL J. KINNEY

Because of the consistent high ranking of Japanese students in comparative international studies, it behooves us to continue to probe why this is so. We know there are many elements involved. These include a rigorous national curriculum, with strong incentives provided by examinations that are tied to that curriculum; deep cultural and family support for education and the widely held belief that hard work is more important than innate ability in determining how well a child does; a student body less beset by the often wrenching problems that stem from poverty on the one extreme and indulgence on the other; and the high quality of Japanese teachers. It is this latter factor that is explored in the article that follows.

Writing in this magazine six years ago, researchers Harold Stevenson and James Stigler—this country's preeminent authorities on the differences between Asian and American educational systems—made this observation: “We, of course, witnessed examples of excellent lessons in American classrooms. And there are, of course, individual differences among Asian teachers. But what has impressed

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us in our personal observations and in the data from our observational studies is how remarkably well most Asian teachers teach. It is the widespread excellence of Asian class lessons, the high level of performance of the average teacher; that is stunning.”

To account for this widespread excellence, we must look to the college preparation programs and exams required of aspiring Japanese teachers; their salaries, benefits, and working conditions as compared to other college graduates; their standing in society; their treatment as professionals in their schools; and last but not least, the vast array of opportunities to keep on learning throughout their careers, most markedly the rich collegial interaction that every profession requires if it is to build and refine its knowledge base.

The following article is adapted from an extensive series of background papers for the Case Study Project as part of the Third International Mathematics and Science Study (TIMSS), the results of which were announced earlier this year. The background papers include both a comprehensive review of the relevant literature and a case study component designed to provide more in-depth information on a number of topics involving three of the nearly fifty countries studied. The case study sites represent a sampling of regional variation within each nation as well as a sample of schools with high, middle, and low levels of academic achievement. In Japan, the primary research site was Naka

City, on the main island of Honshu, with secondary sites in the North (Kita City) and South (Minami City).

The preparation of the five-volume background papers was overseen and edited by Harold W. Stevenson and Shinying Lee, both of the Center for Human Growth and Development at the University of Michigan at Ann Arbor. Funding was provided by the U.S. Department of Education, through its National Center for Educational Statistics.

—EDITOR

HOW DO Japan's schools attempt to recruit, develop, and keep teachers who not only are highly motivated and like children but also have the requisite skills and knowledge? The answer was hinted at when a principal told me they must nurture all types of teachers through their various life stages. More directly, teachers and administrators described extensive training opportunities. Equally important, according to the teachers and administrators studied, the closely knit communities of teachers in each school that I observed and the continual sharing of information and casual banter that develops along with a regular rotation of teachers, provide an atmosphere of support and learning. Underlying the nurturing, training, and sharing described to me by the teachers interviewed in this study is a sense among teachers that there is some respect for their profession, competition to enter teaching jobs, an adequate salary, work hours that compare favorably to those in companies, chances for advancement and new responsibilities, and job security.

The teachers interviewed reported that they believe their profession is fairly well respected and of above-average pay, although not high paying. Their work lives are busy, but teachers also report some flexibility in their use of time. Teachers report that the amount of time they spend outside of the usual 8:00 A.M. to 5:00 P.M. workday depends on their personality, their goals, and their stage in life. In general, teachers reported that they are both responsible for and in control of most of what occurs in their schools. Although both teachers and administrators described a few circumstances when administrators assert control and assign teachers to tasks or schools that were not requested, teachers see most assignments as part of what they expected when they became teachers. Teachers are generally required to be at their schools for at least eight hours a day. Junior high school and high school teachers usually only teach four of the six hours of classes each day. Elementary school teachers sometimes teach more class hours and are expected to be at school for planning, meetings with other teachers, advising students, and socializing for about a half-hour before classes begin in the morning and for at least an hour after school ends in the afternoon. Most teachers reported that they do all their school-related work at the school, which contributes to much interaction among teachers.

Almost all teachers have graduated from four-year universities and are required to have taken many credits in their area of specialization. Teachers interact with other teachers, attend inservice training, and many voluntarily participate in small research and study groups. Novice teachers are assigned formal mentors during their first year on the job. The teachers interviewed reported that throughout their teaching years they look to other teach-

ers for guidance and help. Teachers told me they feel they are effective at the basic tasks of teaching, and they described being explicitly taught about lesson planning, the use of materials, and more basic skills such as how to write on the chalkboard. A variety of teaching techniques and presentation styles were observed, and most teachers demonstrated a substantial repertoire of methods. Most teachers interviewed expressed a desire to improve themselves and their ability to reach out to all students.

RELATIVE TO other jobs for college graduates in Japan, teaching provides comparable pay and high job autonomy. It is difficult to compare Japanese and American teachers' salaries directly because of different benefits and costs of living in the two countries. However, using an exchange rate of ¥125 per dollar, the average annual total monetary compensation for Japanese teachers was approximately \$42,600 at the elementary school level, \$42,000 at the junior high school level, and \$45,500 at the senior high school level in 1992 (Ministry of Education, Science, and Culture, 1995, p. 121). The average wages for all college graduates in Japan were approximately \$52,000 for men and \$34,000 for women across all industries (Statistics Bureau of the Management and Coordination Agency, 1995, p. 112), so for women, teachers' average salaries compare favorably. In Japan, the average annual total monetary compensation for beginning teachers at the elementary and junior high school levels was approximately \$25,000—the same as the average for college graduates overall (Statistics Bureau of the Management and Coordination Agency, 1995, p. 112).

Approximately 58 percent of elementary and 36 percent of junior high school teachers were female in 1992 (Ministry of Education, Science, and Culture, 1995, p. 119). Although elementary and junior high school teachers are hired by the local city, town, or village, prefectural governments pay half of all salaries in order to ensure uniformity of compensation within the prefecture. The compensation in each prefecture is based on the pay received by national school teachers, which is specified by national law (Ministry of Education, Science, and Culture, 1995, p. 121). Teachers also are eligible as civil servants for extra monetary allowances for dependents, financial adjustments (such as cost of living), housing, transportation, assignments to outlying areas, administrative positions, periodic costs (such as those incurred when traveling with sports teams), and diligent service.

The average length of service of teachers in Japan at the elementary, junior high, and high school levels in 1992 was between fifteen and sixteen years. The average teacher is about forty years old; less than 20 percent are under thirty, and only about 10 percent are over fifty-five years old (Ministry of Education, Science, and Culture, 1995).

Teachers must pass rigorous examinations to become teachers, usually taken after graduation from a four-year college program. Graduates from teacher-training universities included 63 percent of elementary, 43 percent of junior high, and 20 percent of high school teachers; the rest graduated from general universities. Approximately 20 percent of elementary, 10 percent of junior high, and 3 percent of high school teachers have two-year degrees; the rest have at least four-year degrees (Ministry of Education,

Science, & Culture, 1995). In order to obtain a teacher certificate of first class, held by all teachers with a bachelor's degree, elementary school teachers must have a minimum of eighteen college credits in their specialty subject and forty-one college credits in teaching. Junior and senior high school teachers must have forty college credits in their specialty subject and nineteen college credits in teaching. For example, a junior high school teacher of mathematics must take at least forty college credits in mathematics including twenty in some combination of algebra, geometry, analytical geometry, probability and statistics theory, and computers. Elementary school teachers are required to have taken a minimum of two college credits each in Japanese language, social studies, arithmetic, science, life environment studies, music, art and handicrafts, homemaking, and physical education (Ministry of Education, Science, & Culture, 1995). Although universities design their own teacher-training courses, the Ministry of Education, Science, and Culture, or *Monbusho*, certifies courses and provides oversight of the content of the courses and the teaching faculty at all certified universities. Teachers and administrators are able to focus on motivation and liking students as key qualities for becoming a good teacher partly because the academic standards attained by all prospective teachers in Japan are high.

It is hard to determine the level of prestige and respect that comes with the profession of teaching. A few teachers I interviewed complained that they are often blamed for many problems ranging from bullying to academic competition to students' lack of interest in their futures. Although students and parents may believe that the effort put forth by students is more important for achievement, teachers regard their teaching skills as essential, and they hold themselves and their colleagues to high standards of work. I found many teachers continually striving to be well-rounded models and competent teachers for their students. Despite relatively high levels of support, training, and respect, teachers were quick to wish for even more support, criticize training as too systematic, bemoan the fact that sufficient training does not occur in every school, and state that the status of teachers cannot be taken for granted. When asked directly about whether they feel the profession of teaching is respected, my interviewees generally answered that it was still a respected profession but not as much as long ago. The following excerpts are from a conversation with three fourth-grade teachers about the level of respect for teachers in Japanese society today:

Mr. A: If I'm outside, like on the subway, and it happens that a child comes up and says "sensei!" (teacher) to me, right? I don't like that.

Interviewer: Why is that?

Mr. A: I wonder. Somehow, to be thought of as a teacher, I don't like that. I feel that maybe that means I don't think my position is being seen well by society. Maybe it is because I don't think of it as good work.

Ms. B: I really don't like that. I can't quite explain it fully to everyone, but it would be good if how busy we are could be understood. No matter how I'm

seen, if I am trying as hard as I can and satisfying myself, I end up thinking that society doesn't totally grasp or understand our work.

But Mr. A. concluded that it was a dignified profession, after a long discussion of many aspects of their feelings about being referred to by students as "teacher" in public:

Mr. A: Parents think that those who teach their children are socially very important. When I go home to my own area, everyone knows that I am a teacher. If there is some problem, something in the neighborhood, like they need advice on the baseball team, or anything, they quickly come to me and ask me to do it. It's okay when you have a kind of dignity. People don't think, "Oh, he's a teacher" (said in a negative tone of voice). It isn't necessary to feel inferior. What I said earlier about being embarrassed when called "teacher" on the subway, that is somehow different. I guess I am just a bit shy.

Although these teachers do not necessarily like to be pointed out in public, they are still viewed as reliable people in their neighborhoods and are asked to be community representatives or leaders, which indicates a degree of respect for their position. These elementary school teachers believed that high school teachers were highly respected.

BECOMING A TEACHER in Japan today is quite competitive, although there is variation in the degree of competition depending on the level of school and the subject. In Naka, I was told that the ratio of applicants to those accepted for high school teachers is recently as high as thirty to one, depending on the city, type of school, and special area of competence. A math teacher pointed out that it is not as difficult for a candidate in the field of mathematics. For example, the student-teacher training began on the third day of my visit at Meiji High School. Thirty-two student teachers, all graduates of this high school, arrived to do their two-week training for certification. I was told by the vice principal and several teachers that it would not be unusual if none of these students actually were hired as teachers next year because of the stiff competition. However, of the thirty-two students, not one was aiming to be a math teacher.

Both the requirement of a college degree and the competition to enter the profession reinforce the high status of teaching. Competition is also rigorous at the elementary and junior high levels, although it is not quite as intense as for high school teachers. These levels have a combined application process, so even though teachers may expect to be assigned to elementary school and apply for that position, they may find themselves hired for a junior high school, or vice versa. According to a report published by the Naka City Public Schools, of qualified applicants who sat for the examination to become an elementary school teacher for the school year beginning in April 1995, 61 of 455, or 13.4 percent, were hired. For those applicants wishing to teach kindergarten or children with physical or mental handicaps there were 12.3 and 8.5 applicants respectively for each of these positions. In 1992, there were 3.2 applicants per position for elementary

schools nationally, 5.0 for junior high schools, and 6.4 for senior high schools (Ministry of Education, Science, and Culture, 1995, p. 122). With the economic downturn continuing through the 1990s, however, the rates have been increasing, probably because more college graduates who cannot find jobs in private industry aim for the security of a teaching position. Within Naka City junior high schools and high schools (separate from the prefectural schools examined in this study), the competitive rates ranged from 35-to-1 for social studies majors to approximately 10-to-1 and 9-to-1 for math and science majors, respectively. The least competitive positions appeared to be in technical and vocational fields, but those numbers are somewhat deceptive since decreasing student enrollments have been publicized and have led to fewer applicants overall for technical teaching positions. Administrators reported that the ratios of applicants to positions at the prefectural level were similar to those at the city levels for different school levels and fields.

The degree of competitiveness and the status of teachers vary with the overall economic situation: According to respondents who are administrators, teaching becomes a more desirable career when other jobs are less available or more unstable. A high school math teacher explained to me that when he became a teacher more than thirty-five years ago, most teachers were “rich, only people with a certain status. Now those kinds of people don’t go that way at all [become teachers].” He explained that at the beginning his salary was very low and, since he had to live off his salary rather than being independently wealthy like most teachers, it was difficult. He first worked at a commercial high school and many of the students took jobs after graduation at textile mills. They often encouraged him to quit teaching and to come work with them because they made so much more money! He felt the situation was better for teachers now. Another teacher told me, “Now the economy is bad so lots of people want to become teachers. But at that time (nineteen years ago when he took the examinations) there were only about two times as many (applicants as positions).” A math teacher at Meiji High School described the general hiring situation for teachers of mathematics:

At my time it wasn’t that difficult to become a teacher. Maybe it was quite different between math and other subjects. But for mathematics, there aren’t very many at all who have the license [the license is obtained through credits at college]. Of those people, those who try to become teachers are again a small percentage. So I didn’t really think it would be that much of a problem to become a teacher. Because it was within mathematics.

This teacher continued to say that it still isn’t difficult to get a job as a *mathematics* teacher because the coursework is so demanding and, thus, there aren’t many qualified applicants.

I haven’t yet had a student teacher in mathematics, they are that few. Even if you want to become one, a regular person can’t do it. Those who are just so-so at math won’t make it.

So, becoming a math or science teacher appears to be less

competitive, because the college course work and the employment examinations are difficult. Math and science teachers constitute a select group. In addition, high-achieving math and science students have many opportunities in industry that are unavailable to humanities students. As noted above, the competitive rates are currently nearer ten to one than the thirty or more applicants to each position seen in the humanities.

The principal at Matsu Elementary school, who had spent several years at the Naka City Board of Education and had been involved in hiring and promotions, remembered the selection process as follows:

There are various credits you take to get a teachers’ license.... Within universities they have thought a lot about the curriculum, and even if it is well constructed, not all students will necessarily develop along with it. The license isn’t enough in order to become a teacher; they have to take an examination. Next year there will be 170 Naka City elementary school teachers hired. According to yesterday’s newspaper, there are now about sixteen times that many who have applied. How we choose them, I think that is the second most important thing. It is hard to know what type of test is best. It’s not only a paper and pencil test. It is quite difficult to test how much teaching ability they have.

Academic ability alone does not allow an individual to enter teaching. The principal at Tancho Elementary school, who also had experience interviewing applicants, talked in detail about what he remembered about the procedures for selecting teachers. He described them as follows:

I guess it is about what kind of person they are. First there is a test of their abilities—in all of the subjects. For those who are above a certain basic level, we then have an interview. There we are looking at their personal character and their ideas toward education. Their way of thinking and ideas about children. Their kindness and thoughtfulness (*yasashisa* and *omoi-yari*). That is the most important for teachers. So we evaluate that at the interview. And then, only those who are employable are chosen. We present various problems. For example, “You are in the classroom, and now you are about to go on the school excursion. What cautions are you going to tell the children?” We have them think that the interview meeting is a classroom and to think of the interviewers as the children. There are about five of us there. For example, “Next week is the school trip. Among the five of us, one is sick, how shall we treat that person?” And we also ask them various common-sense questions about education. I said “common sense” right? Since they are trying to become teachers, we, of course, expect them to know all about the contents of the *Course of Study*. We ask them about the important points only. And through that sort of thing, we can tell if they are the sort of person who would be a good teacher of the students.

The description summarizes the contents of the screening process for new teachers. The process is lengthy and

conducted by older teachers with years of experience, like the two principals quoted above.

TRAINING takes place formally as directed and is provided by the city or prefectural board of education and also within individual schools. All prospective teachers spend two to four weeks in a school as part of their college training. The school in which they do this student teaching is usually either affiliated with their college or university or is one from which they graduated.

Training for novice teachers. Beginning in 1989, education authorities agreed to institute more extensive training for novice teachers. By 1992, all new teachers at national and public elementary, junior high, and high schools and at special education schools were receiving the first-year training. During their first year, all high school and junior high school teachers work a reduced teaching load of about ten hours of teaching a week and are expected to go to the Educational Center one day a week for training. Training involves visiting other schools and other education-related institutions and writing extensive lesson plans. Some of the trainees present lessons while others take the role of students and must write lengthy critiques. At the elementary school level, there are ninety hours of training time, sixty of which are within their school. The principal at Tancho told me that the training within the school was the most important because it is the closest to the teachers. He described how administrators carefully balance the mix of teachers at each grade level, especially if one is a novice teacher:

If there are three classes (at a particular grade), class one will be a veteran teacher, class two will be the new teacher, and class three will be a teacher in the middle (in terms of experience as a teacher).

This system ensures both an assigned mentor to each new teacher and a group of colleagues with varying levels of experience. The system attempts to reinforce sharing of information among teachers and the guidance of younger teachers by more experienced teachers.

On-going training. In Naka Prefecture, as in most prefectures in Japan, teachers spend extra time during their sixth and tenth and twentieth years at training sessions outside of their school. These sessions again provide a chance to interact with teachers at other schools who are at the same career stage. The sessions also usually provide some time to meet with others who teach the same subjects. Teachers also are required to submit lengthy lesson plans and other reports during these years. When a teacher becomes a grade-level head teacher or advances to other administrative positions, they also attend training sessions.

Teachers have chances during certain training experiences to visit major research centers and to see advanced laboratories and equipment that their schools might purchase. A few teachers complained that they have no chances to return to graduate school in order to update their science training; however, plans have been made since 1993 to allow up to 1,250 teachers to return to graduate school for one to two years (Ministry of Education, Science, and Culture, 1995, p. 128). All new teachers participate in a training session that involves overnight stays,

sometimes in the form of a cruise to cities in Japan with colleagues from other prefectures. Teachers also periodically participate in overnight outings devoted to training sessions in their subject area or on specific tasks, such as career guidance, within a school.

Two teachers in this study were also planning overseas training trips: nationally, among teachers older than thirty-five, 1,200 are sent overseas for thirty days and 3,800 are sent for sixteen days. Among teachers under thirty-five years of age, 180 teachers are sent abroad for sixty days (Ministry of Education, Science, and Culture, 1995, p. 129). In addition, some cities, such as Naka, have additional programs for overseas and other types of training. The vice principal at Shimogawa junior high school explained to me that in Naka City, seventy-five teachers are chosen each year among those with at least seventeen years of experience to be “researchers” (*kenkyuuiin*). Most people apply several times before being chosen, and an administrator’s recommendation is required to be eligible to apply. This is called “in-country exchange study,” and chosen teachers get time off from their own school to travel to a place of their choice within Japan for a few weeks of study during the year. One teacher is also chosen to go abroad from this group. There are also twenty-five younger teachers chosen for another program and they are called “research students” (*kenkyuuiinsei*). He told me that it is hard to get chosen and then the research itself is difficult. Most of the meetings among those chosen for these special research positions do not start until 6:00 P.M. or 7:00 P.M. on school nights, so the positions are time consuming.

A COMMON aspect of Japanese schools is the opportunity for teachers to observe each other. The architecture of most schools allows teachers to hear each others’ classes throughout the day. Teachers must interact regularly in the teachers’ room and on their way to classes. More informally, individuals seek each other out to talk about how best to solve problems and to get ideas for teaching and advising. Many teachers socialize during free time at the school and casually discuss more personal issues. Watching demonstration classes together is valued by teachers and administrators, and schools schedule these special classes as often as possible. Teachers also look for lessons left on chalkboards and other displays to better understand how their peers teach.

Teachers learn directly about each others’ plans and styles when they talk with each other in the teacher’s room and between class periods. For example, an elementary school teacher spent the climb to his fourth-floor classroom discussing a science lesson with another teacher, and two junior high school teachers spent the walk to their third-floor classrooms discussing student safety and how to prevent falls in the stairways and hallways. Teachers seemed adept at using their time together to learn and plan. Three sixth-grade teachers began their day by discussing details of the day’s biology experiment before the morning informational meeting. Then, during the ten-minute break, after they had all finished teaching the biology experiment, one teacher described how she used the TV monitor to show the microscope slides of good examples to the entire class. Another teacher said he wished he had done that, too, but he had forgotten how to

use the monitor. This brief interlude between classes turned into questioning about how best to reach all students, because one teacher reflected that he did not teach his class well enough and that many students did not get to see the results under the microscopes. This type of interaction seemed common among teachers. There seemed to be a general willingness to reflect on one's own weaknesses, to seek advice, and to share good ideas.

Two teachers, one at Naka Vocational High School and one at Matsu Elementary School, described in detail how they learned from their peers during more casual interactions. When I asked in a joint interview at Naka Vocational High School about what types of training is most useful, they responded as follows:

Younger teacher: I say that I'm troubled about this kind of thing, can I go see your class? We do that a lot.

Interviewer: Really? And you don't feel nervous about it? What if an older teacher comes to watch your class?

Younger teacher: If it is *him* [pointing to the older teacher], I don't worry. If it were a different person I might be uptight.

Older teacher: This year there are three new teachers at our school. And they aren't used to vocational school students, right? And then I say, "come see my class." And we talk about various kinds of things and that becomes training.

Although many teachers agreed that the best training was watching other teachers teach, they also reported that it was unusual to be allowed to observe casually. But at Naka this seemed to be the atmosphere that prevailed. For one class period, the above two teachers had me watch each of their first-year math classes for twenty-five minutes of the fifty minutes total and then wanted to hear all my opinions about differences in how the students behaved and the teachers taught. There was no animosity, only a mutual expectation of learning from each other.

One elementary school teacher commented, "We talk a lot. In the fourth grade, we are all great talkers (all three fourth-grade teachers laugh). Real talkers. It is really true that we just say what we want to say." Later, after discussing how much of this was her own personality versus a common experience of teachers, she continued:

Teacher: We have opinions. But we each add those in a gentle way (*sunao ni*) and we don't hesitate about those things. So, things like age or experience or our qualifications, those don't really come into play. When we have a grade meeting, or more than a grade meeting, a meeting at school, she too can put forth her opinion (referring to the first-year teacher). But I have never had an experience when I couldn't do that, really.

Interviewer: That's good isn't it? That atmosphere?

Teacher: Right, and that atmosphere depends on human relations. Other than that, you can't do it. It is even good if we just go eat lunch together or something. To have time together and share the things we

are thinking about. And when we do that, we can decide on things, since we aren't with the children. So then we can talk about things together, anything.... We are always telling jokes and laughing together. But I think that kind of thing is really important. And because we have that, when there is something I need advice on, I can think that there are really people I can talk to. I am really grateful for that. So it is a good grade. But really, I have had that all along. That's why this school is a school like this.

The older teacher who had taught at several schools disagreed slightly and pointed out that not all schools have such good relationships, saying, "There are some people who really are problematic. And when those people are in your grade, it is a problem." The novice teacher continued to comment on how important the casual socializing is to her learning as a teacher:

At first I came to school feeling really nervous. And when I heard that I would be in fourth grade, I wondered what it would mean. But from the start, we went to eat lunch together (these were the days before classes began), and everyday, everyday, they talked together with me. So very quickly I felt comfortable.

At Chuo Junior High School there were chances to observe other teachers in a formal setting. The vice principal told me:

Twice a year within the entire school we have someone give a class and everyone observes and reflects on it. For a junior high school that is rather rare. We are the kind of school that can do that. And here we also have a teachers' meeting in the morning, and also in the afternoon; it is that sort of place.

He was proud that their school can take the time to observe classes together twice a year and have an extra afternoon meeting everyday. All the schools strive to have some demonstration classes each year and, as mentioned above, teachers regularly have chances to observe demonstration classes during periodic inservice training.

Teachers also observe other teachers' classrooms and attempt to get ideas from chalkboards and other displays. For example, one teacher at Hasu Elementary School who was known for his ability to produce quick, entertaining sketches, periodically sneaked into various classrooms and drew a picture on their chalkboard. When I asked him about this, he pointed out that it was also a good opportunity for him to observe how other teachers were using their classrooms and what lessons were on their chalkboards.

Throughout my interviews, when asked about what makes a good teacher, I heard that people can become good teachers through learning from others and having many types of experiences. Specific skills such as ways to use materials are taught to teachers either informally by experienced teachers, or formally through inservice training. One elementary teacher carefully described the typical way to learn necessary classroom skills:

One of the teachers who is good at art demonstrated various ways to use the art supplies—how to use

this and how to hold that. That teacher taught us about that. And last year another teacher taught us about calligraphy materials, how to use them. That part of teaching—like writing on the board, for example—is difficult. Especially when they are things that require you to use your body. For example, we teach physical education and things here, too. Even if you are taught about it, it doesn't mean you can do it well, but in elementary school there are a lot of teachers who are good at these various things and there are lots of chances to learn those sorts of things.

Her description of learning various teaching skills emphasized the importance of having a variety of teachers in the school and the seemingly easy way teachers learn from each other. After observing one fourth-grade physical education class where the teacher in her mid-thirties skillfully demonstrated somersaults of various kinds, I remarked to her that she was quite a good gymnast. She replied that she really wasn't, but had been practicing basic gymnastics with a teacher who had some training, and over the past few years had developed enough skill to teach the class well. She went on to complain about how much her body ached during this part of the year when she was teaching gymnastics!

Even writing on the chalkboard was described as a skill to be mastered from peers. Learning how to write on the chalkboard in a way that conveys the main ideas of the lesson was described as an important skill for all teachers. One elementary school teacher explained how she measured this skill and why it is so necessary. To her, a clear chalkboard presentation is useful to both students and to other teachers:

During my first year, I was always told by various older teachers about the correct way to write on the chalkboard. For example, first always write the purpose (*midashi*)—what we will be studying. The children may not be looking at it, but by looking at the chalkboard, they can tell what we did during this one hour. The main point is on the board and is useful for note taking. Various teachers also come to my room and see what I have written. We will look in and see. It doesn't have to be something great, but is a reference, and for others looking at it as a reference, it is really useful.

Elementary and junior high science teachers reported that they are not assisted by extra staff. At Shimogawa a teacher described how they prepare a budget for science materials and order the materials. He said they cannot do as many experiments for biology, partly because materials must be very fresh, and it is difficult to schedule all the classes and prepare the materials in a timely fashion on his own. During chemistry and physics sections they do more experiments. The teacher at Chuo Junior High School also told me that he has no help. He and another teacher share the science responsibilities in each grade. For example, when he had done the preparation and the experiment, he leaves things for the other teacher and the reverse. But this year he has all three third-year classes, so he has to do all the preparations on his own.

At the elementary school level, too, I observed teachers in the same grade level sharing preparations and supplies for science projects. In addition, two experienced teachers were involved in the production of a teachers' handbook to accompany the science textbooks. One told me:

It's for the teachers who aren't science majors. It has everything written out right in order so when they teach it to the children they can do the bare minimum of science teaching.

This teacher added a note to the teachers' guidebook draft after the class I observed. He was teaching the children about the necessity of scales for weighing things and suddenly had the idea to have a child stand with his hands out like a scale and try guessing the relative weights of different numbers of paper clips in each hand. The teacher had one boy close his eyes and try to guess which hand had more weight and to the other children's great delight, the boy guessed incorrectly two out of three times. Through this entertaining action, he demonstrated the necessity of scales for weighing differences that humans are unable to perceive accurately. This is the sort of tip that they include in the teachers' guidebook that carefully follows the textbook lessons and is a classic example of how teachers' academic knowledge is continually replenished through interactions with other teachers. □

REFERENCES

- Ministry of Education, Science, and Culture, International Affairs Planning Division (1995). Teacher training and professional development in Japan. In L. Darling-Hammond, L. & V. L. Cobb, Eds. *Teacher preparation and professional development in APEC members: A comparative study*. New York: Teachers College Press.
- Ministry of Labor (1991). *Yearbook of labor statistics*. Tokyo.
- Moriyoshi, N. (1994). *Teacher training and teachers' lives in Japan*. Unpublished manuscript. Ann Arbor: University of Michigan.
- Naka City Public Schools. (1995). *Kyoin Bosuu [Teacher Recruitment Brochure]*. Naka City: Author.
- Statistics Bureau of the Management and Coordination Agency (1995). *Japan statistical yearbook*. Tokyo.
- Usui, H. (1995). *Differences in teacher classroom behaviors in USA and Japan: A field note*. Unpublished paper. Hokkaido University of Education.